ea12222model point 327

ea12222model point 328

ea12222model point 330

ea12222model point 333

ea12222model point 331

ea12222model point 334

ea12222model point 335

CLAXTON CP

GREATHAM CP

BEWLEY CP

BILLINGHAM CP

MIDDLESBROUGH

Tees Bay

Seal Sands

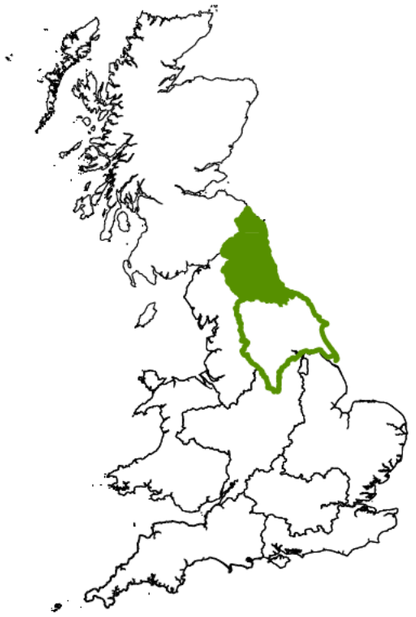
Teesside Works, Redcar

Environment Agency

ENVIRONMENT AGENCY

Yorkshire and North East Region

North East Area



Legend

Node Points with Modelled Flood Levels

Node Point Locations
River Tees

Date: Aug 2019 Scale: 1:10,000 Status: Final

MapEdit data quality flag: Adequate

Data Source: MapEdit 28-08-2019

Approved by: James Carradice 28-08-2019

Node Table info; Middlesbrough 138145

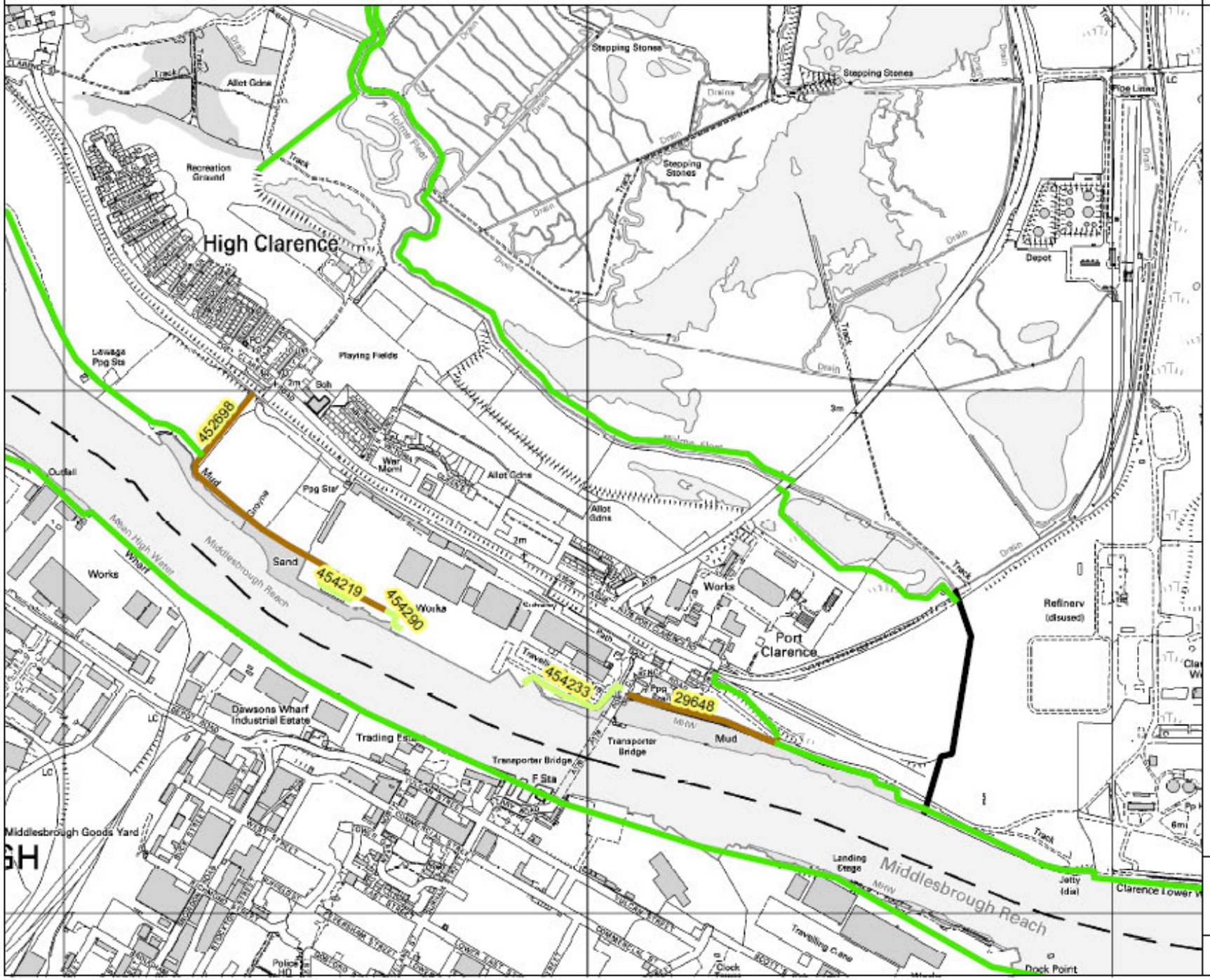
River Tees - data taken from the 2011 Tidal Tees Integrated Flood Risk Modelling Study and 2015 Tidal Tees Integrated flood Risk Modelling Study: Running the 1,000-year + climate change

Node Point Name	Return Period (1:N years)	Water Level (mAOD)
ea12222model point 327	2	3.46
Undefended Scenario	200	4.10
NZ 55096 28427	1000	4.37
	1000 (plus Climate Change)	5.25
ea12222model point 328	2	3.47
Undefended Scenario	200	4.11
NZ 54455 26362	1000	4.37
	1000 (plus Climate Change)	5.26
ea12222model point 328	200	4.11
Defended Scenario	1000	4.38
NZ 54455 26362	1000 (plus Climate Change)	5.26
ea12222model point 330	2	3.47
Undefended Scenario	200	4.11
NZ 54745 24769	1000	4.37
	1000 (plus Climate Change)	5.27
ea12222model point 330	200	4.12
Defended Scenario	1000	4.38
NZ 54745 24769	1000 (plus Climate Change)	5.26

ea12222model point 331	2	3.49
Undefended Scenario	200	4.14
NZ 51605 20997	1000	4.39
	1000 (plus Climate Change)	5.29
ea12222model point 331	200	4.14
Defended Scenario	1000	4.39
NZ 51605 20997	1000 (plus Climate Change)	5.27
ea12222model point 333	2	3.49
Undefended Scenario	200	4.14
NZ 50618 21103	1000	4.40
	1000 (plus Climate Change)	5.30
ea12222model point 333	200	4.14
Defended Scenario	1000	4.39
NZ 50618 21103	1000 (plus Climate Change)	5.26
ea12222model point 334	2	3.54
Undefended Scenario	200	4.17
NZ 47863 19935	1000	4.45
	1000 (plus Climate Change)	5.32
ea12222model point 334	200	4.18
Defended Scenario	1000	4.46
NZ 47863 19935	1000 (plus Climate Change)	5.29

ea12222model point 335	2	3.55
Undefended Scenario	200	4.17
NZ 47539 19485	1000	4.45
	1000 (plus Climate Change)	5.33
ea12222model point 335	200	4.18
Defended Scenario	1000	4.47
NZ 47539 19485	1000 (plus Climate Change)	5.29

