

Able UK Limited

**Middlesbrough Port Quays 1 and 2
Dredge and Disposal**


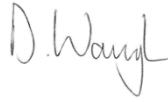
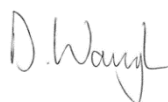
**Water Framework Directive
Assessment**

March 2024

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Contents Page

Water Framework Directive Assessment

1.0	Introduction
2.0	Waterbody Baseline Data
3.0	Screening
4.0	Scoping
5.0	Impact Assessment
6.0	Conclusion

Abbreviations

AL – Action Level
AWB – Artificial Water Body
CEFAS – Centre for Environment, Fisheries and Aquaculture Science
EA – Environment Agency
EQSD – Environmental Quality Standards Directive
EU – European Union
HMWB – Heavily Modified Water Body
INNS – Invasive Non-Native Species
NNSS – Non-Native Species Secretariat
PAHs – Poly-Aromatic Hydrocarbons
PBDEs – Poly-Brominated Diphenyl Ethers
RBD – River Basin District
RBMP – River Basin Management Plan
RFD – Reason For Deterioration
RNAGS – Reason for Not Achieving Good Status
SPA – Special Protection Area
SSSI – Site of Special Scientific Interest
TSHD – Trailing Suction Hopper Dredger
UK – United Kingdom
WCA – Wildlife and Countryside Act
WFD – Water Framework Directive

1.0 Introduction

- 1.1 This Water Framework Directive (WFD) Assessment has been prepared by Fairhurst on behalf of Able UK Limited, to support a Marine License application which includes dredging and disposal to maintain and extend the existing berth and entrance channel at Middlesbrough Port Quays 1 and 2.
- 1.2 The objective of the proposal is to facilitate capital dredging works to achieve the previously licensed dredge depth across the berth, -7.0mCD, and a deeper approach channel being dredged to a depth of -6.5mCD, as shown on Drawing No. AMP-006-00015 E. The application also pertains to the disposal at sea of the dredge arising from both the capital and maintenance dredging This will be at the licensed site Tees Bay A and/or C. The length of licence proposed is 10 years, with routine sampling to be undertaken every 3 years.
- 1.3 The proposed dredging methodology will mirror the method statement provided in support of the previous dredging licence for the berths at Quay 1 and 2 (L/2013/00155), i.e., the dredging will be undertaken using a Trailing Suction Hopper Dredger and plough
- 1.4 In the event of unexpected ground conditions, there may be the requirement for a small volume of clayey materials to be extracted using a backhoe dredging methodology.
- 1.5 The detailed works methodology can be found in the associated Marine Supporting Statement submitted in support of the Marine License application.
- 1.6 The River Tees and Middlesbrough Dock is designated as part of the Teesmouth and Cleveland Coast Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI). The qualifying features of the SPA are breeding Little Tern, and use by wintering Knot, Redshank, Sandwich Tern, and Waterbird Assemblage. Meanwhile the SSSI is designated for breeding harbour seals, a diverse assemblage of both waterbirds and of invertebrates associated with various habitats, sand dunes and saltmarsh, and for Jurassic and Quaternary geologic features.

Background to the WFD

- 1.7 The Water Framework Directive was passed into UK law in 2003. The overall aim is to protect and improve the water environment by preventing deterioration of the

waterbody's Ecological Status or, for Heavily Modified (HMWBs) or Artificial Water Bodies (AWBs), their Ecological Potential.

- 1.8 The Water Framework Directive aims to protect and enhance the quality of the water environment across all European Union (EU) member states. The Water Framework Directive was introduced into UK legislation in 2017 as *The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017*. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water (including transitional and coastal waters, rivers, streams, and lakes), groundwater, and water-dependent ecosystems.
- 1.9 Under the WFD, 'water bodies' are the basic management units and are defined as all or part of a river system or aquifer. These water bodies form part of larger 'river basin districts' (RBDs), for which 'River Basin Management Plans' (RBMPs) are developed by government in which environmental objectives are set. RBMPs are produced every six years, in accordance with the river basin management planning cycle.
- 1.10 The WFD requires classification of the current condition ('status or potential') of surface and groundwater bodies, and the setting of a series of objectives for maintaining or improving conditions such that water bodies attain or maintain 'good status or potential' during the next RBMP cycle. These must consider factors which may cause a deterioration of a water body, or which may prevent future attainment of good status/potential.
- 1.11 As a result, new developments that have the potential to impact on current or predicted WFD status are required to assess their compliance against the WFD objectives of the potentially affected water bodies.

2.0 Waterbody Baseline Data

- 2.1 Prior to completing the WFD assessment process it is necessary to collect baseline information on the current status of the water body in the study area. This involves identifying the waterbodies within the study area and then identifying the elements within and around those watercourses that may be affected by the works.
- 2.2 Baseline information has been collected from the EA Catchment Data Explorer (last updated August 2023) and the WFD Water Body summary table (Environment Agency, 2023). The Northumbria RBMP (Environment Agency, 2015) does not reflect the most up-to-date data for the water body, but it has also been consulted as the 2022 management plan provides updates on progress, but is based largely on the original 2015 plan.
- 2.3 The *Tees Water Body* is classified as a transitional, Heavily Modified Water Body (HMWB) which was most recently assessed (2022) as being of Moderate Ecological status. However, the *Tees* was classified in 2019 (when last assessed) as failing chemically due to high detected levels of four priority hazardous substances: Benzo(g-h-i)perylene, Mercury and its Compounds, Polybrominated dimethyl ethers (PBDEs), and Tributyltin Compounds. It was also classified from 2013 to 2016 as Good status for Fish, which deteriorated to Moderate in the 2019 Cycle 3 assessment.
- 2.4 However, due to the consistent failure of many water bodies on Chemical grounds, the assessment now considers Specific Pollutants instead, for which the *Tees* water body is classed overall as High Status on the EA Catchment Data Explorer (2023). It was also classified in Cycle 3 (2022) as High status for Dissolved Oxygen, and Supports Good status for Hydromorphological Supporting Elements.
- 2.5 The *Tees Water Body* (GB510302509900) flows into the *Tees Coastal Water Body* HMWB downstream. Due to the small scale of the development proposals in relation to the very high baseline of activities undertaken within the *Tees*, notable distance between the application site and the mouth of the river, and limited proposed change in depth and extent of the berth proposed as a result of these works, potential pressures on the downstream water body are considered insignificant and thus the works are unlikely to affect the potential/status of the *Tees Coastal* water body. In addition, due to limited anticipated interaction between surface and groundwater in this location which is sub-tidal and within a man-made channel, the WFD Assessment is only required to consider the effects on the *Tees Water Body*.

