

# REDCAR ENERGY CENTRE APPENDIX 8.3

## Water Framework Directive Assessment



WFD Assessment  
D01  
July 2020

## GLOSSARY

Term	Description
C&I	Commercial and Industrial waste
CoCP	Code of Construction Practice
CSA	Coastal Sensitive Area
DBA	Desk Based Assessment
EfW	Energy from Waste
EIA	Environmental Impact Assessment
EQR	Ecological Quality Ratio
EQSD	Environmental Quality Standards Directive
ERF	Energy Recovery Facility
ES	Environmental Statement
HMWB	Heavily Modified Water Body
IBA	Incinerator Bottom Ash
IEF	Important Ecological Feature
INNS	Invasive Non-Native Species
FRA	Flood Risk Assessment
HRA	Habitats Regulation Assessment
LNR	Local Nature Reserve
MSW	Municipal Solid Waste
MWe	Mega Watts of electricity
NNR	National Nature Reserve
OS	Ordnance Survey
RBMP	River Basin Management Plan
REC	Redcar Energy Centre
RDF	Refuse Derived Fuel
SPA	Special Protection Area
UKCP18	UK Climate Projections 2018
WFD	Water Framework Directive



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Annex A WFD Scoping Assessment  
 Annex B Surface Water Discharge Layout

# 1 INTRODUCTION

## 1.1 Background

- 1.1.1 This Water Framework Directive (WFD) Assessment is a technical appendix to the Environmental Statement (ES), which has been prepared in accordance with the Town and Country Planning (Environment Impact Assessment) (EIA) Regulations 2017 (as amended) for the proposed development of a waste-to-energy plant, Redcar Energy Centre (REC).
- 1.1.2 The proposed REC Application Site is located approximately 4.5 km west of Redcar town centre and approximately 8.5 km to the north east of Middlesbrough town centre (Figure 1.1: Site Location **Error! Reference source not found.**). The Application Site occupies an area of approximately 10.1 hectares (ha) and currently forms part of the demise of Redcar Bulk Terminal industrial land. Redcar Bulk Terminal is a privately-run dock at the mouth of the Tees Estuary in North Yorkshire. The port is used for the transshipment of coal and coke (both inward and outward flows). The north and north eastern boundaries of the Application Site are formed by an earth bund approximately 2 to 3 metres high, beyond which is an area of sand dunes associated with Coatham Sands. Coatham Sands is separated from the mudflats of Bran Sands along the mouth of the Tees Estuary by an area of reclaimed land known as South Gare.



**Figure 1.1: Site Location**

- 1.1.3 The closest watercourse to the Application Site is the River Tees, which flows in a northerly direction approximately 870 metres to the west of the site and discharges into the North Sea. The River Tees is fed by a complex network of Main Rivers, ordinary watercourses and drainage ditches with water



features (ponds, drainage ditches) falling within a 1 km radius of the Application Site. The River Tees forms part of the Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar.

- 1.1.4 As outlined in section 3 of this report the WFD (Council Directive 2000/60/EC establishing a framework for community action in the field of water policy) was adopted by the European Commission in December 2000. The WFD is transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations).
- 1.1.5 Whilst the EIA process is an efficient mechanism to gather the relevant information for a WFD compliance assessment, it still needs to be interpreted in relation to the WFD objectives. According to Environment Agency guidance, impacts of biology, chemistry and hydromorphology need to be considered in relation to WFD status classes and reported under a specific WFD section in any environmental statement or report produced or in a separate WFD compliance report (Environment Agency, 2010). Therefore, a WFD compliance assessment has been undertaken to demonstrate the potential impact on WFD receptors caused by the different activities associated with the proposed REC Application Site in the context of the environmental objectives of any affected WFD surface water bodies. The compliance assessment also offers the opportunity to inform the detailed design of the proposed development to avoid, minimise, mitigate or compensate for the risks to the environmental objectives of WFD surface water receptors where the risk assessment determines that the activities have the potential to:
- i. cause a surface water body to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening; and
  - ii. prevent or undermine action to get surface water bodies to good status (e.g. compromise the programme of measures put in place to achieve the ultimate water body objective).

## 1.2 WFD Assessment Methodology

- 1.1.6 In compliance with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations), this WFD Assessment adheres to guidance from the Environment Agency (2017) on WFD Assessment of estuarine (transitional) and coastal waters, 'Clearing the waters for All' (<https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>). WFD Assessment is undertaken in three stages:
- screening – excludes any activities that do not need to go through the scoping or impact assessment stages
  - scoping – identifies the receptors that are potentially at risk from your activity and need impact assessment
  - impact assessment – considers the potential impacts of your activity, identifies ways to avoid or minimise impacts, and shows if your activity may cause deterioration or jeopardise the water body achieving good status

## 1.3 Information Sources

- 1.1.7 The information used in the preparation of this appendix is set out in Table.

**Table 1.1: Information sources**

Source	Data	Information consulted/provided
Environment Agency	Environment Agency catchment data explorer	Water body classification, overall status, ecological status, biological elements, physico-chemical elements, hydro-morphology and chemical classification WFD objectives for water bodies Programme of Measures for water bodies
	WFD Water body Summary Tables	Water body status, objectives, hydro-morphology, protected areas, sensitive habitats
	Northumbria River Basin Management Plan	Overview of the River Basin District and programme of measures
	Water body spatial data	River, Transitional, Coastal water body layers
	Water Framework Directive assessment: estuarine and coastal waters	'Clearing the Waters for All' guidance
Defra	Interactive map Magic Maps	Defra Interactive map Magic Maps – maps of water bodies, habitats and protected areas

## 2 LEGISLATION AND GUIDANCE

### 2.1 Water Framework Directive

- 2.1.1 The WFD (Council Directive 2000/60/EC establishing a framework for community action in the field of water policy) was adopted by the European Commission in December 2000. The WFD requires that all European Union Member States prevent deterioration and protect, enhance and restore all bodies of water. This means that Member States must ensure that new development does not adversely impact upon the status of aquatic ecosystems, and that it must address historical modifications that are already impacting a water body.
- 2.1.2 The WFD was transposed into national law by means of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 which have been repealed and replaced by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations), subject to transitional arrangements. These regulations provide for the implementation of the WFD through the designation of all surface waters (rivers, lakes, transitional (estuarine) and coastal waters) and groundwaters as water bodies and the establishment of targets to achieve good ecological status by 2015, or where justified, by 2021 or 2027.
- 2.1.3 The WFD applies to all water bodies, including those that are both natural and man-made. The consideration of the proposals under the WFD will therefore apply to all surface water bodies that have the potential to be impacted by the proposed development.

#### Water Body Classification

- 2.1.4 The WFD specifies the quality elements that are used to assess the ecological and chemical status of a water body. Quality elements are generally biological (e.g. fish, invertebrates, macrophytes) or chemical (e.g. heavy metals, pesticides, nutrients). Classifications indicate where the quality of the environment is good, where it may need improvement, and what may need to be improved. They can also be used, over the years, to plan improvements, show trends and to monitor the effectiveness of the programme of measures identified. There are two status classifications which are commonly reported, ecological and chemical.
- 2.1.5 Chemical status is assessed from compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances. These are known as 'Annex X' substances as they were originally listed in Annex X of the Water Framework Directive, which has now been superseded by the Environmental Quality Standards Directive (2008/105/EC). Chemical status is recorded as 'good' or 'fail'. Chemical status for a water body is determined by the worst scoring chemical (one-out-all-out approach).
- 2.1.6 Ecological status classifications can be composed of up to four different assessments:
- An assessment of status indicated by a biological quality element such as fish, invertebrates or algae. The presence of invasive species is also assessed as a separate test;
  - An assessment of compliance with environmental standards for supporting physico-chemical conditions, such as dissolved oxygen, phosphorus or ammonia;
  - An assessment of compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic (these are known as 'Annex VIII' substances); and
  - in determining high status only: A series of tests to make sure that hydromorphology is largely undisturbed.