Map with Environment Agency Owned and Maintained Flood Defences



Legend

- Wall
- High Ground
- Culvert
- Embankment

0 0.09 0.18 0.27 0.36

Kilometers

N

Environment Agency Owned and Maintained Flood Defence Information

Port Clarence, Teesside

Asset Ref	Asset Type	Description	Location	Start National Grid Ref. (upstream)	End National Grid Ref. (downstream)	Condition*	Standard of Protection (Return period, 1 in x Years)	Upstream Crest Level (m)**	Downstream Crest Level (m)**	Length (m)
29648	Raised Defence	Floodbank	D/S OF TRANSPORTER BRIDGE.MIDDLESBROUGH	NZ 50077 21419	NZ 50360 21331	2	200	4.83	4.83	301.57
416350	Raised Defence	Floodbank	Port Clarence access road	NZ 50363 21337	NZ 50360 21331	1	200	4.83	4.83	6.85
452698	Raised Defence	Floodbank	Upstream of Wilton Engineering	NZ 49360 21993	NZ 49501 21661	2	200	4.53	4.83	500.46
454231	Raised Defence	Floodbank	In Wilton Engineering Works	NZ 49554 21609	NZ 49613 21579	2	200	4.83	4.83	65.83
454219	Raised Defence	Floodwall	Greatham South	NZ 49501 21662	NZ 49554 21610	2	200	4.83	4.83	120.34
454290	Raised Defence	Floodwall	Wilton Works Floodwall	NZ 49613 21580	NZ 49646 21542	1	200	4.83	4.83	62.54
454233	Raised Defence	Floodwall	Wilton Engineering Works floodwall	NZ 49874 21440	NZ 50062 21431	2	200	4.83	4.83	228.66
454311	Raised Defence	Floodwall	Wilton Engineering Works floodwall	NZ 50064 21436	NZ 50060 21427	1	200	4.83	4.83	9.1

*The condition grades provided are from a visual inspection only based on the Environment Agency's Condition Assessment Manual. Descriptions are as follows:

1 Very Good – Cosmetic defects that will have no effect on performance.

2 Good – Minor defects that will not reduce the overall performance of the asset

3 Fair – Defects that could reduce performance of the asset

4 Poor – Defects that would significantly reduce the performance of the asset. Further investigation needed

5 Very Poor – Severe defects resulting in complete performance failure.

**The Crest Levels are metres Above Ordnance Datum (Newlyn).

creating a better place

Environment Agency

Andy Lane
Net Zero Teeside
Project Consultation

Our ref: NA/2020/115096/01-L01
Your ref: Net Zero Teeside Project

Date: 30 September 2020

Dear Andy

THE NET ZERO TEESSIDE PROJECT – LAND AT AND IN THE VICINITY OF THE FORMER SSI STEEL WORKS SITE, REDCAR AND IN STOCKTON-ON-TEES, TEESSIDE CONSULTATION IN ACCORDANCE WITH SECTION 42 'DUTY TO CONSULT' OF THE PLANNING ACT 2008 & REGULATION 13 'PRE-APPLICATION PUBLICITY UNDER SECTION 48 (DUTY TO PUBLICISE)' OF THE INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017. LAND IN THE VICINITY OF THE SSI STEEL WORKS SITE, REDCAR, TEESSIDE, TS10 5QW

Thank you for referring the above consultation which we received on 21 July 2020. We have reviewed the consultation documents and have the following comments/advice to offer. Our comments are split according to the specific chapters. We have also provided some generic comments regarding matters within our remit.

Chapter 3: Description of existing environment

Groundwater

Section 3.4.18 (Geology and Hydrogeology) appears to be incomplete. Furthermore, whilst section 4.4.21 refers to the aquifer designation of the Sherwood Sandstone, no further details are mentioned on the aquifer designations of the other bedrock units underlying the proposed development area.

This chapt[redacted]ological information obtained from British Geological Survey Geolo[redacted]aps. However, it is not clear whether other geological available information has been reviewed such as British Geological Survey boreholes which may provide information on the nature and thickness of superficial deposits and depth / thickness of bedrock units.

It is reported that the Sherwood Sandstone (Principal Aquifer) forms rockhead over the western part of the proposed development area, with the other solid geological units classified as Secondary B and Secondary Undifferentiated Aquifers forming rockhead over the remaining parts of the site. It should be

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appreciated that over the remaining parts of the site the Sherwood Sandstone may be present at shallow depth below rockhead beneath the Mercia Mudstone Group.

Chapter 4: Proposed development

Installations & Permits

Section 4.3.44 mentions open cut techniques through the dunes and sands. However this is an area of natural beauty with established dunes so the use of alterative techniques to prevent disturbance of this area must be taken into consideration. Furthermore, the Power, Capture and Compressor facilities (PCC) boundary/private road to South Gare and the dunes is a vast moon-scape of thousands of tonnes of basic slag from blast furnaces, ranging in size, which may be particularly difficult to excavate using either proposed methods.

As part of the DCO application, we recommend that you avoid and reduce the use of beneath ground pipelines/sumps/drains as far as technically possible. This will reduce costs during construction, aid inspection and maintenance during the operational phase, as well as reducing the cost of the decommissioning process.

A Radioactive Substances Permit (RAS) permit may be required, to include but not limited to: flow meters and NORM waste (Naturally Occurring Radioactive Material) as a result of pigging of pipework during the construction phase, should existing pipework between shore and offshore be reused.

Carbon Capture Ready (CCR) requirements

New combustion plants with a capacity at or over 300 MWe and of a type covered by the EU Large Combustion Plant Directive, must be assessed to determine the technical and economic feasibility of capturing, transporting and storing its emissions of CO2. These assessments are designed to determine whether it is reasonable to expect the proposed power station to be fitted with carbon capture and storage (CCS) in the future. These assessments should be carried out as part of the process of granting development consent under Section 36 of the Electricity Act 1989. A CRR statement will need to be submitted as part of the DCO application.

[redacted]

Groundwater[redacted]

With reference to sections 4.3.14, 4.3.19 and 4.3.25, ongoing technical studies are referred to with respect to a number of aspects of the proposed development. We would welcome further details on these technical studies to be included in the DCO application.

Whilst it is acknowledged that the proposed development comprising part of the carbon dioxide export pipe and injections wells will be covered by a separate consent, it would be welcomed if some detail could be included as to which

geological unit beneath the North Sea will be used for storage or has been considered for storage.

Section 4.4 .26 states that the proposed development will comply with the 2010 Industrial Emissions Directive under its Environmental Permit so that any impacts of emissions to soil and controlled waters will be minimised and avoided. At an appropriate time, we would welcome consultation to ensure that appropriate monitoring of soils and controlled waters and reporting of land quality is undertaken.

Section 4.5 (Decommissioning) states that above ground plant will be decommissioned. We would welcome further details on whether decommissioning of underground plant will be undertaken. Additionally, the meaning of the last sentence in Section 4.5.5 'Any areas of the Proposed Development that are below ground
level will be backfilled to ground level to leave a levelled area' is unclear. We would welcome further clarity on this sentence.

With reference to Section 4.5.6, it is mentioned that a Decommissioning Plan will be produced. At an appropriate time, we would welcome consultation on the scope and content of the Decommissioning Plan in order to facilitate the surrender process. Furthermore, section 4.5.11 states that upon completion of the decommissioning programme, the Environment Agency will be invited to witness a post decommissioning inspection and all records will be made available for inspection. For clarity, in addition to that, it is likely that a comprehensive decommissioning validation report will need to be submitted for review and approval in order to facilitate the surrender process.

Chapter 5 Construction

Contaminated land

The Applicant should consider treatment of contaminated soils on site and subsequent reuse within the project footprint.

Pollution Prevention

We would [redacted]nstruction Environment Management Plan (CEMP) to include contro[redacted]enting pollution from concrete wash-out waters and diesel spills.

Permits

The Applicant should consider the on-site treatment of contaminated soils and subsequent reuse within the project footprint. A permit or exemption may be required for this work and is available from the Environment Agency.

Our experience with other large construction projects around the UK has shown

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that the large number of mobile generators, lighting stands and cranes required on site for a prolonged build period, may aggregate to >1MWth, thus requiring a Medium Combustion Plant Permit from the Environment Agency.