Summary of Waterbody Status	Description, notes or more information		
WFD water body name	<i>Tees Water Body</i>		
Water body ID	GB510302509900		
River basin district name	Northumbria		
Water body type	Estuarine (Transitional Water)		
Surface Area	1148.102 ha		
Overall water body status	2019	2022	
	Moderate	Moderate	
Ecological status	2019	2022	
	Moderate	Moderate	
Hydromorphological Status	2019	2022	
	Supports Good	Supports Good	
Chemical status	2019	2022	
	Fail	Does not require assessment	
Target water body status and deadline	Ecological	Moderate	2015
	Chemical	Good	2063
Heavily Modified Water Body (HMWB)?	Yes – Flood Protection; Navigation, Ports and Harbours		
Higher sensitivity habitats present	Saltmarsh – 46.24 ha Subtidal Kelp beds – 4.13 ha		
Lower sensitivity habitats present	Cobbles, Gravel and Shingle – 0.77 ha Intertidal Soft Sediment – 400.13 ha Rocky Shore – 26.93 ha Subtidal Rocky Reef – 26.28 ha Subtidal Soft Sediments – 610.31 ha		
Phytoplankton status	Good		
History of harmful algae	Not Monitored		
WFD protected areas within 2km	Yes – Teesmouth and Cleveland Coast SSSI, Teesmouth and Cleveland Coast SPA and Teesmouth and Cleveland Coast Ramsar.		

3.0 Screening

3.1 The first stage of the WFD assessment process concerns the screening of the project, in order to identify whether an impact assessment will be required. If the activity is considered to be inherently low risk, then the projects can be screened out of the WFD Assessment. Where a potential risk is identified, the project will progress to the scoping assessment stage. The table below presents this screening exercise.

Low Risk Activity Types	Project Compliance
A self-service marine licence activity or an accelerated marine licence activity that meets specific conditions	No
Maintaining pumps at pumping stations – if done regularly, avoiding low dissolved oxygen levels during maintenance and minimising silt movement when restarting the pumps	No
Removing blockages or obstacles like litter or debris within 10m of an existing structure to maintain flow	No
Replacing or removing existing pipes, cables or services crossing over a water body – but not including any new structure or supports, or new bed or bank reinforcement	No
‘Over water’ replacement or repairs to, for example bridge, pier and jetty surfaces – if bank or bed disturbance is minimised	No
Was the activity carried out during 2009 to 2014 (when evidence was collected for the 2015 RBMPs) and already has a WFD assessment?	No
Has the activity carried out during 2009 to 2014 changed method, size or scale, volume, depth, location or timings?	No
Has the activity carried out during 2009 to 2014 changed due to a pollution incident since your activity was last carried out?	No
Screen in/out	In

3.2 As illustrated above, the project does not qualify as a Low Risk Activity, and as such must be screened into the WFD Assessment.

4.0 WFD Scoping

4.1 This stage of the assessment identifies elements within the River Tees waterbody which may be adversely impacted, in the absence of mitigation measures. As a result of the baseline information for the water body, none of the topics could be screened out at the previous stage:

- Hydromorphology;
- Biology – Habitats;
- Biology – Fish and Highly Mobile Species;
- Water Quality;
- WFD Protected Areas;
- Invasive Non-Native Species (INNS).

4.2 Where a potential risk is identified, these elements will progress to the detailed assessment stage. The tables below present this scoping exercise.

Hydromorphology

Considerations	Hydromorphology risk issue
Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high ecological status	No – the Tees water body is at moderate ecological status, so there is no risk to a High status waterbody
Could significantly impact the hydromorphology of any waterbody	No – given the nature of the activity, there is a no long-term impact on the structure of the water body and the hydromorphological interactions, especially given the commonality of dredging in the River Tees
Is in a waterbody that is heavily modified for the same use as your activity	Yes – the proposal constitutes a development for the purposes of navigation, ports and harbours, which is one of the reasons for the Tees’s HMWB status.
Scope in/out	In

4.3 As shown in the above table, the potential hydromorphology impacts, though expected to be very limited, have been scoped in for further assessment primarily for the fact that the proposed activity is contributing to the same use for which the water body has been classified as HMWB.

Habitats

Higher sensitivity habitats	Lower sensitivity habitats
Chalk reef	Cobbles, gravel and shingle- 0.77ha
Clam, cockle and oyster beds	Intertidal soft sediments like sand and mud- 400.13ha
Intertidal seagrass	Rocky shore- 26.93ha
Mäerl	Subtidal boulder fields
Mussel beds, including blue and horse mussel	Subtidal rocky reef- 4.13ha
Polychaete reef	Subtidal soft sediments like sand and mud- 610.31ha
Saltmarsh- 46.24ha	
Subtidal kelp beds- 4.13ha	
Subtidal seagrass	
Consider if the footprint of your activity is:	Biology habitats risk issue(s)
0.5km ² or larger	No
1% or more of the water body's area	No
Within 500m of any higher sensitivity habitat	No – proposal is not within 500m of, or located within, any higher sensitivity habitat areas
1% or more of any lower sensitivity habitat	No – although the proposed dredge overlaps with a small area of Subtidal Soft Sediment, it is not 1% of the overall available habitat area.
Scope in/out	Out

4.4 As illustrated in the table above, no has been answered to all matters, and as such no impact assessment of habitats is required, as stipulated by the guidance.

Fish and Highly Mobile Species

Consider if your activity:	Biology fish/highly mobile species 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	<p>Yes – The River Tees is known to be one of the most important rivers in England for populations of migratory Salmon as well as being host to sea trout and migratory lamprey populations.</p> <p>The dredging proposed for this project could, without appropriate mitigation, pose a risk of disruption to the migratory behaviours of these fish.</p>
Could impact on normal fish/fauna behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Yes – without adequate mitigation in place dredging activity can interfere with movement and migration of fish due to noise and changes to the sediment levels within the water column.
Could cause entrainment or impingement of fish or other highly mobile species	Yes – it is possible that fish are impinged or entrained as a result of suction dredging and/or backhoe dredging if required.
Scope in/out	In

4.6 The table above clearly shows that all matters, with regard to fish and highly mobile species could potentially create an adverse impact on the biology of the water body, without appropriate mitigation and as such an impact assessment is required and all matters are scoped in. It should be noted that the scoping assessment has considered the risk without mitigation measures in place, details of which are described in the subsequent section of this document.

Water quality

Consideration	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)	Yes – it is acknowledged that, without mitigation, works which include dredging are likely to cause temporary excess sediment in the water column. These effects also impact on the oxygenation levels and clarity of the water during and immediately after the works, which are expected to last for 20 days.
Is in a water body with a phytoplankton status of moderate, poor or bad	No – the status is Good
Is in a water body with a history of harmful algae	Not monitored in the River Tees
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Yes – PBDEs, Mercury and its compounds and others on the EQSD list are compounds for which the River Tees has failed. As such it is likely that the disturbance of sediments through the proposed dredging activity will re-release these chemicals into the water column.
It disturbs sediment with contaminants above CEFAS Action Level 1	Yes – sampling has suggested that there are some contaminants above Action level 1 present in the sediment to be dredged.
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Water quality risk issue(s)
The chemicals released are on the EQSD list	No – there is no mixing zone which could release additional chemicals into the environment.
Scope in/out	In

4.7 The table above shows that several matters with regard to water quality could potentially adversely impact the water body without appropriate mitigation, as such water quality matters are scoped in to the required impact assessment.