- 2.1.7 Ecological status is recorded as high, good, moderate, poor or bad. ‘High’ represents ‘largely undisturbed conditions’. Other classes show increasing deviation from undisturbed or reference conditions. This deviation must be expressed as an ecological quality ratio (EQR) which ranges from zero for bad status to one for high status. As with chemical status, ecological status is determined by the worst scoring component (one-out-all-out approach).
- 2.1.8 Biological status is a sub-set of ecological status where the results of the biological quality elements are assessed (and so ignore physico-chemical and Annex VIII substances and hydromorphology). The one-out-all-out rule is applied again here to give a biological status classification.
- 2.1.9 Overall status is a composite measure that looks at both ecological status and chemical status. So, it takes into account all four assessment types under ecological status (biology, physico-chemical, Annex VIII substances and hydromorphology) as well as incorporating the results of the chemical status assessment (priority substances). The one-out-all-out rule is applied again here, so a water body must be good or better ecological status, and good (pass) chemical status assessment to be given a good overall status.

## Water Body Objectives

- 2.1.10 The completion of a WFD assessment is a staged process where data on the study area and work proposals are assessed with respect to the requirements of the WFD to ascertain if the proposals will or will not have a detrimental impact on the status of water bodies associated with that site. If the assessment concludes, after taking account of the mitigation proposed, that the proposal may either reduce the quality status of the water bodies or prevent them from reaching the required status, then this represents a failure to achieve the WFD objectives and it should not go ahead unless justification for the new modification is demonstrated under Article 4.7 of the Directive. The four objectives of the WFD Assessment are:
- Objective 1: To prevent deterioration in the ecological status of the water body;
  - Objective 2: To prevent the introduction of impediment to the attainment of Good WFD status for the water body;
  - Objective 3: To ensure the attainment of the WFD objectives for the water body are not compromised; and
  - Objective 4: To ensure the achievement of WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

## 2.2 Guidance

- 2.2.1 There is no designated formal methodology for the assessment of projects in relation to undertaking WFD compliance assessments in England. There are, however, several sets of guidance that have been developed in relation to undertaking such assessments, written by the Environment Agency. The most relevant to the proposed development of a waste-to-energy plant comprise the aforementioned ‘Clearing the Waters for All’ (Environment Agency, 2017), which has been produced to assist in the assessment of the potential impact on estuarine (transitional) and coastal waters.



### 3 BASELINE ENVIRONMENT

#### 3.1 WFD Status Classification

- 3.1.1 The Application Site is located within a coastal interbasin in the Tees Lower and Estuary TRaC operational catchment. The closest water body (and that which the Application Site drains to) is the Tees transitional water body (Figure 3.1), which flows in a northerly direction approximately 870 metres to the west of the site and discharges into the North Sea. The water body is fed by a complex network of main rivers, ordinary watercourses and drainage ditches with water features (ponds, drainage ditches) falling within a 1 km radius of the Application Site.
- 3.1.2 The Northumbria RBMP notes that the River Tees rises in the Pennines and flows eastwards to the North Sea. The river’s initial journey starts from the high moors of the Pennines and continues over open and unpopulated moorland to Cow Green Reservoir. From the reservoir it flows through the farms and pastures of Teesdale towards Darlington. At this point the river widens and heads towards the heavily industrialised River Tees Estuary, with its large areas of land reclaimed from salt marshes and mudflats.
- 3.1.3 The Tees transitional waterbody has an approximate area of 1,144.5ha and has an overall waterbody status of Moderate (2016). The breakdown of status classification are provided in Table 3.1 below.

**Table 3.1: Breakdown of the contributing elements to the status classification of the Tees Lower and Estuary TRaC water body**

Water body affected (WFD Code)	Overall Status	Ecological Status	Chemical Status	Heavily Modified Water body (HMWB)	Higher sensitivity habitats present	Lower sensitivity habitats present	Phytoplankton status	History of harmful algae
Tees (GB510302509900) (part of the Lower and Estuary TraC operational catchment)	Moderate	Moderate	Fail	Yes	46.24ha Saltmarsh, 4.13ha Subtidal kelp beds	0.77ha cobbles, gravel and shingle, 400.13ha Intertidal soft sediment, 26.93ha Rocky shore, 4.13ha Subtidal rocky reef, 610.31ha Subtidal soft sediments	Good	Not monitored

- 3.1.4 The issues preventing the Tees transitional water body from reaching good status are pollution from waste water, physical modifications and pollution from towns, cities and transport. The key sectors identified as contributing to these issues are industry navigation, water industry and local and central government.