It is noted that the construction phase is anticipated to last around 4 years between Q3 2022 to 2026. The EIA should contain a commitment to meet the latest standards for emissions from Non-Road Mobile Machinery (NRMM). From 1 September 2020, emissions standards for NRMM will be Stage IV abated for NOx and Stage V from 1 January 2030, and machines with constant speed engines such as generators, shall meet stage V from 1st September 2020.

Section 5.3.28 refers to the possible installation of an eel screen. However the Eels (England and Wales) Regulations 2009 may also require a live eel return system. During the design stage, land may need to be set aside to provide space for this equipment.

Chapter 8: air quality

Installations & Permits
We accept the assumptions and limitations outlined in chapter 8 and the Appendices 8A-construction phase and 8B-operational phase.

Worst case emissions (three trains and their associated carbon capture plants, base loading) have been modelled using ADMS v5.2.2. 5 years of recent, hourly, sequential met data from a representative source (Durham Teesside Airport) has been used in the air modelling. This approach is acceptable.

In the EIA, it would be useful to include the distance in metres between the identified receptors and the proposed development in Table 8-6. The distances to human receptors have been included in Appendix 8B, Table 8B-4.

Details regarding the MWth, typical emissions and locations of the auxiliary boilers need to be included in the DCO application.

In-combination impact assessments to include two newly proposed RDF plants: The Redca[redacted]re at South Gare (adjacent to NZT) and Port Clarence (Scott Bros ar[redacted]c)

Any claims for Commercial Confidentiality surrounding the proposed carbon capture scrubbing amine will have to be thoroughly justified as details of Ferrybridge's amine have recently been published on our Public Register.

Additional N-deposition mitigation measures are being considered, which may be classified as a mitigation measure in accordance with the Sweetman judgment, Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta ('People

over Wind')

Depending on the chosen CO^2 compressor technology, possibly an Open Cycle Gas Turbine (OCGT), the Low Pressure or High Pressure compressor units may require a permit from the Environment Agency, under section 1.1 A(1)(a) permit for burning any fuel in an appliance with a rated thermal input of 50 megawatts or more, and associated air modelling and impact assessment.

The Applicant must ensure the design and layout of the stack monitoring sample extraction point is fully compliant with the Environment Agency's M1 monitoring guidance. The associated sampling platform, access stairs and equipment lift must also be fully compliant with M1 guidance.

Chapter 9: Surface Water

Water Environment and Water Framework Directive (WFD)
The proposal has the potential to impact on the water environment in respect to:

- Construction and operation;
- Accidental releases; and
- Drainage within made ground;

The DCO application should include an assessment of these impacts and specifically:

- the requirements of the Water Framework Directive (WFD) via the submission of a WFD Assessment;
- how the development will achieve a biodiversity net gain; and
- the cumulative impacts of this development in combination with other developments in the Tees

The WFD is implemented in England and Wales through, 'The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003'. Under WFD, environmental objectives have been set out for each of the protected areas and water bodies in the Northumbria River Basin District Manageme[redacted]P), updated December 2015.

The Water Framework Directive 2000/60/EC covers all waters on land this is defined as "all standing or flowing water on the surface of the land". All watercourses that the pipelines cross are part of the water body GB510302509900, 'Tees'. We will require information to demonstrate that the risks posed by the development can be satisfactorily avoided, mitigated or compensated for.

The Tees estuary waterbody (waterbody reference GB510302509900) is

currently classified as 'Moderate' ecological potential. The objective for this waterbody is to achieve 'Good' Ecological Potential. Individual element classifications and objectives are provided below. These environmental objectives are legally binding and all public bodies must have regard to these objectives when making decisions that could affect the quality of the water environment. The River Tees is an important wildlife corridor and should remain as such and be enhanced where possible.

Developers should identify measures to comply with the requirements of the WFD by carrying out a WFD assessment of the proposal. The WFD will need to demonstrate:

- whether the proposed development will lead to a deterioration in status of any WFD waterbody;
- whether the proposed development will compromise the achievement of Good Status or Potential in any WFD waterbody;
- whether the proposed development will contribute towards a cumulative deterioration of WFD status or prevent cumulative enhancement of WFD status in any waterbody;
- whether the proposed development will support the delivery of measures identified in the Northumbrian RBMP that are required to achieve waterbody objectives. In respect to the last of these points, the site includes part of the tidal Tees Estuary WFD waterbody (GB510302509900). This waterbody is designated as a heavily modified waterbody, and as such, requires that all practicable mitigation is taken to achieve Good Ecological Potential. The generic mitigation measures deemed applicable to this waterbody include:

- daylighting;
- Enhance ecology;
- Bank rehabilitation;
- Remove or soften hard bank; and
- Preserve or restore habitats

Where on site design cannot adequately mitigate impacts, the mitigation hierarchy must be observed and compensation must be provided.

[redacted]

As part of the [redacted]we would welcome clarity of the pipeline network, a detailed 3D map of the proposed structure, detailing the underground pipe network, depth underground, locations & pipe size. Additionally, further details are required for the trenchless technology technique, the feasibility, limitations, and likely features underground that may interrupt the instillation and scenarios which force the instillation to use open trenches.

The proposal represents a significant opportunity to redirect existing and future treated and untreated effluent discharges away from the Tees estuary and into

the North Sea and thus achieving WFD objectives by integrating an industrial and domestic effluent collection system within the proposed 'CO^2 Gathering Network'. This opportunity extends to:

- New effluents produced as a direct result of this proposal;
- Existing effluents currently discharged from the Northumbrian Water Group Bran Sands Effluent Treatment Plan (industrial and domestic) to Dabholme Gut;
- Existing treated and untreated effluents currently discharged from the Wilton International complex to Dabholme Gut;
- Emergency treated and untreated effluents currently intermittently discharged from the Wilton International complex 'buffer tanks' to Dabholme Gut;
- Other treated and untreated industrial effluents from existing industry located near to the proposed route of the proposed 'CO^2 Gathering Network'; and
- Other industrial effluents from future industry attracted to Teesside specifically as a result of the proposed development and near to the proposed 'CO^2 Gathering Network'.

We would encourage the applicant to work with the sewerage undertakers and other sewerage utility providers to develop an integrated scheme that ensures legally binding environmental targets for the water environment are met.

Discharges from Power Plant

The impact of the discharges has not been assessed as regards to the quality impact. None of the documents list the likely make up of the effluent whether directed towards Bran sands and treatment at Northumbrian Water's sewage works, or treated and discharged on site.

The Northumbria RBMP requires the restoration and enhancement of water bodies to prevent deterioration and promote recovery of water bodies. The proposal may cause deterioration of a quality element to a lower status class and/or prevent the waterbody reaching its objective. An assessment of the impact of the discharge should be undertaken to demonstrate what the likely impact will be. [redacted]

Surface Water Quality Parameters

The WFD water quality parameters that have been used to compare the chosen closest sample sites to are incorrect. Different quality elements are used depending on the type of waterbody. The sample sites chosen reflect a transitional waterbody and as such these EQS values should be used, as well as the elements which do not have an EQS but a high, good, moderate, poor, and bad classification like Dissolved Inorganic Nitrogen. The EQS parameters can be found here: https://www.gov.uk/guidance/surface-water-pollution-risk-

assessment-for-your-environmental-permit along with guidance of how to undertake an assessment for permits.

For sanitary elements information can be found at: https://www.gov.uk/government/publications/h1-annex-d2-assessment-of-sanitary-and-other-pollutants-in-surface-water-discharges along with guidance of how to undertake an assessment for permits.

Dredging impacts
Consideration should be given to the impact of sediment contamination affecting the water quality and chemical status of the waterbody it's carried out in. This may require further testing and leachate samples from marine sediments listed over CEFAS level 1.

Abstraction Licence
The proposal has not confirmed if the existing abstraction licence associated with the site will form part of the final development, and, have also identified possible other alternate sources of water.