WFD Protected Areas

Consider if your activity is:	Protected areas risk issue(s)
Within 2km of any WFD protected area	Yes – the site is within both the Teesmouth and Cleveland Coast SSSI and SPA, as well as being within 2km of the Teesmouth and Cleveland Coast Ramsar site.
Scope in/out	In

4.8 Due to the protected nature of the application site and nearby areas, WFD Protected Areas are scoped into the impact assessment.

Invasive non-native species (INNS)

Consider if your activity could:	INNS risk issue(s)
Introduce or spread INNS	Yes – there is a very low risk of the introduction of INNS due to the relatively proximate locations of the dredge and disposal sites, but any marine works which involve the movement of material must account for risks of site based cross-contamination.
Scope in/out	In

4.9 The works will take place largely within the *Tees* water body, but the material removed from the *Tees* would be transported outside of the water body for disposal at the designated disposal site Tees Bay A and/or C. As such it is unlikely that the equipment or material will have been used in or exposed to any waterbodies which harbour non-native species, but site based cross-contamination cannot be ruled out without the appropriate assessment, so INNS are scoped in.

4.10 As detailed in the summary table below, the scoping exercise has revealed that the following matters require further impact assessment so as to establish appropriate mitigation measures:

- Hydromorphology – the proposed activity is contributing to the same use for which the water body has been classified as HMWB
- Biology – Fish and Highly Mobile Species – fish migratory routes and behaviours may be disrupted

- Water Quality – potential impacts to water clarity, oxygen levels and sedimentation; dispersal of chemical contaminants through disruption
- WFD Protected Areas – The site is located with and in close proximity to protected areas
- INNS – low risk of introduction or spread of INNS.

Screening and Scoping Summary

Consideration	Impact Assessment Required?
Hydromorphology	Yes
Biology: habitats	No
Biology: fish and highly mobile species	Yes
Water quality	Yes
WFD Protected areas	Yes
Invasive non-native species	Yes

5.0 Impact Assessment

5.1 The impact assessment detailed in this section considers the potential impacts of an activity, identifies mitigation measures that avoid or reduce impacts, and concludes if the activity may cause deterioration or prevent any quality element within any water body from achieving Good status/potential.

5.2 The Clearing Waters for All Guidance, alongside the related “Pressures-Activities Matrix”, have been used to complete this assessment (contains JNCC data © copyright and database right 2022). This approach corresponds to that which is applied in WFD Policy and should be the case for the determination of this proposal, utilising the following details as an evidence base:

- Marine Planning Supporting Statement (D/I/D/149058/501)
- Dredge Method Statement (1)
- Factual Report on Geo-environmental Ground Investigation (2012)
- MAR02072 Sample Results
- Drawing AMP-006-0015 E

As such, it is considered that this assessment has considered the potential impacts proportionately and reasonably for the risks presented.

5.3 Professional judgement and experience have been used to weigh the potential changes and resultant pressures which could be caused by the proposed development, as there is no published or formalised quantitative guidance to consult for this assessment. These assessments have been made utilising best available data as listed above, in addition to Environment Agency Catchment Data and the River Basin Management Plan.

5.4 The impact assessment will therefore be based on sensitivity and degree of change criteria informed by reasoned argument, previous experience, and professional judgment as summarised below.

Sensitivity of Receptor:

5.5 The assessment has considered the potential impacts of the proposed development on a range of receptors, and has split them up into four different levels. Therefore, the sensitivity of the receptors within this assessment were assigned using the following scale:

- **High:** European Designated Site, High waterbody status receptor, WFD Higher Sensitivity Habitat, or Invasive Non-native Species confirmed as present on site
- **Medium:** Nationally Designated Sites, Good waterbody status receptor, WFD Lower Sensitivity Habitat, or Unmodified River confirmed as present on site, or Invasive Non-native Species confirmed as present elsewhere in waterbody
- **Low:** Locally or Regionally Designated Sites, Moderate or Poor waterbody status receptor, or HMWB/AWB confirmed as present, or Invasive Non-Native Species Confirmed absent¹
- **Negligible:** Designated habitats and/or Protected Species presence considered unlikely or confirmed as absent, or Bad/Fail waterbody status receptor

Degree of Change

5.6 The degree of change has been determined based on baseline ecological, chemical or physical conditions of the watercourse as specified on the EA Catchment Data Explorer, and also accounts for likelihood of the impact occurring according to experience and professional judgement, in accordance with the following scales:

High: likely substantial change

Medium: likely noticeable change

Low: unlikely noticeable change, or likely hardly perceptible change

Negligible: unlikely hardly perceptible change, or no perceptible change

Pressure

5.7 The overall pressure on receptors, detailed in the matrix below, was determined taking into account of receptor sensitivity and degree of change, as set out above.

5.8 Pressures identified within this assessment are considered adverse, unless otherwise stated, as the purpose of a WFD Assessment is to identify, and suggest mitigation to prevent, potential deterioration of waterbody status or jeopardy in achievement of

¹ Note: A precautionary approach has been taken to assume that even where INNS are not present there is a low risk of invasion or spread where works are being undertaken on site

Good status. If a predicted effect falls between two categories e.g., Slight/ Moderate, then professional judgement is applied to assess the expected extent of the pressure.

Degree of Change

		High	Medium	Low	Negligible
Sensitivity	High	Substantial	Moderate/ Substantial	Slight/ Moderate	Slight
	Medium	Moderate/ Substantial	Moderate	Slight	Negligible/ Slight
	Low	Moderate	Slight/ Moderate	Negligible/ Slight	Negligible
	Negligible	Slight	Negligible/ Slight	Negligible	Negligible

- 5.9 The assessment matrix on the following pages considers the effect of mitigation measures embedded in the scheme design and/or construction methodology to avoid or reduce the potential for impacts on quality elements scoped into the assessment.

Hydromorphology

Potential Impacts:

- 5.10 Changes to the amount and composition of sediment suspended in the water column may impact hydromorphological flows and sediment deposition.
- 5.11 Alteration to the depth of the channel can affect flows within and around the dredged area.

Baselines and Pressure Pathways:

- 5.12 With any dredging there is an identified pressure pathway between the proposed activity and the potential impacts.
- 5.13 Removing sediment from the seabed via mechanical means, including through the proposed use of a Trailing Suction Hopper Dredger can result in changes to the sediment concentrations entering a water body. This change to sediment and organic matter movement, and thus the turbidity of the waterbody, can lead to altered sedimentation downstream and altering flow rates and directions.
- 5.14 Furthermore, the deepening of the seabed can alter the rate and patterns of water flows through that section of the waterbody and if a harder substratum is revealed, this can further influence the movement of water over that section of seabed. This can lead to differences in the currents and tidal patterns within the estuarine waterbody.
- 5.15 The *Tees* has a Supports Good Hydromorphological status, but is also is a Highly Modified Water Body for the purposes of Flood Protection and Navigation, Ports and Harbours. There is an extensive dredging regime across the waterbody undertaken by the statutory harbour authority PD Teesport, as well as a number of long-term dredging licences held by individual berth owners along the *Tees* in order to facilitate the extensive navigation and shipping activities which are required in this highly industrial location (see Planning History Chapter 4.0 of D/I/D/149058/501).