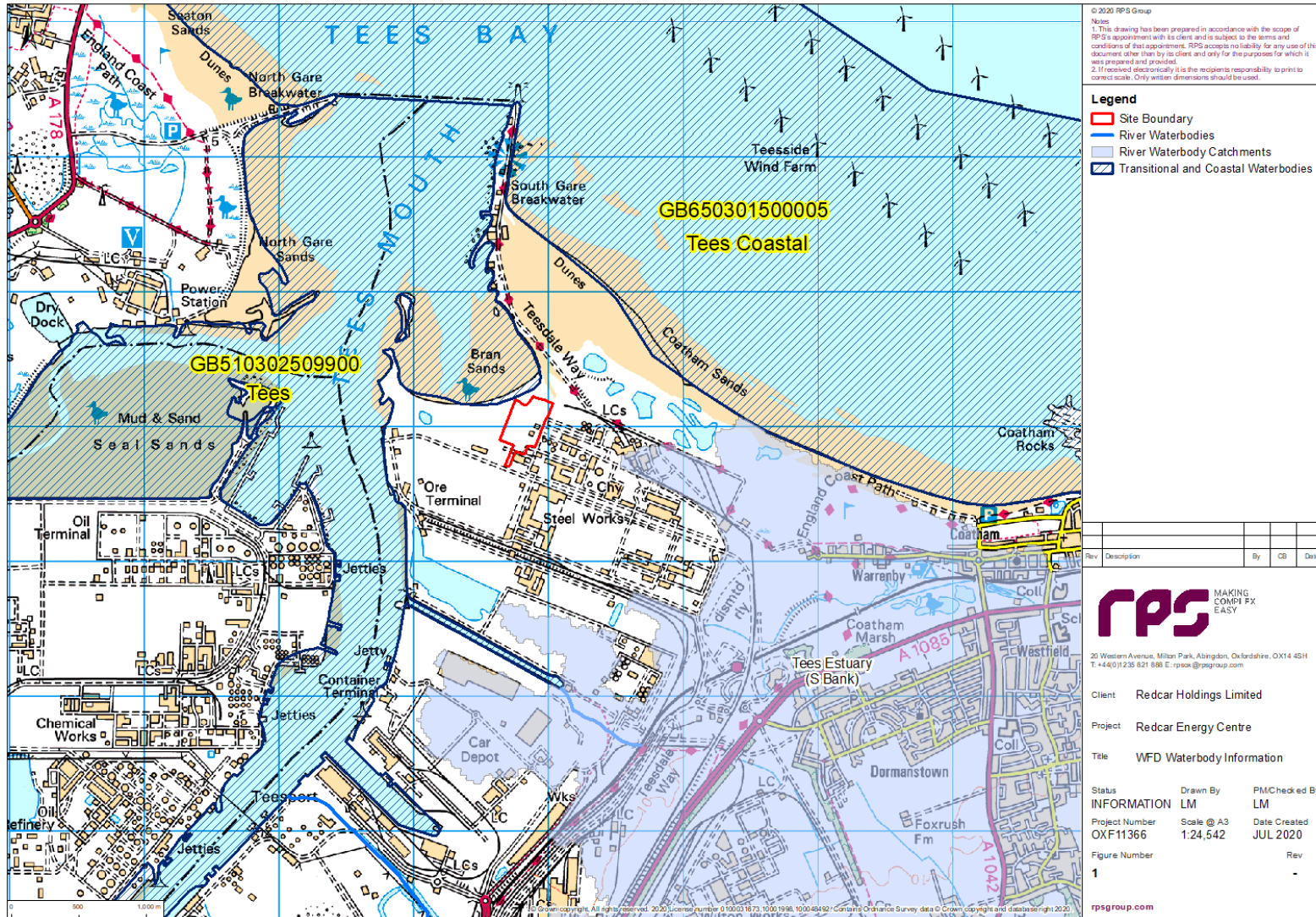


Figure 3.1: Location of Tees Estuary

## 4 WFD ASSESSMENT

### 4.1 Stage 1: Screening

- 4.1.1 In line with guidance from the Environment Agency (2017), the proposed development has been screened in for WFD assessment as it is not a classed as a low risk project, and it is not applicable to the self-service licencing procedure of the Marine Management Organisation (MMO).
- 4.1.2 The proposed activities which form the basis of this assessment are described in full in the Project Description (Chapter 2) and considers the aspects of the proposed development which have the potential to impact transitional and coastal waterbodies within one nautical mile of the coast. This information has been used in the scoping stage of the WFD Assessment, whereby the potential risks to each of the key receptor groups are considered. Full scoping tables are included in Annex A, and are presented in the templates format recommended by the Environment Agency for assessing impacts on transitional and coastal WFD water bodies (Environment Agency, 2017).

### 4.2 Project Description

#### Potential impacts during the construction phase

- 4.2.1 Potential impacts during the construction phase are mainly due to the alteration to the current surface water flow regimes as a consequence of the proposed development.
- 4.2.2 The timing of the project would be dependent on securing planning permission and the discharge of planning conditions. However, the indicative construction programme envisages approximately 32 months from start on site to end of commissioning and the work will be undertaken using a phased approach to efficiently manage the works.
- 4.2.3 The broad sequence of construction activities is likely to be:
- creation of the site barrier wall between the Application Site and Bran Sands
  - demolition, site clearance and enabling works;
  - infrastructure works, including construction of internal roads and drainage works;
  - construction of substructures;
  - erection of superstructures;
  - installation of process equipment;
  - completion of superstructures and building finishes;
  - commissioning; and
  - planting in accordance with the landscape strategy.
- 4.2.4 The enabling works may involve demolition and clearing of pre-existing structures and hard surfaces. The construction areas would be cleared of below ground infrastructure and foundations. Any topsoil and hardcore materials would be reused on the Application Site where possible.
- 4.2.5 Due to the industrial history of the Application Site, it is envisaged that there is a possibility of contaminated materials being encountered which may have the potential to impact on water quality. The Application Site has been subject to a Phase 1 Preliminary Risk Assessment. It identified the potential for soil and groundwater contamination to be present on the Application Site as a result of past uses including reclamation of land from the Tees Estuary by raising land levels using imported

materials and spoil tipping. (see Chapter 9: Geology, Hydrogeology and Contamination for more details).

- 4.2.6 Where onsite disturbance encounters contaminated materials, which were not identified at Preliminary Risk Assessment stage, an investigation and appropriate remediation strategy would be prepared and agreed with the Environment Agency and/ or Redcar & Cleveland Borough Council. A validation report would also be prepared to confirm that the remediation/mitigation measures had been effectively implemented.
- 4.2.7 The tidal flat deposits underlying the Application Site are classified by the Environment Agency as a Secondary Undifferentiated Aquifer. Under the Water Framework Directive, the Environment Agency's local River Basin Management Plan (Northumbrian River Basin Management Plan, Environment Agency 2015) classified groundwater chemical quality beneath the site as 'Poor' quality in 2015. There is a potential for contaminants (if present) within shallow soils to mobilise into the underlying Secondary Undifferentiated Aquifer (Tidal Flat Deposits) and the Secondary B Aquifer (Mercia Mudstone Group) as a result of exposed ground, ground disturbance, general earthworks, and construction of building foundations, etc. With the implementation of pre-construction phase mitigation measures, in particular site investigation and remediation (where required) to manage the risk to controlled waters receptors, the magnitude of any impact could be reduced to low. In addition, the site is not located in a Groundwater Source Protection Zone and is in an area of currently poor chemical groundwater quality. The groundwater on site is therefore considered to be low sensitivity and the potential for impact to the Tees Estuary is therefore low.
- 4.2.8 The construction phase would incorporate pollution prevention and flood response measures to ensure that the potential for any temporary effects on water quality are reduced as far as practicable.
- 4.2.9 Such measures will be implemented through the CoCP, (to be prepared post consent) which will require the measures set out in paragraph 4.4.6.

### Potential impacts during the operation phase

- 4.2.10 The proposed development includes the following key operational components:
- a Material Recovery Facility incorporating a Bulk Storage Facility;
  - an Energy Recovery Facility; and,
  - an Incinerator Bottom Ash Recycling Facility.
- 4.2.11 The key operational components of which the REC is comprised may operate as a single facility or as standalone projects independent of each other with some or no inter-relationship. The ERF may receive residual waste directly from the MRF and from elsewhere. The IBA Recycling Facility is intended to receive IBA directly from the ERF but could also import IBA from elsewhere. In addition to being well served by road, all three operational components have the potential to bring waste and materials into and out of the site using the rail and port infrastructure in the wider area.
- 4.2.12 The Materials Recovery Facility (MRF) will receive up to approximately 200,000 tonnes per annum (tpa) of MSW and/ or C&I waste.
- 4.2.13 Measures will be implemented to manage surface water runoff in accordance with the principles of the Outline Drainage Strategy (see Appendix 8.2) and are set out in paragraphs 4.4.8 to 4.4.20.

### Potential impacts during the demolition phase

- 4.2.14 On cessation of the activities the Application Site will be closed and decommissioned in a manner that avoids any pollution from decommissioning activities and ensures the site is returned to a satisfactory state.



- 4.2.15 During decommissioning/ demolition, the use of heavy vehicles and the removal of the infrastructure may lead to an increase in turbid runoff, reducing the water quality (with the potential to impact on WFD classification) in surrounding watercourses.
- 4.2.16 Other activities on site could lead to an alteration in surface water flow pathways leading to run-off from decommissioning areas that could affect nearby watercourses. However, the decommissioning process will include measures to intercept run-off and ensure that discharges from the site are controlled in quality and volume causing no degradation in WFD classification. This may include the use of settling tanks or ponds to remove sediment, temporary interceptors and a hydraulic brake.

### 4.3 Stage 2: Scoping

- 4.3.1 This section summarises the potential impacts associated with the construction, operation and demolition phases of the proposed development. The potential risks to each of the key receptor groups are considered. Full scoping tables are included in Annex A at the end of this report and the scoping summary is included below (Table 4.1), and is presented in the template provided by the Environment Agency for assessing impacts on transitional and coastal WFD water bodies (Environment Agency, 2017).

#### Scoping summary

- 4.3.2 The scoping assessment has been applied for each activity presented above and those identified within Chapter 2:Project Description. The potential impacts for each activity has informed the selection of the activities which are scoped into the assessment.
- 4.3.3 It is necessary to identify links between the proposed development and every quality element that could be affected. It is also necessary at this stage to consider activities and how they affect the morphological mitigation measures for those waterbodies, where applicable.
- 4.3.4 For all activities, the scoping phase involves considering each WFD quality element to identify where a possible causal link between the quality element and the activity exists. That is, where water body status or objectives could be affected at water body level by the proposed activities.