The existing licence is currently held by a third party; advice has been previously offered (Scoping Opinion Response) to highlight that if this third party (SSI UK Limited) is dissolved then the option to transfer the licence will no longer be possible. If the licence is revoked prior to transfer then a new application for an abstraction will be required. There is no guarantee the licence will be issued.

The proposal has identified that if the existing abstraction is to be utilised then upgrade to the take-off infrastructure will be required in order to comply with the Eel Regulatons.

Chapter 10 (Geology, Hydrogeology and Contaminated Land)

As referred in section 10.1.2, we acknowledge and welcome the requirement for a CEMP and other documents such as Site Waste Management Plan, Materials Management Plan (MMP) and Hazardous Materials Management Plan. We would also highlight the requirement for (at an appropriate time) a remedial options appraisal a[redacted]n strategy.

Section 10.1.3 refers to a desk based assessment which is stated to have been appended to the PEI Report as Appendix 10A: Preliminary Sources Study Report. This does not appear to have been appended and therefore we have been unable to review it. We would welcome the opportunity to review this report. In the absence of the Preliminary Sources Study Report we have been unable to provide comment on Appendix 10b Contaminated Land Conceptual Site Model and Appendix 10c (Environmental Risk Assessment).

Section 10.1.5 states that a scheme specific ground investigation has not been undertaken. We would welcome consultation on the scope and extent of the ground investigation, particularly with respect to investigation of land quality and risk assessment of controlled waters.

Section 10.1.7 refers to remedial works that may be required. We would highlight that the potential requirement for soil remediation along with active groundwater remediation and long term monitoring should not be discounted. We would welcome the inclusion of this information within the DCO.

With respect to section 10.2 (Legislation and Planning Policy Context) it is noted that the Contaminated Land Regulations and UK Legislation implementing the WFD have not been included. Reference to WFD should be included.

With respect to geological (sections 10.4.6 to 10.4.8, table 10.13) and hydrogeological conditions (sections 10.4.19 to 10.4.22, table 10.14), it is reported that the Sherwood Sandstone (Principal Aquifer) forms rockhead over the western part of the proposed development area, with the other solid geological units classified as Secondary B and Secondary Undifferentiated Aquifers forming rockhead over the remaining parts of the site. It should be appreciated that over the remaining parts of the site the Sherwood Sandstone may be present at shallow depth below rockhead beneath the Mercia Mudstone Group.

With reference to sections 10.4.30 (Summary of Resource Value) and table 10.15, we note the receptor value assigned to solid and superficial geological units in terms of hydrogeological aquifer designation. There appears to be some discrepancy between the details referred to in section 10.4.30 and table 10.15.

It is stated that the Sherwood Sandstone is considered to be of high value. However, we consider this principal aquifer to provide a regionally important resource and in the absence of supporting evidence for this categorisation, we would categorise the receptor value as **very high.** Additionally, the interaction between groundwater within the bedrock and superficial deposits and the River Tees has not been demonstrated. We would therefore consider the receptor va[redacted]e permeable superficial deposits to be high rather than medium since [redacted]could be potential for superficial groundwater to contribute to base flow of the River Tees. We would welcome clarity regarding whether the interaction between groundwater within the bedrock and superficial geological units with the River Tees has been considered in assigned the various receptor values.

With reference to section 10.7.4 (Operational Mitigation) we acknowledge the preparation and implementation of a groundwater quality monitoring plan, and would welcome consultation in the scope and extent of groundwater

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monitoring. Furthermore, we would consider that land quality monitoring should also be periodically monitored. Both aspects would satisfy the requirements of the Industrial Emissions Directive.

With reference to tables 10.15 and 10.16, there appears to be some inconsistency with the terminology used, and it is sometimes difficult to see how they link together.

It is not clear in table 10.16 why some of the superficial deposits and superficial groundwater aquifers have not been considered during the operation.

Additionally, it is not clear why superficial groundwater aquifers have not been considered during decommissioning phase. Additionally in the absence of site specific ground investigation and confirmed development plans, we consider it difficult to accurately assign magnitude of impact and an appropriate level of residual risk. Based upon our previous comments with respect to resource value, consideration should be given to the recategorisation of the magnitude of impact and residual risk.

General Groundwater Comments

The development area consists of areas of previous heavy industrial development which are likely to affect groundwater. The Sherwood Sandstone principle aquifer underlies sections of the development areas associated with CO_2 collecting and gas connection corridors. Principle aquifers provide significant quantities of water for people and may also sustain rivers, lakes and wetlands. Therefore, an assessment of the impacts of the development on groundwater should be undertaken. Particular consideration should be given to the identification of appropriate remediation measures, in order to reduce the risks posed by the development to groundwater.

The Environmental Permitting (England & Wales) Regulations 2016 make it an offence to cause or knowingly permit a groundwater activity unless authorised by an Environmental Permit which we will issue. A groundwater activity includes any discharge that will result in the input of pollutants to groundwater. Some remediation activities may also require an Environmental Permit from the Agency. Further inf[redacted]ailable on the Gov.uk website at https://www.g[redacted]uidance/discharges-to-surface-water-and-groundwaterenvironmental-permits.

We would also advise that any dewatering activities which are required as part of the construction works may require an appropriate abstraction license.
We also would advise the applicant to refer to our current groundwater guidance which can be found on gov.uk;

- Groundwater Protection

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(https://www.gov.uk/government/collections/groundwater-protection)-

- Environment Agency's Approach to Groundwater Protection (https://www.gov.uk/government/publications/groundwater-protection-position-statements).

Land Contamination

In relation to land contamination at the proposed development, please note that we only consider issues relating to controlled waters. We recommend that developers should:

1. Follow the risk management framework provided in Land Contamination Risk Management guidance (https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks) when dealing with land affected by contamination. This guidance supersedes CLR 11 Model Procedures for the Management of Land Contamination.
2. Refer to the Environment Agency Guiding Principles for Land Contamination for the type of information that we required in order to assess risks to controlled waters from the site. The Local Authority can advise on risk to other receptors, such as human health.
3. Consider using the National Quality Mark Scheme for Land Contamination Management which involves the use of competent persons to ensure that land contamination risks are appropriately managed.

Further information is available at https://www.gov.uk/government/collections/land-contamination-technical-guidance and https://www.gov.uk/contaminated-land).

Chapter 11: Terrestrial Ecology

We are still awaiting a number of survey elements which we anticipate will be included within the DCO application.

Protected water dependant species and habitats are not fully surveyed. Therefore, no assessment of impacts and mitigation measures have been submitted. As such we cannot comment on the impact of the scheme, and will require the [redacted]ndertaken before the DCO is submitted.

The applicant does not appear to be undertaking water vole surveys to land within the Stockton Borough Council area of the development proposal. We would argue that records of water vole are present across the area, in particular around RSPB Saltholme. Surveys are therefore likely required along with other outstanding surveys.

It is noted that although final designed have not been completed, and therefore impacts haven't been fully assessed, at least at a local level, the project is likely

to impact on a number of protected and priority habitats, such as intertidal mudflats or floodplain grazing marsh habitat. If impacts cannot be avoided, then mitigation should be suggested, and only where mitigation can be proved as unsuitable, then compensation; this must be presented at the time of submission.

The PIER surveys have not highlighted the presence of Japanese Knotweed (JKW), an Invasive Non-Native Species (INNS) classed under Schedule 9 of the Wildlife and Countryside Act 1981. Our records show JKW in the vicinity of the Teesside Cast Products / Corus Plant site. Any invasive under Schedule 9 present across the site should be mapped out and any works that risk spreading them further into the wild should be controlled through an INNS management plan.

Biosecurity
Strict biosecurity measures should be implemented to avoid the importing of non-native invasive species. Equipment, plant and Personal Protective Equipment (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. Further information on biosecurity can be found at the following link https://secure.fera.defra.gov.uk/nonnativespecies/checkcleandry/index.cfm

Buffer Zones from Watercourses
Development that encroaches on watercourses can have a potentially severe impact on their ecological value. Encroachment from development activities has potential to cause habitat loss, disturbance and nutrient enrichment. The setback development area needs to maintain this corridor around any watercourses on site and should be maintained and enhanced as part of the development work.