- 5.16 Given that the *Tees* has a Supports Good Hydromorphological status, but is also a HMWB subject to extensive shipping, construction and dredging activities across the waterbody, the receptor will be considered as a **Low** sensitivity with regard to hydromorphology for the purposes of this assessment.

The Development and Embedded Mitigation:

- 5.17 It is established that the use of Trailing Suction Hopper Dredgers does have the capacity to temporarily increase the load of suspended sediments within the water column during and immediately after operation. This can cause problems for the fauna which make use of the river habitat (see Biology – Fish and Highly Mobile Species section), as well as altering the rate of sedimentation and scour as a result of sediment transport downstream.
- 5.18 The proposed dredging at Middlesbrough Port is to be undertaken utilising the same, TSHD methodology as has previously been licenced and subsequently employed to dredge the berths in this location. This involves the use of the TSHD for the majority of the berth, guided by Differential Global Positioning Systems to achieve a tolerance of +/- 0.5 m vertically and +/- 4.0 m in horizontally, and where required the use of plough equipment to level out the berth and/or bring hard to reach sediments into the range of the draghead.
- 5.19 Given the baseline levels of dredging undertaken within the wider *Tees* waterbody, and the previous approval for the proposed methodology of dredging in this location, it is considered that there will be limited change to the sediment loading of the *Tees* channel relative to the existing acceptable levels. As such, it is considered unlikely that there will be any change to the sedimentation rates or effects of scour on the largely man-made banks of the downstream section of the *Tees*. In addition, re-instating and expanding the proposed depth in this location is unlikely to significantly alter water flow rates and related sedimentation and tidal patterns, given that the proposed berth depth has already been approved and maintained under a previous licence, which did not reveal any difference in substrata.
- 5.20 It is noted that, in the case of unexpected ground conditions revealing stiffer clay material than expected in this location, a backhoe dredging methodology may be

required to reach the proposed dredge depth. However, given historic site investigation data from the wider Middlesbrough Port site, it is considered unlikely that this will be widespread, if required at all. Therefore, the natural sedimentation patterns of the River Tees will quickly eliminate any potential change that this will cause.

- 5.21 As such it is considered that overall, the flow, sedimentation, and scour patterns in the wider *Tees* as a result of the proposed dredging activity temporarily mobilising sediment into the water column will experience **no perceptible change**.
- 5.22 The *Tees* water body is a large and Heavily Modified Water Body, within which substantial amounts of industrial and construction activity takes place. This includes the consented navigational dredging and disposal of arisings at Tees Bay A undertaken by PD Teesport, which permits the deposition of upto 2,238,420 wet tonnes of trailing suction hopper dredge arisings from the *Tees* per annum (L/2015/00427/7).
- 5.23 As such, it is considered that the limited removal of sediments required in order to create an increased berth depth of upto approximately –3mCD as part of the capital dredge is unlikely to lead to an alteration to the depth of the channel to such a degree that hydromorphological flows within and around the dredged area will be affected outwith the baseline levels of disruption generated through the existing dredging regime within the wider *Tees* water body.
- 5.24 Furthermore, it should be noted that the proposed capital and maintenance dredging is to be undertaken at Middlesbrough Port Quays 1 and 2, and their approach channel, which are located within a linked, but enclosed channel, off of the main *Tees* channel. As such, it is considered that the degree to which the hydromorphological regime of the wider *Tees* channel may be affected by the proposed works is even further limited, as the flows within and through the existing man-made channel, which links at the south west extent to the enclosed Middlesbrough Dock, are already outwith what might be expected within the flows of a natural river system.
- 5.25 As such, it is considered that the change to the hydromorphological flows and downstream sedimentation patterns in the *Tees* as a result of the deepening and

extension of the existing dredge pocket at Middlesbrough Port Quays 1 and 2 would be **unlikely**, and **hardly perceptible**.

- 5.26 When considering the aforementioned assessment of the likely changes to the baseline conditions of the *Tees* as a result of the proposed methodologies and extent of dredging in this location, it is considered that the degree of change to the Hydromorphological regime of the water body will be **Negligible**.

Assessment Outcome:

- 5.27 It is considered that the proposed dredged extension to the existing berth at Middlesbrough Port will generate **Negligible** pressure on the waterbody's Hydromorphological regime. As such, it is not anticipated that the proposed works will lead to any deterioration in the *Tees* existing "Supports Good" Hydromorphological status.

Biology: Fish and Highly Mobile Species

Potential Impacts:

- 5.28 Potential disruption arising from proximate construction operations which may pose a barrier to fish, including salmonids, which are known to be present within the River Tees.
- 5.29 Disturbance of sediments and resultant deoxygenation which may pose a barrier to fish, including salmonids, which are known to be present within the River Tees.
- 5.30 Potential disruption arising from in-channel operations which may pose a barrier to highly mobile species in the *Tees*.
- 5.31 Potential harm to existing ecological communities i.e., benthic invertebrate species as a result of disturbance, light smothering, and abrasion of the seabed surface.

Baselines and Pressure Pathways:

- 5.32 Construction in close proximity to a watercourse has a number of identified pressure pathways on biological elements through visual disruption, light pollution, and noise and vibration, depending on the extent/location of the works. This can particularly impact on migratory salmonid behaviours, generating a physical barrier to migration. There is also a nominal risk of entrainment of fish due to the hydraulic suction of the dredger, which can impinge upon their migration.
- 5.33 In-channel works including dredging are, as noted above, also known to generate an elevated concentration of suspended sediment within the water column during and immediately after work has been undertaken. This affects the clarity (turbidity) of the water, as well as reducing the dissolved oxygen levels. Furthermore, if the sediment is contaminated, this increases the potential exposure of fish, highly mobile species, invertebrates, and dip-feeding birds which are in and around the watercourse to harmful substances. This can create a chemical barrier to migration, deterring normal behaviours, and is known to particularly affect smolts which have a high metabolic rate.