**Table 4.1: Stage 2 scoping summary**

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	No	The Tees Estuary is a heavily modified water body and the drainage outfall is proposed in a location of the Tees Estuary that is already affected by hard engineering structures
Biology: habitats	No	The proposed development is not located within the Tees Estuary water body and has no footprint in this water body which may be above the stated criteria.
Biology: fish	No	Fish migration through the estuary will not be at risk from the proposed activities and no marine dredging or piling activities are proposed
Water quality	Yes	<p>A broad range of potential pollutants, such as hydrocarbons i.e. fuels can accumulate on surfaces. These can subsequently be washed off during high rainfall/ storm events, polluting the receiving waterbodies and should therefore be assessed further.</p> <p>During the operation phase of the proposed development, mitigation measures will be in place to include pollution prevention measures such as bunding of storage areas, documenting spill procedures and keeping spill kits in the vicinity of storage, as well as closed surface water drainage system, as identified in the ES scoping report.</p> <p>During the construction phase, there is a potential risk of accumulation of standing water on the Application Site and accidental discharges of untreated run-off whilst the temporary and the operational surface water drainage system is being constructed.</p>



Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Protected areas	Yes	The Teesmouth and Cleveland Coast SPA (UK9006061) and the Seal Sands CSA (UKENCA98) are located within 2km of the proposed activities
Invasive non-native species	No	A phase 1 habitats survey undertaken at the proposed development site indicate the area to be species poor and of low value consisting primarily of bare ground, scattered and introduced scrub, including the Invasive Non-Native Species (INNS) Japanese Rose ( <i>Rosa rugosa</i> ). Japanese Rose is a non-native terrestrial species listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended). The distribution and extent of this species should be mapped shortly prior to treatment and site clearance works commencing to identify any change in distribution, however given the terrestrial nature of the species, it is unlikely to impact on the Tees Estuary.

## Receptors scoped out of Stage 3 Impact Assessment

### Hydromorphology

- 4.3.5 Under Article 4(3) of the WFD Member States can designate surface water bodies as ‘Heavily Modified Water Bodies’. A Heavily Modified Water Body (HMWB) means a body of surface water which, as a result of physical alterations by human activity, is substantially changed in character, as designated by the Member State in accordance with the provisions of Annex II. If the specified use of such a water body (e.g. flood defence, port development, water abstraction, land drainage) or the ‘wider environment’ would be significantly affected by the restoration measures required to achieve good ecological status, and if no other better, technically feasible, and cost-effective environmental options exist, then the environmental objective would be ‘Good Ecological Potential’. This is in recognition of the fact that the water body will not achieve the ecological status of an unmodified natural water body.
- 4.3.6 The Tees transitional water body (GB510302509900) is a Heavily Modified Water body (HMWB) for the use of flood protection and navigation, ports and harbours. Since this water body is heavily modified, its objective is to achieve a ‘good’ ecological potential classification for supporting biological elements.
- 4.3.7 The proposed development is not expected to cause a deterioration of the supporting hydromorphological conditions within the Tees transitional water body that would affect the biological elements, nor prevent the water body from meeting its WFD objectives. The physical modifications from existing industry, navigation and Local and Central Government will not be further affected by the proposed development nor will the development compromise the ability of the water body to achieve its environmental objectives in relation to hydromorphological conditions.

### Biology: habitats

- 4.3.8 The Tees transitional waterbody has an approximate area of 1,144.5ha and has an overall waterbody status of Moderate (2016). The waterbody contains 46.24ha of saltmarsh and 4.13ha of subtidal kelp beds, which are higher sensitivity habitats and 0.77ha of cobbles, gravel and shingle, 400.13ha of Intertidal soft sediment, 26.93ha of rocky shore, 4.13ha of subtidal rocky reef and 610.31ha of subtidal soft sediments, which are lower sensitivity habitats.
- 4.3.9 Information gathered from Chapter 2: Project Description and from the Defra Interactive map Magic Maps (<https://magic.defra.gov.uk/MagicMap.aspx>) indicate that the footprint of the proposed development is <0.5km<sup>2</sup>; is <1% of the waterbody’s area; is more than 500 metres from the higher

sensitivity habitats of saltmarsh and subtidal kelp beds; and is not more than 1% of any lower sensitivity habitat.

- 4.3.10 The proposed development is therefore not expected to cause a deterioration of the biological (habitats) elements within the Tees transitional water body, nor prevent the water body from meeting its WFD objectives.

### **Biology: angiosperms, macroalgae, invertebrates and fish**

- 4.3.11 The water body classifications for the biological quality elements 'angiosperms' (e.g. saltmarsh, seagrass) and 'macroalgae' have been assessed as Moderate (2013-2016) for the Tees transitional water body.
- 4.3.12 The biological quality element 'invertebrates' had been assessed as Moderate in 2013, Good in the 2014 classification and declined to Moderate in 2015 and 2016.
- 4.3.13 The biological quality element for 'fish' has been assessed as Good (2013-2016). A range of fish species are common in the area, including a number of commercially important and environmentally protected species (e.g. European smelt, river lamprey, Atlantic salmon). Potential impacts to fish include water quality impacts (e.g. elevated suspended sediments, release of contaminants, dissolved oxygen).
- 4.3.14 However, given that the proposed works will not be undertaken within the Tees Estuary, there is no potential to delay or prevent fish migration through the estuary. In addition, the construction works will be undertaken in a phased approach so will be small and temporary in nature.
- 4.3.15 The proposed development is therefore not expected to cause a deterioration of the biological (fish) elements within the Tees Estuary, nor prevent the water body from meeting its WFD objectives.

### **Invasive Non-Native Species (INNS)**

- 4.3.16 A phase 1 habitats survey undertaken at the proposed development site indicate the area to be species poor and of low value consisting primarily of bare ground, scattered and introduced scrub, including the Invasive Non-Native Species (INNS) Japanese Rose (*Rosa rugosa*). Japanese Rose is a non-native terrestrial species listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended).
- 4.3.17 The distribution and extent of this species should be mapped shortly prior to treatment and site clearance works commencing to identify any change in distribution
- 4.3.18 With the implementation of strict biosecurity measures to avoid the importing of non-native invasive species. Equipment, plant and PPE brought to site should be clean and free of material and vegetation. To ensure measures are implemented, it is recommended biosecurity toolbox talks are given to all site staff and rigorous inspections are undertaken of all equipment delivered to site, following the Check Clean and Dry campaign.
- 4.3.19 Where the importation of soils is required for use, the material will be subject to testing to ensure it is suitable for use for the landscaping areas within the proposed Application Site.
- 4.3.20 Given the terrestrial nature of the species and the mitigation measures in place to prevent importing and spread of INNS, there is not likely to be an impact on the Tees transitional water body with regards to INNS which would prevent it meeting its WFD objectives.

## 4.4 Stage 3: Impact Assessment

4.4.1 Based on the outcomes of the Stage 2 scoping assessment, this impact assessment establishes whether the activities associated with the proposed development of a waste-to-energy facility will:

- cause deterioration in water body status;
- impinge upon protected areas designated under the European Directives listed in Article 5 of the WFD; and/or
- prevent the achievement of WFD status objectives.

4.4.2 This is the stage of the assessment where evidence is provided to demonstrate that the proposed works are compliant. Specifically, for each quality element it must be shown that the activities scoped into the assessment will not cause a deterioration in status nor prevent the achievement of WFD status objectives. Where appropriate it is also the stage where design mitigation, aimed at reducing the effect of an activity, is discussed.

### Water quality

4.4.3 Information contained within Chapter 2: Project Description and Section 4.2 has identified that potential impacts to water quality may exist during the construction, operation and demolition phases of the development.

### Construction phase impacts and proposed mitigation measures

4.4.4 Potential impacts during the construction phase are mainly due to the alteration to the current surface water flow regimes as a consequence of the proposed development. There is a potential risk of accumulation of standing water on the Application Site and accidental discharges of untreated run-off whilst the temporary and the operational surface water drainage system is being constructed. Given that the estimated construction phase for the proposed development is estimated to be 32 months, the impacts associated with the construction phase must be assessed further.

4.4.5 The construction phase will be carried out in accordance with the measures outlined in the Code of Construction Practice (CoCP) that will be prepared post consent and agreed with Redcar and Cleveland Borough Council prior to the commencement of construction.