Discharge of treated water and outfall construction
Any outfall structure / discharge that is required to be constructed may require a flood risk activity permit under the Environmental Permitting (England and Wales) Regulations 2016. The DCO should also take into account impacts to protected and notabl[redacted]habitats along these watercourses, with survey information in[redacted] these impacts. The design of any outfall should be sympathetic to the water environment and low impact design options that mimics greenfield runoff should be considered and not drain onto or impact Habitats of Principal Importance (such as mudflats or saltmarsh).

Geomorphology
With respect to geomorphology, detailed plans and designs should be submitted as part of the DCO in order to assess potential impacts to watercourses and wider WFD objectives.

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Fish
The assessment of fish stocks was very thorough and used a lot of available data. The PIER has identified protected species that could be affected during construction and operational phases. Particularly relevant for species such as eel, salmon, sea trout and lamprey for which the Environment Agency has a duty to protect.

The report states that they will consider impacts of noise on fish. We would expect to see mitigation for activities such as piling adjacent to the watercourse. Reduction of noise from boat traffic during construction is noted.

Fish entrainment in cooling water intakes is described as an impact. This would require suitable mitigation and prevention measures would need to be demonstrated. Thermal impacts from the discharged water would be expected to be modelled and adequate measures taken to prevent any impact on fish communities.

Any proposed dewatering activities may require a fish survey and/or rescue. Opportunities to provide habitat for juvenile marine fish should be thoroughly investigated as part of the DCO application.

Chapter 14: Marine Ecology
Section 14.6.11 details permanent habitat loss within the subtidal zone which may occur underneath the outfall head and any associated rock armouring / scour protection. We would like to see ecological enhancement techniques considered within the rock armour to increase biodiversity of the artificial structure.

With respect to INNS, during baseline surveys, wakame (Undaria pinnatifida) was reported as the only marine INNS currently known to be present and growing within the study area. A full biosecurity plan should form part of the CEMP to prevent the spread of this species.

Chapter 21: Climate Change
There is a commitment to consider all rainwater harvesting systems in table 21-31 which is st[redacted]ged and welcomed.

The potential impact of hotter summers and freezing winters on the operation and efficiency of the hybrid cooling system should be considered within the DCO application.

We recommend the installation of renewable energy source on site to off-set parasitic loads. For example, solar tiles could power the air-conditioning units during periods of increased ambient temperatures.

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Chapter 22: Major Accidents

Section 22.3.18 states hazards and threats during the decommissioning phase have not been considered. However recent experience of fires on old SSI land from bulk storage tank burning/cutting, and wire stripping indicate that activities associated with this phase are different to the construction and operational phases and do need to be considered within the EIA.

with regards to section 22.4.2 Natural Hazards, it has not considered the impact of a pandemic reducing availability of competent staff, the low temperature freezing of equipment including the hybrid cooling towers or flooding off site, which may impede emergency services response or shift changes.

A commitment to comply with the Control of Major Accident Hazards (COMAH) Regulations is confirmed in section 22.5.7. This is welcomed.

Table 22-2 states the PCC will be designed to contain firewater runoff. To achieve this the EIA should contain a worst-case estimation of firewater runoff production, and a description/plans showing how this quantity of potentially contaminated water can be contained on site/treated/removed off site and include remediation following a fire.

Domino Effects are described in section 22.8. A recent announcement of a potential RDF plant adjacent to this proposed development needs to be considered in the EIA.

The applicant has not considered whether there are any potential cumulative events e.g. a minor impact over a prolonged period = a major accident. For example, a slow leak of CO^2 causing acidification of the protected slag area within the South Gare SSSI, and subsequent loss of the existing lime-loving flora. This matter should be taken into consideration.

Chapter 24: Cumulative Effects

The EIA in-combination impact assessment must include Tees REP at Tees Dock. The Tees Renewable Energy Plant is not currently operational and therefore n[redacted] to background levels. Consideration must also be given to the two new [redacted]plants (the Redcar Energy Centre at South Gare and the "under construction" Port Clarence RDF Plant).

Chapter 25: Summary of Effects and Enhancement Opportunities

Tree Planting

The Applicant has named the area reserved for tree planting, "the sterile area" from a plant design/safety point of view. However during the forthcoming

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consultation and examination, the public may use the non-technical definition of sterile and wonder why trees are to be planted here.

The Environment Agency proposes a significant increase in the proposed area for tree planting/habitat improvement. The power plant footprint is ~60ha but only 17ha has been put aside for tree planting. We would encourage the Applicant to commit to planting more trees, not necessarily on this site but in the local area, possibly linking into and extending the range of the proposed Northern Forest.

Enhancement Opportunities
The Applicant should consider measures to visually screen the plant along the northern and eastern boundaries, to minimise the visual impact for Redcar residents and visitors, and beach users.

The Applicant could contribute towards the maintenance of the private South Gare Road, providing access for PD Ports, the diving club, fishermen and other beach users. For example, improvements could be undertaken to improve where the road crosses the old railway lines near the roundabout on Tod Point Road.

The Applicant could provide support to the Cleveland Wildlife Trust in their work in protecting the unusual slag-based flora within South Gare SSI, adjacent to the Proposed Development.

Solar roof tiles could be used to coat the remaining buildings and generate renewable electricity, looking visually interesting and off-setting the parasitic load on site.

Groundwater
Based upon our previous comments and in the absence of confirmed development proposals and ground investigation information, we are unable to be completely satisfied as to the summary of significant effects with respect to geology, hydrogeology and contaminated land. For this reason we would welcome consideration of our previous comments and further engagement particularly with respect to ground investigation and controlled waters risk assessment.

[redacted]

General com[redacted]

Socio-economic and climate change
The PEIR provides a good understanding of the impact the development will have on the socio-economic landscape of the area, how the development will help mitigate against climate change and how the development is vulnerable to climatic events. This development is provided an example of where green jobs are being created.

Environment Agency

Appendix 9b: Coastal Modelling Report

Summary of comments

The report is rather confusing. It contains a lot of information, but it is not clear that all of this is relevant to the actual study. The model seems appropriate but more details are needed to fully understand the approach. In particular, it is not clear that the validation process has been tailored to support the predictive analysis of the intake and outfall systems. Overall, we do not have confidence that we can rely on the results presented here, as a basis to quantify the environmental impacts of the proposed development.

Specific comments

Page 8: states "The harmonic constituents…has been calibrated and verified against three data sets." It is unclear which three data sets have been used. This needs clarifying.

Page 9: we would welcome clarity the definition of 'thin dam' in terms of the flow? It may be appropriate to steer the focus here away from model configuration towards a more conceptual space, about the actual hydrodynamics. We would also welcome details of changes within the last 50 years and clarity regarding why you have used mean rather than the median.

Page 10: we would welcome further clarity regarding why you have decided to use 5 and 95 percentiles? It does not seem obvious that this is appropriate to represent seasonal variation.

Page 11: states "The saline distribution has the potential to impact the quality of sediment transport modelling which may be required in the future." How will this be considered in the future?

This page also states Greatham Creek = 1.8 m3/s, which is comparable with the Leven. Is it reasonable to use this as a constant flow?

How much variation is in the wind data? We would expect at least 2 characteristic directions at a coastal site: onshore and offshore. A wind rose would help to provide context.

[redacted]

Page 24: the t[redacted]t data for currents are difficult to interpret. Statistics for these comparisons should be included in the report. Furthermore, the transect locations are quite far upstream, where the river channel is still fairly uniform. To what extent to observations and comparisons here relate to model validation at the site, where the estuary is funnelling quite strongly?

Page 15: the survey dates need checking/updating. The survey dates current state '21/04/2005 and 20/04/2005'.

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Page 48: we would welcome clarity regarding the purpose of this qualitative comparison? It appears to be at a different time and location. Clarity is also required on the meaning of 'current structure' and which dates the middle graph refers to.