- 5.34 Underwater noise can be created by dredging activity. In extreme cases, underwater noise and the vibrations this causes can cause harm or even mortality to fish and highly mobile species which utilise the surrounding areas. It can also lead to avoidance behaviours, changing the normal patterns of feeding and breeding birds, marine mammals, or fish.
- 5.35 Abrasion and disturbance of the sediments on the seabed through the suction dredging and disposal at the licenced site can have an adverse effect on the benthic and aquatic invertebrate species which live and feed in the seabed. The removal of the top layer of sediment generates a temporary loss of habitat and disruption to the ecological colonisation of the dredged location, until the area is recolonised from surrounding sediments which have not been affected. In addition, the deposit of dredge arisings at the disposal site will result in light smothering of the seabed sediment, which can have an adverse effect on benthic species which are not able to travel up through the newly deposited sediment to the surface.
- 5.36 The *Tees* is a known and important salmonid river for the migration of species including Atlantic Salmon, Sea Trout, and European Eel. The EA Catchment Data Explorer indicates that the Fish status has been at Good status in the past, but has since 2019 been classified as Moderate status for Fish. The Reason For Deterioration (RFD) of the status is currently under investigation but is labelled as unknown/chemical pressure in the RNAG classification data.
- 5.37 In addition, the *Tees* is classified as Good status for Invertebrates, Macroalgae, and Phytoplankton, although there are also several RNAGS which relate to impacts on Macroalgae as a result of discharge from Trade/Industry and the Water Industry.
- 5.38 The *Tees* is also known to be home to populations of highly mobile species such as Common/Harbour Seals and breeding and wintering birds, which are features listed on the citation for the designation of the Teesmouth and Cleveland Coast SSSI and SPA designations.
- 5.39 As such, it must be considered that increased physical, visual and aural disturbance in addition to elevated levels of suspended sediment in the channel could pose a barrier

to fish and invertebrate species, as well as potentially affecting birds or other marine mammals feeding on them if the sediment is adsorbed to heavy metal or hydrocarbon compounds.

- 5.40 When considering the status of the *Tees* with regard to ecological features, the protected status of the fish and highly mobile species known to utilise the habitats provided by the River *Tees* would suggest that fish and highly mobile species should be taken to be of medium sensitivity. However, despite the heavily industrial nature of the port the continued use of the estuary by these Fish and Highly Mobile Species, as well as the Infaunal Quality Index status of Good for invertebrates, would suggest that they are not overly sensitive to the current baseline conditions. When this is balanced with the RNAGS identified, and moderate status for Fish, it is considered that the receptor should be assessed as **Low** sensitivity for the purposes of this assessment.

The Development and Embedded Mitigation:

- 5.41 Dredging on the River *Tees* is an established activity and is not considered to generate a high degree of disturbance in comparison to other frequent construction and industrial activities on the river which also generate impulsive noise and the associated vibration. It is considered that the extent and severity of the noise, vibration and visual disturbance to fish and highly mobile species imposed by the frequent construction activities taking place within and in close proximity to the river, as well as the high volume of shipping along the *Tees*, are likely to be greater than those imposed by dredging.
- 5.42 However, dredging does generate a degree of disturbance to proximate species whilst it is being undertaken including a degree of underwater noise and a nominal risk of entrainment through the use of a vessel and hydraulic suction equipment, and this should be minimised as far as possible so as not to cumulate to a harmful level with the existing baselines.
- 5.43 As noted above, it is considered unlikely that migrating fish will be within the immediate areas to be dredged as part of these proposals, due to the fact that the works are not within the main *Tees* channel, and therefore the Middlesbrough Port channel does not lead upstream to where the fish are seeking to migrate to for breeding and spawning.

However, due to the intermittent nature of the works which will allow for periods of undisturbed migration the number of migrating fish which potentially could be affected by the temporary disturbance is limited.

- 5.44 This would consist of undertaking dredging intermittently, with periods for undisturbed fish migration during disposal, and will be undertaken by an experienced dredging contractor which adheres to best practice measures which will therefore ensure that disturbance to normal fish behaviour is minimised. In addition, the need for the use of artificial light will be minimised as far as practicable and will avoid directing any toward the water, which can also disturb the migratory patterns of fish. Best practice also includes the removal of large items, which will be disposed of on land. Overall, considering the limited effects of dredging activity in the context of the *Tees* baseline levels of noise, vibration and visual disturbance, widespread acceptable dredging using best practice, and the small project scale (20 days per annum) of the proposed works at Middlesbrough Port, there will be a **likely**, but **hardly perceptible change** to the disturbance of fish due to proximate operations.
- 5.45 The disturbance of sediments and resultant turbidity and deoxygenation of the water column can also pose a barrier to the normal migratory behaviours of fish. During the dredging, and immediately after, whilst sediments remain suspended in the channel, this may reduce the ability of fish to pass the area, and may increase the exposure of nearby aquatic and highly mobile species to substances which are harmful to their health.
- 5.46 This will be a temporary effect over the period of the dredge campaign, which will be intermittent dredging (migration will be undisturbed during disposal operations) for a limited project period of upto 20 days. Furthermore, as noted, the likelihood of a large number of migratory fish travelling into the Middlesbrough Dock channel is limited due to the fact that they cannot progress upstream via this route. Their sense of smell towards their breeding and spawning grounds is considered likely to guide the migrating fish past the entrance to the area and further upstream along the main *Tees* channel.
- 5.47 As indicated in the Marine Planning Statement which accompanies this Marine Licence Application (D/I/D/149058/501), the sediments which are due to be dredged at

Middlesbrough Port Quays 1 and 2 do have contaminants which are not presently assessed with adopted Action Levels, but have been monitored by the MMO and CEFAS through dredge licence applications. A review of publicly available sample data found that the observed sample results are not outwith the baselines expected within the historically industrial River Tees (see Water Quality assessment for further discussion).

- 5.48 It is proposed that dredging activities will be undertaken utilising best practice measures and will be limited to approximately 20 days per annum, which is considered to be an insignificant addition to the baseline dredging activity in the Tees. Due to the requirement for the TSHD to deposit the dredge arisings at sea, there will be frequent breaks in dredging activity to allow for the undisturbed migration of fish.
- 5.49 As noted above, the Good and Moderate statuses for invertebrates and fish as well as the designations which cover the birds and marine mammals in the *Tees* demonstrate that the baseline sediment conditions and industrial activities have not deterred use of the habitats and migratory routes in the *Tees*. Therefore, when considering the temporary nature and off-channel location of the works alongside the aforementioned intermittent nature and limited period of the proposed capital and maintenance dredging, it is considered that there will be an **unlikely, hardly perceptible change** to the level of disturbance to migratory fish as a result of suspended sediments.
- 5.50 The main highly mobile species which need to be considered in the *Tees* water body are seals, and breeding and wintering birds. However, the application site is the largely enclosed, engineered Middlesbrough Dock which does not provide good habitat for either seals or waterbirds, as it only contains one small and isolated area of mudflat, and no other intertidal habitats. It is considered that the use of that area by dip-feeding birds or marine mammals is likely to be very limited, as the area available is so limited and, due to being separated from the main channel, there is not likely to be abundant numbers of fish present for seals to hunt. In addition, there are substantial alternative intertidal habitat areas in close proximity which would likely provide superior feeding and sheltering opportunities.
- 5.51 Meanwhile, subtidal habitats are only required as a transitory area for these highly mobile species, and the majority of the disturbance caused by dredging is beneath the

surface of the water, meaning that any change to the subtidal seabed will have limited impact on their behaviours and any disturbance experienced below the water can likely be avoided.