4.4.6 Measures to be included within the CoCP will include those consistent with current industry good practice for construction. As a minimum, the undertaker will ensure that all the statutory obligations under environment, health and safety legislation are fulfilled. In relation to mitigation against potential impacts to water quality, measures will include the following:

- a site investigation to confirm the presence/absence of soil and groundwater contamination. The scope of the investigation will be confirmed with the Environment Agency and/or Redbridge and Cleveland Borough Council;
- where the results of the site investigation determine that remediation is required to ensure that the Application Site is suitable for its proposed use, a remediation strategy will be prepared, the scope of which will be agreed with Environment Agency and/or Redbridge and Cleveland Borough Council. The remediation strategy will identify and prescribe appropriate mitigation / remediation requirements to manage the risk associated with ground contamination to all identified receptors during the operational phase;
- on completion of the mitigation/remediation works, a validation report will be prepared with testing to confirm that contaminants in soil and groundwater are at acceptable levels and that design measures for remediation/mitigation have been appropriately installed;

- site personnel will be given training to detect any unusual visual or odorous characteristics of soils and groundwater which could indicate the presence of previously unknown contamination. Should any previously unidentified contamination be detected at the Application Site during the construction phase, work in the area will temporarily cease and a suitability qualified environmental consultant will attend site to advise on an appropriate course of action. Details of the conditions encountered will be reported to Local Authority and the Environment Agency, and a suitable risk assessment and management strategy for dealing with the contamination will be submitted for approval by the Local Authority;
- installation of wheel washing facilities at the entrance to the construction compounds to mitigate against importing potential contaminants onsite;
- use of sediment fences along existing watercourses when working nearby to prevent sediment being washed into watercourses;
- covers for lorries transporting materials to / from site to prevent releases of dust/sediment to watercourses/drains;
- bulk storage areas to be secured and provided with secondary containment (in accordance with the Oil Storage Regulations and best practice);
- storage of oils and chemicals away from existing watercourses, including drainage ditches or ponds;
- concrete to be stored and handled appropriately to prevent release to drains;
- preparation of a flood response plan in the event of flooding during construction works. This will include a procedure for securing or relocating materials stored in bulk;
- treatment of any runoff water that gathers in the trenches will be pumped via settling tanks or ponds to remove any sediment;
- use of a documented spill procedure and use of spill kits kept in the vicinity of chemical/oil storage;
- storage of stockpiled materials on an impermeable surface to prevent leaching of contaminants and use of covers when not in use to prevent materials being dispersed and to protect from rain; and
- stockpiles will be kept to minimum possible sizes with gaps to allow surface water runoff to pass through.

4.4.7 The construction phase will include temporary drainage mitigation techniques including, but not limited to, run-off interceptor channels installed prior to the construction of the formal drainage to ensure that discharges from the proposed development are controlled in quality and volume during construction. This will include the use of settling tanks and /or ponds to remove sediment, temporary interceptors and hydraulic brakes.

### **Operation phase impacts and proposed mitigation measures**

4.4.8 During the operation phase of the proposed development there will be no direct discharges of chemicals into the water body. Discharge from the outfall will be of cleaned, treated water from the surface water drainage system.

4.4.9 Proposed run-off quality control for the site would include a combination of proprietary pollution interceptors, filter drains, and permeable paving. All drainage infrastructure would be suitably designed to prevent infiltration to prevent mobilisation of ground contaminants.

- 4.4.10 At the detailed design stage, a detailed water quality risk assessment would be carried out using the SuDS hazard mitigation indices in accordance with Chapter 26, of the CIRIA C753 SuDS Manual (CIRIA, 2015). Under this method of assessment, the roof areas, office car parking and yard areas are designated as having a low, medium and high pollution hazard level respectively.
- 4.4.11 An appropriate treatment train of SuDS features would be provided relative to the level of risk presented by each area. SuDS features would be suitably designed to reduce total suspended solids, hydrocarbons and metals from the runoff leaving the site.
- 4.4.12 Appropriate UKCP18 rainfall intensity allowances have been incorporated within the surface water drainage system design in order that the drainage network has capacity to store any increase in rainfall associated with climate change.
- 4.4.13 The runoff from the Materials Recovery Facility (MRF) will be stored in a sealed / closed drainage system, reused on site where possible, and exported via tanker or sewer connection for offsite treatment where necessary. The drainage layout strategy for the proposed development is included in Annex B.
- 4.4.14 In addition, a new foul water drainage system is required to serve the new site office and any associated catering facilities at the REC. It is proposed that the any new foul drainage from the facility will be connected to the existing pumped sewerage system referred to as the Redcar Flygt System.
- 4.4.15 The Environment Agency data confirms there are no discharge consents within 1km of the Application Site. The closest discharge consent is approximately 1.4 km from the Application Site and relate to surface water and treated sewage effluent. Risks from this discharge consent are considered to be low given the treated nature of the effluent. It is therefore unlikely that this discharge consent will significantly impact on water quality within the Tees transitional water body and given the nature of the discharge from the proposed REC, which is clean surface water drainage, there is no potential for cumulative or in combination effects.
- 4.4.16 Fire water runoff from the sprinkler discharge will be managed principally by containment within the REC. Proposed levels for the new development will be set such that all firefighting water runoff will be fully contained inside the building and bunker, thus removing the risk of uncontrolled contaminated runoff entering the surface water network and ultimately discharging to the Tees transitional water body. A failsafe attenuation pond for the receipt of firefighting water is to be provided on the north west corner of the site.
- 4.4.17 A manual penstock/valve will be located immediately downstream of the attenuation pond and in the penultimate chamber before leaving the site as a minimum to allow containment of firefighting water.
- 4.4.18 Fire water contained in such an event will be classed as contaminated runoff and hence require off-site disposal by tanker
- 4.4.19 There is the potential for contaminated surface runoff to be generated by the operation of the REC, in particular, from the IBA storage facility, and without appropriate management this could infiltrate into the ground and affect groundwater. The sensitivity of the groundwater underlying the Application Site is low. However, process drainage from the operational areas of the REC will be contained and managed on site. The operation of the REC will be in accordance with the measures set out in the Environmental Permit. This will limit the potential for any harmful contaminants associated with the waste materials to migrate to groundwater and ultimately to the Tees transitional water by shallow subsurface flows.
- 4.4.20 The operation of the REC will be regulated by an Environmental Permit issued by the Environment Agency prior to commencing operation. In issuing a permit to operate, the Environment Agency must be satisfied that the facility will not give rise to significant effects on the environment or human



health and that the proposals will utilise Best Available Techniques (BAT) to prevent, or where this is not possible, control effects. The permit will include conditions aimed at ensuring this is achieved throughout the life of the facility.