Page 49: states that 'the model will not reach a naturally stable point representative of a particular point in history. This comment is confusing. What is the aim for the model analysis? How does this comment relate to that aim? What is the purpose of the salinity analysis? It isn't clear how this relates to the predictive study.

Page 50: makes reference to transect 5 which is reasonably near the site. A description of the currents here should be included within the report.

Page 54: Information should be provided regarding what is the effect of change on this area.

Page 79: We would expect that if the model resolution is 'appropriate' then the model should be insensitive to it. How do the differences observed indicate that the resolution is appropriate?

Page 80: How does this section relate to the rest of the report? Is the model validation (primarily in the river channel) valid at this coastal location? What are the hydrodynamic conditions here? And salinity?

Page 82: section 6 seems to focus on describing the CORMIX user interface, rather than the model and the way it reflects conditions in the real world. What thought process led to selecting these values? What is the actual situation that you are trying to schematise?

It is not obvious that Spring tide = worst case. Higher speeds will lead to more rapid mixing. It is necessary to consider a neap tide as well, and different stages of the tide.

At this density and temperature, the effluent must be quite saline. How have you allowed for [redacted]ersal as it cools? (What is the ambient density & salinity?) [redacted]

Page 83: the location of the outfall is unclear. The location of the outfall should be provided in the DCO and outline affect will this have on predictions.

Page 86: the report refers to 2 separate sets of sensitivity tests. Presumably the first is to season? But season is included in the set you start to discuss. Please explain this section further.

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Page 89: horizontal outfall is predicted to give significantly better dispersion. Why not use this?

There seems to be confusion in this section, whether this is a design study, or an environmental impact study. It is difficult to give useful feedback on a proposal subject to such a high level of (apparent) uncertainty.

The main PEIR chapter refers to using the existing outfall head, which is not mentioned here. Has this option been examined? Furthermore, the report should relate the temperature predictions to relevant environmental requirements.

Page 91: We note your comment regarding the slack water pools. How does dilution (and dispersion) vary through the tide? What area is affected as tides go on? Where does the effluent end up on later tides? How quickly does it cool? And does it later sink?

Table 3: we would support variation in the data. A summer flow and a winter flow may be useful.

Figure 5: a caption, chart datum, units and a scale bar should be included. We also recommend that size of the legend is increased.

Figure 7: is there any more recent data available? Freshwater flows are taken from 1995. Is this correct - have these flows changed over 25 years?

Figure 9: what do the model colours in this figure represent?

Figure 43: it would be useful to review model performance statistics. We have attached in our email the Environment Agency's Quality Control Manual for Computation Estuarine Modelling. Please refer to this document for guidance.

Figure 45- 48: the selected salinity points seem to be quite far upstream. How relevant are these to the site locations?

Figure 45 and 47: what is the difference between figure 45 and 47? It would be beneficial t[redacted] lines and the text as they are difficult to read. We would welcome clari[redacted]rding the seasons i.e. is it summer or winter (April).

Figure 57: the current directions (surface) seems to be in the range 0 - 50 degrees, no tidal reversal. Is this realistic?

Figure 62: model seems to show high bed shear stress (Tb) in the central channel and on Seal Sands. This may result in erosion. We would welcome some narrative on this matter and the critical stress, and how this relates to the predicted values.

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Figure 68: There seems to be a hard edge/ cut-off on the grey contours north of the structure. Is this a model boundary effect? We would welcome some narrative on this.

Figure 68 and 73: In the exposed corner of the cofferdam, we would expect speed and Tb to increase –as there is a new hard structure. However, that doesn't appear to be the case. Is this a mesh effect? Narrative on this would welcomed.

Figure 75: where is the cofferdam in this figure?

Figure 76 and 77: why are these for depth average and layer 7? We previously looked at surface. How can this be compared to figure 78 and 79?

Appendix 9a: Flood Risk Assessment

Sections of the proposed development are situated within flood zones 2 and 3 which is at high risk of flooding. Over the next 100 years, the development site will be impacted upon further with climate change.

The proposed Flood Risk Assessment (FRA) submitted in support of the PEIR appears to provide appropriate appraisal, assessment and proposed mitigation measures. We would expect the FRA for the full DCO application to include the following considerations before it can be formally assessed:

1. Take the impacts of climate change into account strategically for all sites, and not piecemeal as the sites come forward. The climate change scenario should assess the impact of both the current allowance in 'Flood risk assessments: climate change allowances' and the 95th percentile of UKCP18 'RCP 8.5' scenario (high emissions scenario) Standard Method;
2. Ensure that the impacts of climate change are considered for both fluvial and tidal flood sources across the site;
3. Provide modelled data for the overtopping and breach of flood defences;
4. Consider how people will be kept safe from flood hazards identified;
5. Consider the requirement for flood emergency planning including flood war[redacted]uation of people for a range of flooding events up to and includi[redacted]xtreme event; and
6. We would expect mitigation measures to be applied for all sites and again not piece meal measures. The onus should not be on the individual sites to consider these risks and measures.

It should be noted that the EA has recently procured additional flood modelling for the proposed development area. The applicant may wish to contact our Customer & Engagement Team at northeast-newcastle@environment-agency.gov.uk to ensure that the latest modelling is reflected within the final FRA submission.

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Environment Agency

Abstraction licence
If you intend to abstract more than 20 cubic metres of water per day from a surface water source e.g. a stream or from underground strata (via borehole or well) for any particular purpose then you will need an abstraction licence from the Environment Agency. There is no guarantee that a licence will be granted as this is dependent on available water resources and existing protected rights.

Dewatering - derogation on local water supplies
Dewatering is the removal/abstraction of water (predominantly, but not confined to, groundwater) in order to locally lower water levels near the excavation. This can allow operations to take place, such as mining, quarrying, building, engineering works or other operations, whether underground or on the surface.

The dewatering activities on-site could have an impact upon local wells, water supplies and/or nearby watercourses and environmental interests.

This activity was previously exempt from requiring an abstraction licence. Since 1 January 2018, most cases of new planned dewatering operations above 20 cubic metres a day will require a water abstraction licence from us prior to the commencement of dewatering activities at the site.

Please do not hesitate to contact me if you have any questions regarding this letter.

Yours sincerely

Lucy Mo
Planning Technical Specialist - Sustainable Places

Direct dial [redacted]
Direct e-mail [redacted]@environment-agency.gov.uk

From: Mo, Lucy [redacted]@environment-agency.gov.uk>
Sent: 07 July 2021 08:27
To: Lowe, Richard <[redacted]@aecom com>
Subject: [EXTERNAL] RE: NZT Flood risk

Hi Richard,

We've reviewed the summary list below/updated FRA and we are happy that this aligns with our understanding of flood risk at this location. The conclusions appear to reflect the appropriate vulnerability/flood zones classifications for the proposed development. We will review the CEMP once published to ensure that appropriate flood risk mitigation measures have been considered. Overall, we do not consider flood risk to be a significant issue for the proposed development.

Regards

Lucy

From: Lowe, Richard [mailto:[redacted]@aecom.com]
Sent: 05 July 2021 16:45
To: Mo, Lucy[redacted]@environment-agency.gov.uk>
Cc: Campbell, Ian <[redacted]@aecom com>; Walker, Ed <[redacted]@aecom.com>
Subject: NZT Flood risk

AECOM Limited
5th Floor, 2 City Walk
Leeds LS11 9AR
United Kingdom

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aecom.com

2nd August 2019

Our Reference
Teesside Cluster Carbon Capture and Usage Project/Water & FRA

Redcar and Cleveland Council
Flood Risk Management
Redcar & Cleveland House
Kirkleatham Street
Redcar
Yorkshire
TS10 1RT

Data Consultation Request: Teesside Cluster Carbon Capture and Usage Project, Redcar, South Teesside

Dear Sir/Madam,

AECOM has been commissioned to undertake a Flood Risk Assessment to support an application for a proposed full chain Carbon Capture Usage and Storage (CCUS) project to be located in Redcar, South Teesside. The project comprises the development of a Combined Cycle Gas Turbine (CCGT) gas fired generating station and gas, electricity and cooling water connections, with post combustion carbon capture and compression plant, together with a gathering station for carbon dioxide (CO2) from the generating station and other industrial sources, low pressure CO2 pipeline connections to potential industrial sources, and a high pressure CO2 pipeline for the onward transport CO2 to an offshore geological storage site in the North Sea. The indicative boundary for the Main Site currently comprises an area of approximately 52 hectares (ha). A location plan is provided at the end of this letter.