- 5.52 Due to the fact that the proposed dredging works are primarily going to influence habitat within the subtidal zone of the *Tees*, as well as being situated largely outside of the main river channel and so abundance of individuals is likely to be low, it is considered that there will be **no perceptible change** to the disturbance that highly mobile species will experience as a result of the proposed extension to existing dredging operations in this location.
- 5.53 The act of dredging the seabed surface causes disturbance and abrasion to the sediments and thus the habitats of benthic invertebrates which live in the seabed itself. This can cause harm, and can lead to a change in the habitat type if a new type of strata is revealed, and thus the area cannot be recolonised by the populations of invertebrate species which were in the undisturbed surrounding sediments.
- 5.54 However, due to the existing berth which has previously been dredged to the proposed level of -7.0mCD, relatively small capital increase in seabed depth of upto approximately 3m, and limited extent of the capital dredge area, it is not considered that these works will have anything more than a temporary period of disturbance and change to the habitat, rather than any permanent loss. Furthermore, the extent, depth and frequency of maintenance dredging has been proposed to be the minimum required in order to maintain and futureproof the working requirements of Quays 1 and 2, which will ensure that no additional disruption will be caused outwith the absolute need for the operation of the site.
- 5.55 In addition, disposal of dredged material at sea poses a risk of the smothering of invertebrates which are present in the sediments on the seabed. However, due to the nature of the disposal site as a limited, defined area where dredge arisings are frequently deposited from the *Tees*, it is considered likely that within the area the colonising species will be those which are able to travel upwards through layers of sediment which may be deposited. Therefore, the seabed surface is likely to quickly return to its present habitat condition, being recolonised from the populations of benthic

species present in the undisturbed surrounding sediments, and from the sediments covered by the deposit.

5.56 The fact that the type and quality of sediments deposited at sea are also controlled means that there is unlikely to be an adverse effect outwith the baselines for the disposal site for the deposit of the arisings from this dredge campaign, as opposed to any other. There will be **no perceptible change** to the baseline conditions with regards to disturbance and abrasion, or smothering of invertebrates in the seabed.

5.57 Overall, it is considered that, to take a precautionary approach, the likely degree of change that will be experienced by Fish and Highly Mobile species as a result of the dredging extension proposed at Middlesbrough Port will be **Low**.

Assessment Outcome:

5.58 As per the findings of the above risk assessment, it is considered that the proposed dredging works will generate a **Slight** pressure on the Biological elements – Fish and Highly Mobile Species.

Water Quality

Potential Impacts:

- 5.59 The chemical pollution caused by the disturbance of sediments containing chemicals such as heavy metals or hydrocarbons into the water column, harming existing species/habitats.
- 5.60 Changes to water clarity (turbidity) as a result of changes in load of sediment entering the watercourse, and resultant deoxygenation.

Baselines and Pressure Pathways:

- 5.61 There are pressure pathways between construction activity on/near a water body and disruption of sediment such that the clarity and quality of the water may be impacted.
- 5.62 As such, the proposed dredging works, in particular due to the known presence of contamination within the existing seabed sediments within the application site, have the potential to contribute to turbidity, toxicity and deoxygenation of the *Tees* water body. This can form a chemical barrier to any fish or other fauna using the watercourse (see Biology-fish and highly mobile species), or harm growing macrophytes.
- 5.63 The *Tees* is a Heavily Modified Water Body classified as having High status for Dissolved Oxygen and all specific pollutants in the 2022 Cycle 3 assessment, and moderate status for dissolved inorganic nitrogen, despite previously having a Fail overall Chemical status in 2019 due to the presence of a number of common contaminants in rivers including heavy metals and hydrocarbons (this is no longer assessed). The *Tees* has specified Reasons for Not Achieving Good Status (RNAGS) relating to a number of pollutants including Dissolved Inorganic Nitrogen, Tributyltin, Mercury and its Compounds, and Benzo(g-h-i)perylene, in addition to PBDEs.
- 5.64 Overall, the above suggests that the *Tees* can be considered to have a **Medium** sensitivity to take a precautionary approach; the primary status of interest is the Chemical which was most recently a Fail and there are also chemical RNAGs

(Negligible sensitivity) however, the High status of Dissolved Oxygen and all Specific Pollutants are also considered.

The Development and Embedded Mitigation:

- 5.65 Sediment sampling has been undertaken in line with SAM/2022/00077, which has revealed that there are levels of PAHs and a number of PBDE congeners which are consistent with the Tees' high baseline levels, as well as a lesser degree of contamination of Trace metals, PCBs and Organochlorines, with some exceedances of the adopted Action Level 1, but largely acceptable results.
- 5.66 As such, there may be temporary adverse effects when these sediments are dispersed into the water column, both at the point of dredging, and at the point of disposal at sea. However, a review of a range of publicly accessible data from the MCMS Public register has demonstrated that the observed levels of PAH and PBDE contamination found within the application site is largely in line with the degree of contamination recorded and approved as acceptable for at sea disposal for other dredging marine licences.
- 5.67 As such, it is considered that the likely effects of both the dredge disturbance and the resuspension at the point of disposal will be within the accepted baseline generated by the widespread dredging activity undertaken by PD Teesport and other private quayside operations across the *Tees* water body.
- 5.68 However, there will be potential temporary effects of these works, and as such, water quality concerns due to the agitation of contaminated sediment being resuspended into the *Tees* water column have been controlled through the minimisation of the scale and duration of the works, as well as the proposed use of an existing acceptable TSHD methodology. This will ensure that the watercourse is adequately protected in line with the baseline levels of disturbance during the course of the dredging works, with no excessive works or additional disruption cause by the use of a cutter suction dredger or rainbowing disposal, for example.
- 5.69 If required, ground conditions may necessitate the use of a backhoe dredger for the removal of unexpectedly stiff clays. This will involve a similar standard methodology of

the removal of materials by a hydraulic pontoon-mounted dredger depositing the material into a split hopper barge for disposal at Tees Bay C. Due to the stiffer nature of this material, there is expected to be less suspended sediment caused by utilising this approach as opposed to the TSHD, and similarly, use of this methodology will be minimised only to the scale necessary to achieve the dredge depth required in areas which cannot be suction dredged.

- 5.70 In addition, it is proposed that a frequent sampling regime is undertaken to ensure that the quality of the sediment is suitable for at sea disposal; sampling is proposed to take place every 3 years. As such, the water quality and any dependent species and habitats within the *Tees*, the downstream *Tees Coastal* water body, and North East Inshore areas are protected from any significant change as a result of chemical contamination over and above the existing conditions.
- 5.71 Overall, although there are a number of analytes which were found to be low and/or acceptable (AL1) levels, a number of hydrocarbon contaminants were found to be baseline high levels. Although these guidelines are not yet officially adopted, the exceedances do indicate a potential risk of harm. When considering this data in addition to the baseline conditions in the *Tees* and at the licenced disposal sites for *Tees*-derived dredge arisings, in addition to the temporary nature of the works, it is considered that there will be a **likely** but **hardly perceptible change** to the water quality and any present species or habitats present at the dredge and disposal sites during the works, due to chemically contaminated sediments.
- 5.72 When sediment is suspended into the water column, this reduces the clarity (increases turbidity) of the channel, which can generate a physical barrier to the progression of migratory fish and the movement of aquatic invertebrates. In addition, the excess sediment concentration also leads to reduced dissolved oxygen levels in the water. This can also make passage of aquatic fauna difficult, and in extreme cases can cause harm and/or morbidity.
- 5.73 The methodology of dredging proposed within this application, which is the use of a standard TSHD methodology, combined with the limited use of a plough where required to level out the bed and/or reach any inaccessible areas for the draghead.