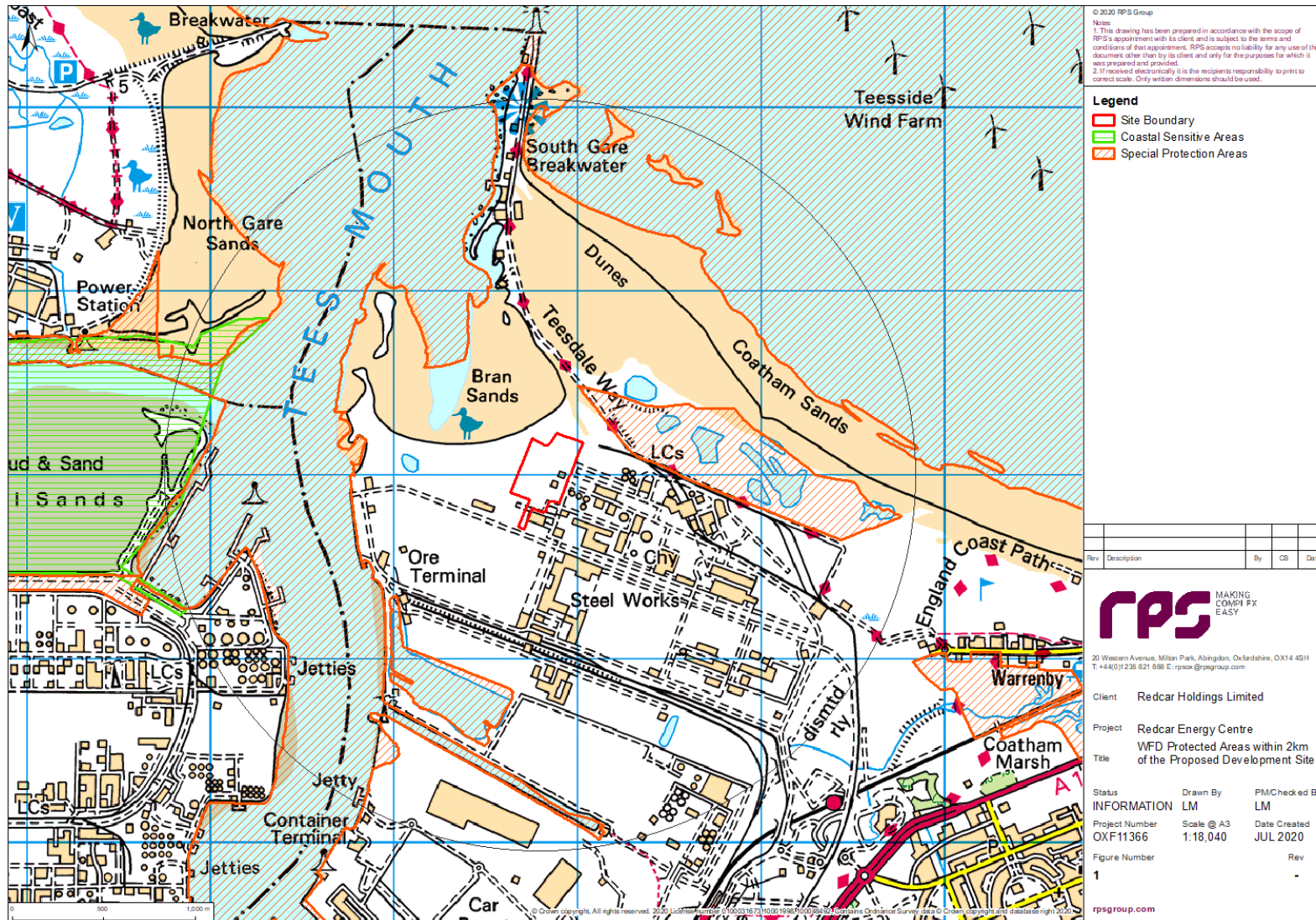
### Demolition phase impacts and proposed mitigation

- 4.4.21 During decommissioning/ demolition, the use of heavy vehicles and the removal of the infrastructure may lead to an increase in turbid runoff, reducing the water quality (in turn WFD classification) in surrounding watercourses. Other activities on site could lead to an alteration in surface water flow pathways leading to run-off from decommissioning areas that could affect nearby watercourses.
- 4.4.22 However, the decommissioning process will include measures to intercept run-off and ensure that discharges from the site are controlled in quality and volume causing no degradation in WFD classification. This may include the use of settling tanks or ponds to remove sediment, temporary interceptors and a hydraulic brake.

### Protected areas

- 4.4.23 Article 3 of the Habitats Directive (92/43/EEC, as amended) requires the establishment of a European network of important high-quality conservation sites known as Special Areas of Conservation (SACs) that will contribute to conserving habitats and species identified in Annexes I and II of the Directive. The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). In accordance with Article 4 of the EC Birds Directive (2009/147/EC), Special Protection Areas (SPAs) are strictly protected sites classified for rare and vulnerable birds (Annex I of the Directive), and for regularly occurring migratory species. Ramsar sites are wetlands of international importance designated under the Ramsar Convention (adopted in 1971 and came into force in 1975), providing a framework for the conservation and wise use of wetlands and their resources.
- 4.4.24 The Teesmouth and Cleveland Coast SPA (UK9006061) and the Seal Sands CSA (UKENCA98) are located within 2km of the proposed activities (Figure 4.1).
- 4.4.25 The nearest designated site to the proposed development is the Teesmouth and Cleveland Coast Special Protection Area and Ramsar site (Ref. No. 11068) classified on 15 August 1995 and subsequently extended on 31 March 2000. The boundary of the SPA is located within approximately 80 metres of the Application Site.
- 4.4.26 The Qualifying Features for this European designated site are:
- A132 *Recurvirostra avosetta*; Pied avocet (Breeding)
  - A143 *Calidris canutus*; Red knot (Non-breeding)
  - A151 *Calidris pugnax*; Ruff (Non-breeding)
  - A162 *Tringa totanus*; Common redshank (Non-breeding)
  - A191 *Sterna sandvicensis*; Sandwich tern (Non-breeding)
  - A193 *Sterna hirundo*; Common tern (Breeding)
  - A195 *Sterna albifrons*; Little tern (Breeding)
  - Waterbird assemblage
- 4.4.27 A Phase 1 habitat survey was undertaken in September 2019. The Application Site itself is devoid of any notable ecological habitats or species. Potential impacts to the qualifying features of the Application Site are discussed in Chapter 7: Ecology and Ornithology.

- 4.4.28 Whilst land to the north is of ecological significance, it is separated from the Application Site by a bund which is used by dog walkers throughout the day. The north and north eastern boundaries to the Application Site are formed by a 2 to 3 metre high earth bund beyond which is an area of sand dunes associated with Bran Sands, situated at the mouth of the Tees Estuary and Coatham Sands facing onto the North Sea, with the reclaimed land and breakwater of South Gare separating them.
- 4.4.29 The Seal Sands Coastal Sensitive Area is located approximately 1.9km to the west of the proposed Application Site, on the far side of the Tees Estuary and forms part of the SPA
- 4.4.30 Seal Sands is the only extensive area of intertidal mudflats on the east coast of England between Lindisfarne to the north and the Humber Estuary to the south. The flats support high densities of invertebrates important as prey for overwintering waterbirds, particularly shelduck, red knot and common redshank. Adjacent areas of grazing marsh are used for feeding and roosting when the mudflats are inundated at high tide. Smaller areas of intertidal mudflats important for waterbirds occur on both sides of the mouth of the estuary and at Greatham Creek adjacent to Cowpen Marsh. These areas of saltmarsh provide significant feeding and roosting habitat for many species of waterbird.
- 4.4.31 Given that the only discharge to surface waters from the Application Site will be from the surface water drainage system from external impermeable areas, which will be serviced by full retention oil interceptors, resulting in the discharge of suitably treated surface water run-off, the proposed development is unlikely to impact on water quality which could have a negative impact to nearby designated sites. As outlined above process water will be contained and re-used in the process or where necessary tankered away for off-site treatment.



**Figure 4.1: WFD Protected Areas within 2km of the proposed development site**

- 4.4.32 A new foul water drainage system is required to serve the REC site. It is proposed that the any new foul drainage from the facility will be connected to the existing pumped sewerage system referred to as the Redcar Flygt System.
- 4.4.33 Proposed run-off quality control for the site would include a combination of proprietary pollution interceptors, filter drains, and permeable paving. All drainage infrastructure would be suitably designed to prevent infiltration to prevent mobilisation of ground contaminants.
- 4.4.34 At the detailed design stage, a detailed water quality risk assessment would be carried out using the SuDS hazard mitigation indices in accordance with Chapter 26, of the CIRIA C753 SuDS Manual (CIRIA, 2015). Under this method of assessment, the roof areas, office car parking and yard areas are designated as having a low, medium and high pollution hazard level respectively.
- 4.4.35 An appropriate treatment train of SuDS features would be provided relative to the level of risk presented by each area. SuDS features would be suitably designed to reduce total suspended solids, hydrocarbons and metals from the runoff leaving the site.
- 4.4.36 The Environment Agency data confirms there are no discharge consents within 1km of the Application Site. The closest discharge consent is approximately 1.4 km from the Application Site and relate to surface water and treated sewage effluent. Risks from this discharge consent are considered to be low given the treated nature of the effluent. It is therefore unlikely that this discharge consent will impact on water quality within the Tees Estuary and on the nearby designated sites.
- 4.4.37 In addition, given that the intertidal habitat supports benthic invertebrates, which support bird populations within the SPA, a landscape strategy has been developed for the Application Site, which includes landscaping to reflect the wider ecology of the area and will be locally sourced.
- 4.4.38 A small waterbody with shallow slopes and marginal reeds will be included within the landscape strategy to provide suitable habitat for invertebrates such as dragonfly and damselfly to complete their lifecycle.