In line with the Environment Agency's standing advice, AECOM proposes to produce a Flood Risk Assessment that considers the risk to the site from all sources, rivers and the sea, streams, surface water run-off, sewers, groundwater, etc. AECOM will also make recommendations for managing surface water runoff according to sustainable drainage principles.

The entire site currently lies within Flood Zone 1 (low risk of flooding), defined by the Environment Agency's online Flood Map for Planning.

AECOM would like to request the following information from Redcar and Cleveland Council:

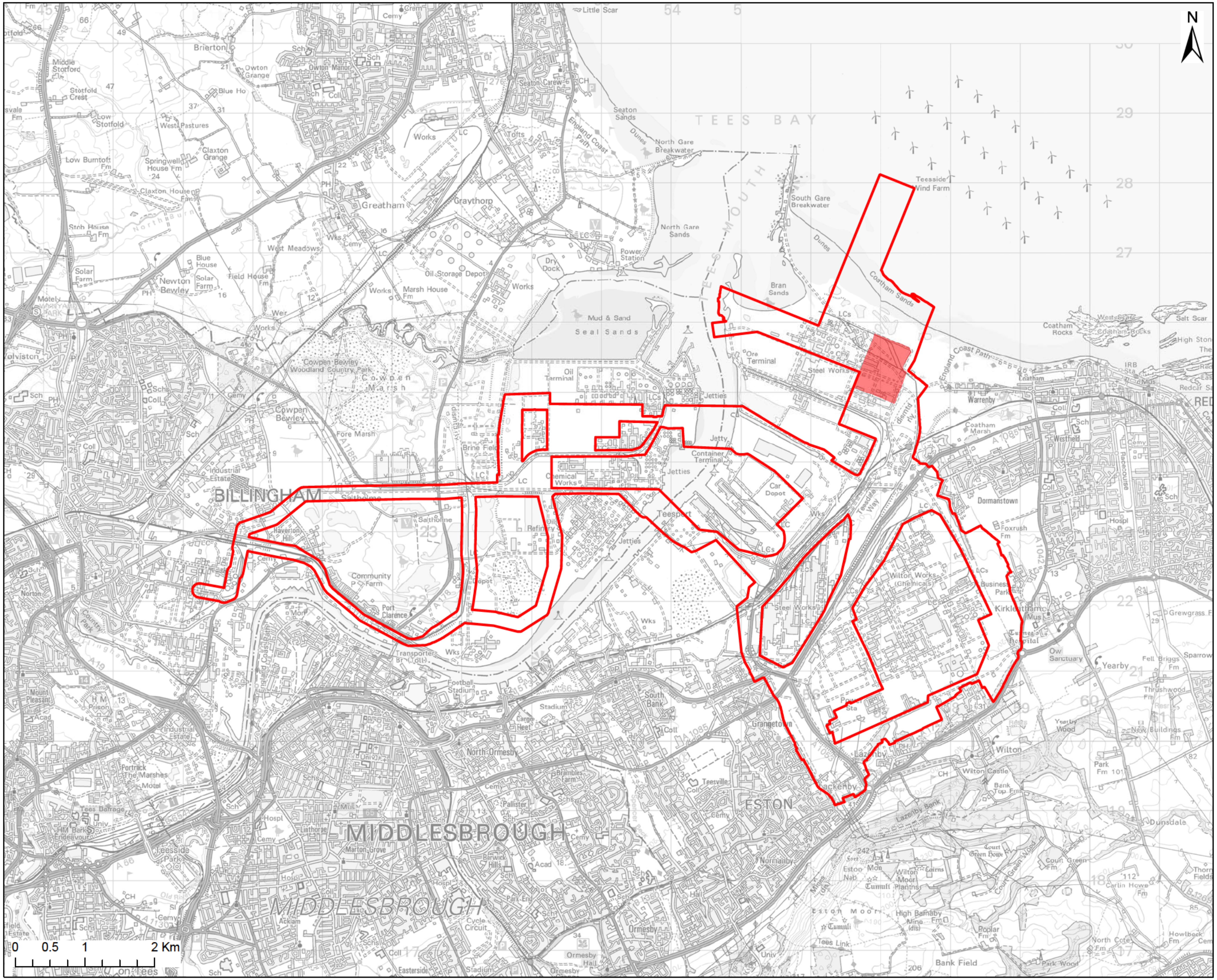
- Outputs from any locally held hydraulic modelling studies for Ordinary Watercourses;
- Historical flood records for Ordinary Watercourses in the vicinity of the site;
- Any future potential flood risk management schemes local to the Site;
- Details of any known groundwater flooding problems in the area;
- Information on flooding associated with the surcharging of the sewer network;
- Details of any known surface water flooding problems in the area and known Critical Drainage Areas as well as any associated Local Flood Risk Zones;
- Any requirements the Council may have with regards surface water management at the proposed development;
- Any preferred SuDS techniques;
- Specific mitigation measures required by the Council for the proposed development; and
- Any further information required to be taken in to account as part of an FRA.

I look forward to hearing from you.

Yours sincerely,

Anna Ashbridge
Graduate Consultant
AECOM Limited
T: [redacted]
E: [redacted]@aecom.com

Location Map attached below:



AECOM

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www.aecom.com

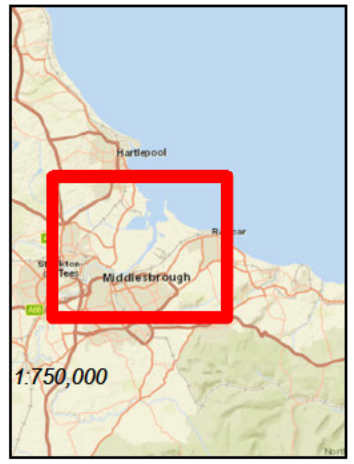
Project Title:

TEESSIDE CLUSTER CARBON CAPTURE & USAGE PROJECT

Client:

OGCI CLIMATE INVESTMENTS HOLDINGS LLP

Location Inset:



LEGEND

- DCO Application Boundary
- Main Site (Generating Station including CO2 capture and CCUS booster station)

Copyright:

AECOM Internal Project No:

60559231

Drawing Title:

RED LINE BOUNDARY (FOR DATA SEARCHES)

Scale at A3: 1:50,000

Drawing No:	Rev:
N / A	03

Drawn:	Chk'd:	App'd:	Date:
RT	RT	RL	02/08/19

Filename: C:\Users\ross.taylor3\Documents\AECOM\03. Projects\01. Clean Gas\04. Work\00. PROJECT MANAGEMENT\02. Data\60559231 - RLB for Data Requests.mxd

Ashbridge, Anna

From:	Alan Smuk <[redacted]@stockton.gov.uk>
Sent:	14 August 2019 09:55
To:	Elaine Atkinson; Taylor, Ross; Ashbridge, Anna
Cc:	Planning Administration; Stacey Moss
Subject:	RE: Teesside Cluster CCU Project 19/0406/SOR

This document was classified as: OFFICIAL

Ross

I have been forwarded your e-mail from Elaine Atkinson regarding the above, unfortunately from the information submitted by Anna it is not clear how the proposed project will affect the Stockton Borough. It is my understanding that Stockton will mainly to affected by the CO2 Gathering Network Corridors and the Gas Connection Corridors, what is not clear is will these corridors result in an increase in impermeable surface area and an increase in surface water runoff?, to help us to provide you with a response that is relevant to the works planned in our Borough and help inform the required FRA, more detail of the proposed works would be helpful.