This is one of the least disruptive methods of suction dredging, and is widely adopted as a suitable method for berth creation and maintenance in the *Tees* waterbody and across the UK, where sediments are suitable.

- 5.74 Similarly, the other potential methodology of the use of a Backhoe Dredger generates limited disruption, due to the use only when sediments are less granular. The process is still hydraulic, but generates less underwater noise than the suction methodology, and is also considered likely to be less harmful in the case that any fish or invertebrates are scooped into the hopper as opposed to if they were to be entrained through a draghead. Therefore, it is considered that the potential additional use of this methodology generates no change to the likely impacts of the TSHD method, which will be the primary dredging methodology used to undertake this proposal.
- 5.75 In addition, the works will be intermittent while the TSHD undertakes disposal of the dredged arisings allowing for periods of undisturbed fish migration, and also has the benefit of being removed from the main River Tees channel. This means that the number of fish within the vicinity of the works is considered likely to be lower, as discussed previously, and the sediment which will be disturbed around the TSHD will be less likely to be pulled further downstream due to being situated largely within the protected channel which leads into Middlesbrough Dock. Instead, a greater proportion of the suspended sediment will resettle in situ within the Middlesbrough Dock entrance channel, and will have a lesser effect than in-channel dredging on the migration of fish upstream along the River Tees.
- 5.76 On the whole, it is considered that although there is a temporary risk of increased sediment load and associated deoxygenation around the dredging activity, this is not outwith the expected baselines within the *Tees* which is subject to a high volume of dredging activity undertaken by the same methodologies. Furthermore, due to being isolated from the main channel and inherently intermittent with periods for migration during disposal, the effects of this dredge campaign will be reduced as compared to other similar activities which are licenced to take place over 24hours of the day in the main River Tees Channel. It is overall considered that there will be a **likely, but hardly perceptible change** to water quality as a result of sediment loading and deoxygenation associated with the proposed dredging and disposal works, and due to

the temporary nature of this activity these works will not contribute to the deterioration of the High Dissolved Oxygen status of the *Tees*.

Assessment Outcome:

5.77 As per the above risk assessment, the proposed dredging works will generate a **Slight** pressure on the water quality of the *Tees* waterbody.

WFD Protected Areas

Potential Impacts:

- 5.78 Dredging has the capacity to alter the structure of the habitat by revealing an alternative substratum surface, and as such creating the loss of habitat within the SSSI and SPA designations which cover the site, potentially harming the integrity of that European designated site.
- 5.79 Disturbance from proximate construction operations has the capacity to reduce the suitability of protected habitats for their dependent species.

Baselines and Pressure Pathways:

- 5.80 The application site is located within the Teesmouth and Cleveland SPA. The SPA is protected for the use of birds including breeding Little Tern passage Sandwich Tern, wintering Knot, Redshank, and an assemblage of over 20,000 wintering waterfowl. Construction works of any kind in close proximity to this area could generate adverse impacts, disturbing the protected features through excessive noise and vibration, or visual disturbance.
- 5.81 The site also lies within the Teesmouth and Cleveland SSSI, which is designated as an area of special interest for a range of nationally important features which occur within and are supported by its “*mosaic of coastal and freshwater habitats*”, including the likes of Harbour seals, a diverse assemblage of breeding and non-breeding birds, saltmarsh, sand dunes and Jurassic and Quaternary geologic features.
- 5.82 The Teesmouth and Cleveland Ramsar site is located approximately 550m to the north of the proposed dredge pocket and so will also be considered. The Ramsar site is designated for its support of wintering waterbird assemblage, including Knot, as well as the passage of Redshank and Sandwich Tern.
- 5.83 Overall, the Tees waterbody has a Moderate ecological status, and no RNAGS directly associated with the Protected Areas. However, the waterbody objectives table sets out that this is the highest achievable status for the biological elements due to

Disproportionate Burdens: the achievement of Good status would generate excessive adverse impacts upon the present industrial uses of the waterbody.

- 5.84 Overall, the sensitivity of the WFD Protected Areas is considered to be **High**, due to the application site being situated within a European Protected Area and in accordance with the precautionary principle.

The Development and Embedded Mitigation:

- 5.85 Dredging is known to have the capacity to alter the structure of the subtidal habitat by revealing an alternative substratum surface and or by creating a new surface at the point of disposal, as discussed, in the Fish and Highly Mobile Species section above.
- 5.86 As noted, the only habitat which is likely to experience a temporary change is the subtidal habitat. Furthermore, the dredge to be undertaken as a part of the present application is to a previously achieved depth at the deepest, and previous dredging of the original berth pocket to the same proposed depth of -7mCD saw no alternative strata being encountered and thus no change to the surface properties available to be colonised. Therefore, it can be concluded that there will be no loss of existing habitat, and no permanent change to the habitat, as it will be recolonised over time from the surrounding undisturbed areas of sediment, and will be built up again over time due to natural sedimentation of the River Tees, hence the requirement for dredging in this location.
- 5.87 In addition, subtidal sediment habitats are not included as part of the designated features of either the SSSI or the SPA, and thus there is no risk to the integrity of those designations as a result of the temporary disturbance to the sediment habitats where the surface layers are removed through dredging.
- 5.88 As such, there will be **no perceptible change** to the SSSI or SPA habitats, as a result of the proposed works.
- 5.89 As discussed in the Fish and Highly mobile species section above, there is a possibility that disturbance from dredging operations could have an adverse impact on proximate

receptors; when considered from the perspective of the WFD Protected Areas, this means that the available habitats as part of the SPA and SSSI, and potentially the Ramsar site to the north of the proposed dredging activity may become unsuitable to support their designated features.

- 5.90 However, as also noted previously, the primary zone of influence to be affected by dredging activity is the subtidal, meaning that disruption to the surface habitats is already limited.
- 5.91 Furthermore the following measures have been put in place to further avoid and minimise disruption as far as practicable: dredging will seek to avoid the need for artificial lighting where possible, and any artificial lighting required will not be directed at the water in order to minimise disturbance; the scale of the proposed works has been kept to the operational minimum depth and area to facilitate the required activities at Quays 1 and 2; and the use of an experience contractor will ensure adherence to standard best practice measures to minimise disturbance.
- 5.92 As such, it is not expected that there will be any more than temporary disturbance to the immediate WFD Protected areas, nor therefore to the more distant Teesmouth and Cleveland Ramsar site. This aligns with the existing baselines identified within the EA Catchment Data Explorer as associated with the essential HMWB uses of the *Tees* waterbody, including routine dredging operations such as those proposed in this application.
- 5.93 In addition, only one area of intertidal habitat which would be a European designated feature is in very close proximity to the works, and due to its small size and fragmented location away from other areas of functional habitat, it is considered that the proportionate extension and deepening if the existing berth at Quays 1 and 2 will make no change to the functional capacity of that area of land to support designated features.
- 5.94 With all the above points having been considered, the proposed works are considered to generate **no perceptible change** to the suitability of the protected habitat features in the *Tees* waterbody.