## 5 SUMMARY

- 5.1.1 A WFD Assessment has been undertaken for the proposed development of a Waste-to-Energy facility approximately 4.5 km west of Redcar town centre and approximately 8.5 km to the north east of Middlesbrough town centre. The assessment is based on the 'Clearing the Waters for All' guidance developed by the Environment Agency to ensure that those components of the project and the associated activities are assessed in the context of the quality elements that contribute to overall WFD status.
- 5.1.2 The key focus of the assessment was to ensure that the proposed development does not result in a deterioration in the current WFD status based on the 2015 baseline as reported in the Northumbria RBMP 2015-2021 and also to ensure that the project does not compromise the achievement of the WFD objectives for the improvement in the overall status of the surface water bodies which could be affected. The assessment also considers the protected areas linked to the water bodies in question and ensures that the protected area objectives are also unaffected.
- 5.1.3 The scoping stage of the WFD Assessment has concluded that there were a number of components and activities associated with the proposed development that represented a risk to the WFD status and objectives and therefore were scoped into the assessment. The relevant quality elements contributing to the overall status were also considered and how each activity could affect these.
- 5.1.4 The overall conclusion of the WFD Assessment, based on the baseline information, the relevant impact assessments and mitigation strategies proposed (documented in Chapter 2: Project Description and Section 4.2 of this report), is that there will be no risk of deterioration in status or the prevention of the achievement of the objectives for the relevant surface water bodies nor will the protected area objectives be compromised.



## Annex A

### WFD Scoping Assessment

## Water Framework Directive assessment: scoping template for activities in estuarine and coastal waters

Use this template to record the findings of the scoping stage of your Water Framework Directive (WFD) assessment for an activity in an estuary or coastal water.

If your activity will:

- take place in or affect more than one water body, complete a template for each water body
- include several different activities or stages as part of a larger project, complete a template for each activity as part of your overall WFD assessment

The [WFD assessment guidance for estuarine and coastal waters](#) will help you complete the table.

Your activity	Description, notes or more information
Applicant name	<i>Redcar holdings Limited</i>
Application reference number (where applicable)	<i>N/A</i>
Name of activity	<i>Redcar Energy Centre</i>
Brief description of activity	<i>Proposed development of a waste-to-energy facility at Redcar town with operational components including; a Material Recovery Facility (MRF) incorporating a Bulk storage Facility; an Energy Recovery Facility (ERF); and an Incinerator Bottom Ash (IBA) recycling facility.</i>
Location of activity (central point XY coordinates or national grid reference)	<i>British National Grid 455830, 526017</i>
Footprint of activity (ha)	<i>Approximately 10.1 ha</i>
Timings of activity (including start and finish dates)	<i>Construction programme of approximately 32 months (notice to proceed to contractor expected Q1 2021, commercial operation expected Q2 2024)</i>
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	<i>The proposed ERF will be capable of generating up to 49.9 MW(e) of electricity from up to 450,000 tonnes per annum of waste.</i>

Your activity	Description, notes or more information
Use or release of chemicals (state which ones)	<i>Chemicals used on site will include ammonia, lime, activated carbon and diesel fuel, however there will be no direct release of chemicals.</i>

Water body <sup>1</sup>	Description, notes or more information
WFD water body name	<i>Tees Lower and Estuary TraC</i>
Water body ID	<i>GB510302509900</i>
River basin district name	<i>Northumbria</i>
Water body type (estuarine or coastal)	<i>Transitional</i>
Water body total area (ha)	<i>1144.05</i>
Overall water body status (2015)	<i>Moderate</i>
Ecological status	<i>Moderate</i>
Chemical status	<i>Fail</i>
Target water body status and deadline	<i>Moderate (2015)</i>
Hydromorphology status of water body	<i>Supports Good</i>
Heavily modified water body and for what use	<i>Yes- Flood protection and Navigation, ports and harbours</i>
Higher sensitivity habitats present	<i>46.24ha Saltmarsh, 4.13ha Subtidal kelp beds</i>
Lower sensitivity habitats present	<i>0.77ha cobbles, gravel and shingle, 400.13ha Intertidal soft sediment, 26.93ha Rocky shore, 4.13ha Subtidal rocky reef, 610.31ha Subtidal soft sediments</i>
Phytoplankton status	<i>Good</i>
History of harmful algae	<i>Not monitored</i>
WFD protected areas within 2km	<i>Teesmouth and Cleveland Coast SPA and Seal Sands CSA</i>

<sup>1</sup> Water body information can be found in the Environment Agency's catchment data explorer and the water body summary table. Magic maps provide additional information on habitats and protected areas. Links to these information sources can be found in the WFD assessment guidance for estuarine and coastal waters.

## Specific risk information

Consider the potential risks of your activity to each of these receptors: hydromorphology, biology (habitats and fish), water quality and protected areas. Also consider invasive non-native species (INNS).

### Section 1: Hydromorphology

Consider if hydromorphology is at risk from your activity.

Use the water body summary table to find out the hydromorphology status of the water body, if it is classed as heavily modified and for what use.

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status		Impact assessment not required	<i>No. The waterbody is already heavily modified and the outfall will be constructed on an already modified section of the coastline, it is therefore not anticipated to downgrade current status or prevent attainment of target status in the wider context of urban dock environment</i>
Could significantly impact the hydromorphology of any water body		Impact assessment not required	<i>Outfall proposed in a location of the Tees Estuary that is already affected by hard engineering structures, no modification to natural coastline and storm water flows from the development will be subject to SuDs measures which will ensure no impact on shoreline or bed scour.</i>
Is in a water body that is heavily modified for the same use as your activity		Impact assessment not required	<i>Not modified for the same activity</i>

Record the findings for hydromorphology and go to section 2: biology.

## Section 2: Biology

### Habitats

Consider if habitats are at risk from your activity.

Use the water body summary table and Magic maps, or other sources of information if available, to find the location and size of these habitats.

Higher sensitivity habitats <sup>2</sup>	Lower sensitivity habitats <sup>3</sup>
chalk reef	cobbles, gravel and shingle
clam, cockle and oyster beds	intertidal soft sediments like sand and mud
intertidal seagrass	rocky shore
maerl	subtidal boulder fields
mussel beds, including blue and horse mussel	subtidal rocky reef
polychaete reef	subtidal soft sediments like sand and mud
saltmarsh	
subtidal kelp beds	
subtidal seagrass	

<sup>2</sup> Higher sensitivity habitats have a low resistance to, and recovery rate, from human pressures.

<sup>3</sup> Lower sensitivity habitats have a medium to high resistance to, and recovery rate from, human pressures.

Consider if the footprint <sup>4</sup> of your activity is:	Yes	No	Biology habitats risk issue(s)
0.5km <sup>2</sup> or larger		No to all – impact assessment not required	<i>No: footprint of activity is &lt;0.5km<sup>2</sup></i>
1% or more of the water body's area			<i>No: footprint is &lt;1% of waterbody's area</i>
Within 500m of any higher sensitivity habitat			<i>No: footprint not within 500m</i>
1% or more of any lower sensitivity habitat			<i>No: Footprint not 1% or more of any lower sensitivity habitat</i>

<sup>4</sup> Note that a footprint may also be a temperature or sediment plume. For dredging activity, a footprint is 1.5 times the dredge area.

## Fish

Consider if fish are at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	Yes	No	Biology fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary		Go to next section	<i>No: The works do not have the potential to delay or prevent fish entering the Tees Estuary. Construction works will be undertaken &gt;300m outside the estuary and will be of a small and temporary nature which make effects to fish in this water body unlikely.</i>
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)			
Could cause entrainment or impingement of fish			

Record the findings for biology habitats and fish and go to section 3: water quality.