In response to the bullet point contained within Anna's letter

Points 1 to 4 the LLFA hold no records
Point 5 the LLFA hold no records, however Northumbrian Water may be able to provide you with this information
Point 6 the LLFA can confirm that flooding did affect parts of highlighted site following an event in 2012, the EA's flood maps will provide the required information relating to the areas that fall within flood zones 1,2 & 3, they will also highlight the areas susceptible to surface water flooding, the EA will also be able to confirm the Critical Drainage Areas
Point 7 as stated above the LLFA will require further information to provide you with response to this question, however the information below that we provide for pre- development enquiry's may help?
Point 8 need more details of the proposed works in our area to answer this one, but we do encourage SuDS solutions close to the surface, with appropriate treatment trains
Point 9 more information require to answer this one.

Stockton Council provide the following pre- application comments, you may find it useful

A detailed site specific flood risk assessment (FRA) and drainage strategy (DS) should be submitted at planning application stage; the scope of the FRA and DS should be agreed with the Lead Local Flood Authority (LLFA).

The proposed development must not increase the risk of surface water runoff from the site or cause any increased flood risk to neighbouring sites. Any increase in surface water generated by the proposed development or existing surface water / groundwater issues on the site must be alleviated by the installation of sustainable drainage system within the site.

If the applicant proposes to discharge surface water into an ordinary watercourse a land drainage consent will be required from the Lead Local Flood Authority (LLFA). A land drainage consent is separate application that could take up to **8 weeks** for completion and no works on the watercourse can proceed until consent has been approved by the LLFA.

There are a number of watercourses that cross the proposed development site, a survey of any existing drainage systems including water bodies/watercourses must be undertaken and details provided within the Flood Risk Assessment/Drainage Strategy. The survey must consider the condition of the watercourse/drainage system in which the SuDS may discharge too. If any drainage system is identified on site during construction works the Lead Local Flood Authority should be notified. Any existing watercourses situated within the boundary of the proposed development site must be protected and the LLFA must be informed of any proposed works to the existing watercourses.

Surface water discharges from the proposed development shall be flow regulated to ensure that flooding problems elsewhere in the catchment are not exacerbated. The discharge rates from this proposed development must be restricted to the existing greenfield runoff rates **OR** For development which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body should be as close as reasonably practicable to the Greenfield runoff rate from the development.

The existing flows from upstream catchments that are intercepted or affected by the development must be maintained through the proposed development site. The drainage system must be designed to operate without flooding for up to the 1 in 30 year event and accommodate the 1 in 100 year plus climate change making sure sufficient steps are taken to ensure that any surface flows between the 1 in 30 and 1 in 100 year events plus climate change are stored within the proposed development site. The choice of where these volumes are accommodated may be within the drainage system itself or within other areas designated within the site for conveyance and storage.

The update guidance states the new allowances for climate change and we now require both +20% scenario and a +40% scenario. Therefore new surface water drainage schemes designed within Flood Risk Assessments/Drainage Strategies require at least three sets of calculations; 1 in 30 year event, 1 in 100 year plus 20% climate change & 1 in 100 year plus 40% climate change.

- Drainage systems can be designed to include a 20% allowance for climate change however;
- A sensitivity test against the 40% allowance is required to ensure that the additional runoff is wholly contained within the site and there is no increase in the rate of runoff discharged from the site. It must be demonstrated that there are no implications to people from the increased flood hazard (volume between 20% and 40% allowance). It is crucial that the additional runoff from the 40% is contained within the site and does not contribute to an increased flood risk to people/property/critical infrastructure/third parties elsewhere.
- If flows cannot be contained within the site without increasing risk to properties or main infrastructure a 40% allowance must be provided.

The layout of any proposed development and the sustainable drainage system should be designed to mimic natural drainage flow paths, utilising existing natural low-lying areas and conveyance pathways where appropriate. This means considering the existing blue/green corridors across the proposed site and utilising the existing natural low-lying areas for the proposed surface water management system for the proposed development. To mimic natural catchment process as closely as possible, a 'management train' is required. It is fundamental to designing a successful SuDS scheme. It uses techniques in series to reduce pollution, flow rates and volumes. The detailed design must show flow routes, SuDS component selection, sub-catchments, discharge and flow control locations, storage features and how SuDS integrate into landscape.
Future maintenance requirements should be considered at all stages in the design and construction process and suitable access provided to facilitate all reasonably foreseeable future inspection, monitoring, maintenance or repair works.

The applicant must consider local guidance detailed in the 'Tees Valley Local Standards for Sustainable Drainage' (https://www.stockton.gov.uk/media/6235/flooding-webpage-update-jane-salisbury-25-02-2016-3msg.pdf). It is recommended that the applicant contacts the Flood Risk Management Team at an early stage to discuss surface water management requirements and their proposed surface water drainage solution for any new development.

Regards,

Alan Smuk
Senior Engineer
Flood Risk Management
Economic Growth and Development Services
Stockton-on-Tees Borough Council

Direct Line [redacted]
Mobile [redacted]

E.mail [redacted]@stockton.gov.uk

From: Elaine Atkinson
Sent: 08 August 2019 15:01
To: Alan Smuk [redacted]@stockton.gov.uk>; Taylor, Ross <[redacted]@aecom.com>; [redacted]@aecom.com

Cc: Planning Administration <planningdevelopmentservices@stockton.gov.uk>
Subject: FW: Teesside Cluster CCU Project 19/0406/SOR

This document was classified as: OFFICIAL

Alan

As our Senior Engineer, Flood Risk Can you please assist with this request.

Kind Regards
Elaine Atkinson
Principal Planning Officer
Planning Development Services

From: Taylor, Ross <[redacted]@aecom.com>
Sent: 08 August 2019 12:24
To: Elaine Atkinson <[redacted]@stockton.gov.uk>
Cc: Ashbridge, Anna [redacted]@aecom.com>
Subject: Teesside Cluster CCU Project

Hi Elaine,

I hope you are well.

Please find attached our first information/ data request relating to Flood Risk and Water aspects of the EIA for the above Project (a similar request has also been forwarded to Redcar and Cleveland Borough Council). I have copied in Anna Ashbridge who is leading on the data gathering – if there are any queries, please could you or your colleagues contact Anna directly (with me in cc)?

If you wish to discuss anything else relating to the Project in the meantime, please do not hesitate to call me on [redacted]

Thanks and Regards
Ross

Ross Taylor, BEng PIEMA
Principal Environmental Consultant, Environment and Planning
[redacted]@aecom.com

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Although we have endeavoured to ensure that this e mail and any attachments are free from any virus we would advise you to take any necessary steps to ensure that they are actually virus free.

**********.

Annex B - Strategic Flood Risk Assessment Maps for Redcar and Cleveland and Stockton-on-Tees Borough Councils

North

528000

527000

526000

455000

456000

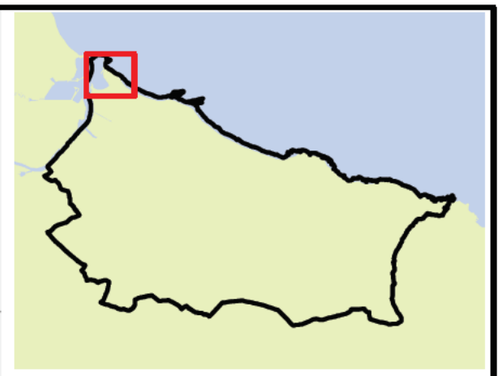
457000

Scale 1:10,000

ELD14

I3

ELD64



LEGEND

Choose Option Flood Zones

Show Labels

Council boundary

Detailed River Network

Potential Development Sites

Residential (SHLAA 2015)

Employment Land Available (ELA)

Employment Land Developed (ELD)

Industrial estate

Mixed use

Traveller

Flood Zones

Flood Zone 3b

Flood Zone 3a

Flood Zone 2

JBA consulting

REDCAR & CLEVELAND BOROUGH COUNCIL

STRATEGIC FLOOD RISK ASSESSMENT

For

REDCAR AND CLEVELAND BOROUGH COUNCIL

Map 1