## Section 3: Water quality

Consider if water quality is at risk from your activity.

Use the water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment		<p><i>A broad range of potential pollutants, such as hydrocarbons i.e. fuels can accumulate on surfaces. These can subsequently be washed off during high rainfall/ storm events, polluting the receiving waterbodies and should therefore be assessed further.</i></p> <p><i>During the operation phase of the proposed development, mitigation measures will be in place to include pollution prevention measures such as bunding of storage areas, full retention oil interceptors, attenuation pond, IBA settlement lagoon, documenting spill procedures and keeping spill kits in the vicinity of storage, as identified in the ES.</i></p> <p><i>During the construction phase, there is a potential risk of accumulation of standing water on the application site and accidental discharges of untreated run-off whilst the temporary and the operational surface water drainage system is being constructed. Given that the estimated construction phase for the proposed development is estimated to be 32 months, the impacts associated with the construction phase must be assessed further.</i></p>
Is in a water body with a phytoplankton status of moderate, poor or bad		Impact assessment not required	<i>No: Phytoplankton classification of the Tees Estuary is Good</i>
Is in a water body with a history of harmful algae		Impact assessment not required	<i>Not monitored. The water body contains several high quality bathing areas however, which are all classified as 'excellent' status (2015/2016). It is assumed for the purpose of this assessment that harmful algal blooms are therefore not a common occurrence.</i>

Consider if water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Requires impact assessment		<p><i>Foul drainage as part of the development will be connected to the existing pumped sewage system.</i></p> <p><i>During the operation phase of the proposed development there will be no direct discharges of chemicals into the water body. Discharge from the outfall will be of cleaned, treated water within a closed surface water drainage drainage system with a full retention oil interceptor and attenuation pond.</i></p> <p><i>A broad range of potential pollutants which may include chemicals from the EQSD list can accumulate on surfaces. These can subsequently be washed off during high rainfall/ storm events, polluting the receiving waterbodies and should therefore be assessed further.</i></p> <p><i>During the operation phase of the proposed development, mitigation measures will be in place to include pollution prevention measures such as bunding of storage areas, full retention oil interceptors, attenuation pond, IBA settlement lagoon, documenting spill procedures and keeping spill kits in the vicinity of storage, as identified in the ES.</i></p> <p><i>During the construction phase, there is a potential risk of accumulation of standing water on the application site and accidental discharges of untreated run-off whilst the temporary and the operational surface water drainage system is being constructed.</i></p>
It disturbs sediment with contaminants above Cefas Action Level 1		Impact assessment not required	<p><i>There will be no disturbance of sediment within the Tees Estuary. Where onsite disturbance encounters contaminated materials, which were not identified at Preliminary Risk Assessment stage, a remediation strategy will be prepared and agreed with the Environment Agency and/ or Redcar &amp; Cleveland Borough Council. A validation report will also be prepared to confirm that the remediation/mitigation measures had been effectively implemented.</i></p> <p><i>The Tidal Flat Deposits underlying the Application Site are classified by the Environment Agency as a Secondary Undifferentiated Aquifer. Under the Water Framework Directive, the Environment Agency's local River Basin Management Plan (Northumbrian River Basin Management Plan, Environment Agency 2015) classified groundwater chemical quality beneath the site as 'Poor' quality in 2015. There is a potential for contaminants (if present) within shallow soils to mobilise into the underlying Secondary Undifferentiated Aquifer (Tidal Flat Deposits) and the Secondary B Aquifer (Mercia Mudstone Group) as a result of</i></p>

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
			<p><i>exposed ground, ground disturbance, general earthworks, and construction of building foundations, etc. With the implementation of pre-construction phase mitigation measures, in particular site investigation and remediation (where required) to manage the risk to controlled waters receptors, the magnitude of any impact could be reduced to low. In addition, the site is not located in a Groundwater Source Protection Zone and is in an area of currently poor chemical groundwater quality. The groundwater on site is therefore, considered to be low to sensitivity and the potential for impact to the Tees Estuary is therefore low.</i></p>

If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
<p>The chemicals released are on the Environmental Quality Standards Directive (EQSD) list</p>		<p>Impact assessment not required</p>	<p><i>There will be no direct discharges of chemicals into the water body. Discharge from the outfall will be of cleaned, treated surface water within a closed surface water drainage system with a full retention oil interceptor and attenuation pond.</i></p>

<sup>5</sup> Carry out your impact assessment using the Environment Agency's surface water pollution risk assessment guidance, part of Environmental Permitting Regulations guidance.

Record the findings for water quality go on to section 4: WFD protected areas.

## Section 4: WFD protected areas

Consider if WFD protected areas are at risk from your activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

Use Magic maps to find information on the location of protected areas in your water body (and adjacent water bodies) within 2km of your activity.

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area <sup>6</sup>	Requires impact assessment		<i>Teesmouth and Cleveland Coast SPA (UK9006061) and Seal Sands CSA (UKENCA98)</i>

<sup>6</sup> Note that a regulator can extend the 2km boundary if your activity has an especially high environmental risk.

Record the findings for WFD protected areas and go to section 5: invasive non-native species.

## Section 5: Invasive non-native species (INNS)

Consider if there is a risk your activity could introduce or spread INNS.

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS		Impact assessment not required	<i>The negative effects of invasive non- native species affects &lt;1% of waterbodies in the Northumbria river basin district (2015). A phase 1 habitats survey undertaken at the proposed development site indicate the area to be species poor and of low value consisting primarily of bare ground, scattered and introduced scrub, including the Invasive Non-Native Species (INNS) Japanese Rose (Rosa rugosa). Japanese Rose is a non-native terrestrial species listed on Schedule 9 of the Wildlife and countryside Act, 1981 (as amended). The distribution and extent of these species should be mapped shortly prior to treatment and site clearance works commencing to identify any change in distribution, however given the terrestrial nature of the species, are unlikely to impact on the Tees Estuary.</i>

Record the findings for INNS and go to the summary section.

## Summary

Summarise the results of scoping here.

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	No	<i>The Tees Estuary is a heavily modified water body and the drainage outfall is proposed in a location of the Tees Estuary that is already affected by hard engineering structures</i>
Biology: habitats	No	<i>No nearby habitats are at risk from the proposed activities</i>
Biology: fish	No	<i>Fish migration through the estuary will not be at risk from the proposed activities</i>



Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Water quality	Yes	<p>A broad range of potential pollutants which may include chemicals from the EQSD list can accumulate on surfaces. These can subsequently be washed off during high rainfall/ storm events, polluting the receiving waterbodies and should therefore be assessed further.</p> <p>During the operation phase of the proposed development, mitigation measures will be in place to include pollution prevention measures such as bunding of storage areas, full retention oil interceptors, attenuation pond, IBA settlement lagoon, documenting spill procedures and keeping spill kits in the vicinity of storage, as identified in the ES.</p> <p>During the construction phase, there is a potential risk of accumulation of standing water on the Application Site and accidental discharges of untreated run-off whilst the temporary and the operational surface water drainage system is being constructed</p>
Protected areas	Yes	<p>The Teesmouth and Cleveland Coast SPA (UK9006061) and the Seal Sands CSA (UKENCA98) are located within 2km of the proposed activities</p>
Invasive non-native species	No	<p>A phase 1 habitats survey indicate the presence of the Invasive Non-Native Species (INNS) Japanese Rose (<i>Rosa rugosa</i>) within the proposed development site. Japanese Rose is an invasive non-native terrestrial species listed on Schedule 9 of the Wildlife and countryside Act, 1981 (as amended) and is therefore unlikely to impact on the Tees Estuary.</p>

If you haven't identified any receptors at risk during scoping, you don't need to continue to the impact assessment stage and your WFD assessment is complete.

If you've identified one or more receptors at risk during scoping, you should continue to the impact assessment stage.

Include your scoping results in the WFD assessment document you send to your activity's regulator as part of your application for permission to carry out the activity.

## Annex B

# Surface Water Discharge Layout