5.95 Overall, there is likely to be a **Negligible** degree of change to the WFD Protected Areas within and in close proximity to the application site as a result of the proposed capital and maintenance dredging and disposal operations.

Assessment Outcome:

5.96 According to the findings of the above assessment, the proposed works will generate a **Slight** pressure upon the WFD Protected Areas.

INNS

Potential Impacts:

5.97 Potential spread of INNS following introduction into a new environment where they may outcompete native species, cause environmental degradation, increase risk to human and animal safety and reduce the value of land and assets.

Baselines and Pressure Pathways:

5.98 For all activities where products or equipment are being transported into/out of a site in close proximity to or within a watercourse there must be consideration of the risk of transporting, introducing, and enabling the subsequent spread of INNS. According to the pressure matrix the risks tend to be associated with long-distance transportation of shellfish and other aquaculture, as well as ballast water and other accidental release.

5.99 The EA Catchment data does not suggest that INNS are a RNAGS for the *Tees* waterbody on the whole, and so it would logically follow to conclude that standard preventative measures in place along the extent of the waterbody have been successful in avoiding and minimising the risks thus far. However, there are measures in the RBMP to train action groups to safely remove INNS, suggesting the wider *Tees* catchment is adversely affected by non-native species.

5.100 There has not been an ecological survey of the application site due to the existing precedent of dredging works being undertaken at this location. As such it cannot be confirmed that there are no INNS present within the proposed dredge area. Overall, given the nature of the site and lack of RNAGS for the waterbody, but potential for INNS to be present in a river where so many vessels travel in and out of the area and upstream areas are affected, a precautionary approach must be taken and the receptor will be considered to have a **Medium** sensitivity to INNS introduction and spread.

The Development and Embedded Mitigation:

5.101 Given the proximate locations of Middlesbrough Port and the *Tees* Bay A and C disposal sites, the lack of known INNS within these areas, and the likelihood of the vessels involved being based solely in the *Tees* area thanks to the high volume of

dredging activity along the river, it is considered unlikely that contamination of the site with INNS will occur as a result of the dredge vessel. Furthermore, the dredging contractors used by Able UK at Middlesbrough Port are a frequently use contractor across the East coast of England and Scotland which are well established and aware of their responsibilities to appropriately maintain their fleet to prevent the spread of INNS.

5.102 However, even when the risks are likely to be low, a degree of mitigation should always be in place as a precautionary measure in line with the legal responsibilities as a result of the Wildlife and Countryside Act 1981 to prevent the introduction and spread of INNS. As such, it must be ensured that all vessels and operations in relation to the dredging, transporting, and disposal of the material are in line with standard best practice procedures.

5.103 The risk of cross-contamination is lowered further with the use of standard best practice procedures, for example the Non-Native Species Secretariat (NNSS) Check, Clean, Dry measures, to prevent introduction of invasive species. In addition, all equipment and footwear will be cleaned before entering and leaving the site with a suitable disinfectant solution in accordance with the EA guidance measures. The details will be finalised in conjunction with the contractors, but in order to be legally compliant, this will ensure that there will be **no perceptible change** as a result of these works.

5.104 Overall, it is considered that while standard best procedures are in place to prevent any risk of cross contamination this will prevent INNS contamination contributing to the deterioration or failing of ecological potential. Therefore, it is considered that the required mitigations in place as part of dredging operations such that the degree of change to the *Tees* as a result of INNS will be **Negligible**.

Assessment Outcome:

5.105 The assessment concludes that with the standard best practice procedures in place in order to avoid risk of INNS spread and the use of a trusted dredging contractor, the pressures on receptors will be **Negligible**.

Conclusion to the Impact Assessment

5.106 Overall, it is not considered that this project will contribute to the deterioration of the Moderate status of the water body after considering the risks posed from each element, once the appropriate mitigation measures have been put in place. The potential pressures from the project tend to be **Slight** and hence are not expected to jeopardise the status of the *Tees*.

5.107 It should be noted that the works will not positively contribute, nor pose jeopardy to the achievement of Good ecological status of the *Tees* water body. This is primarily because the nature of the river system as a Highly Modified Water Body for the purposes of heavy industry and navigation, including dredging activities such as those considered in this WFD Assessment report, presents too great a burden to overcome in order to achieve Good status. Therefore, regardless of the outcome of this assessment, there is nothing which could be implemented at the scale of the proposed works which could overcome the present conditions and result in the achievement of Good status.

6.0 Conclusion

- 6.1 Fairhurst consider that this assessment constitutes a valid and comprehensive Water Framework Directive assessment which takes into account all the relevant information from the approved sources and regulating authorities. After assessing all the available data against the pressures-activity matrix we can conclude that this project does not pose a risk to the status of the *Tees* water body, and as such endorse the outcome of this assessment in favour of the granting of a Marine License for the proposed dredging works.
- 6.2 This WFD compliance assessment has concluded that provided the mitigation measures detailed in this document are implemented thoroughly then the scheme will not cause deterioration to the status of the *Tees*, or any other water body, nor contribute to the deterioration of Moderate Ecological Status in future.
- 6.3 The following table sets out the conclusions of this assessment in relation to the wider WFD implications of these works.

Table 6.1: WFD Assessment Conclusions

WFD Questions	Assessment Conclusions
Will this development lead to deterioration of WFD status of the waterbody?	This WFD assessment has concluded that, due to the small scale of the works, limited operational time per annum, and isolated location of the works, the scheme is unlikely to generate effects that would cause a deterioration to the status of the <i>Tees</i> Water Body.
Will this development compromise achievement of Good status of the waterbody?	The <i>Tees</i> is not, at present able to achieve Good status, and it is considered a disproportionate burden to do so due to the HMWB nature of the waterbody. However, provided the mitigation measures detailed in this document are implemented thoroughly, then the Proposed Development will not jeopardise achievement of or cause the deterioration from its present Moderate Status.
Will the development compromise the achievement of WFD objectives in those waterbodies that are hydrologically linked?	This WFD assessment has concluded that, due to the limited scale of the works, and provided the mitigation measures detailed in this document are implemented thoroughly, then the scheme will have only a Slight impact on the immediate waterbody, and so it is not anticipated that the extent of any changes as a result of the works would be substantial

	<p>enough to influence hydrologically linked waterbodies further from the site.</p>
<p>Will the proposed development contribute towards a cumulative deterioration of WFD status or prevent cumulative enhancement of WFD status in any waterbody?</p>	<p>Due to the pressures on each of the WFD receptors being assessed as Slight or Negligible, it is considered that there will not be a deterioration of the River Tees as a result of the proposed dredging. As such, there are minimal effects which could be assessed to accumulate, and based upon a review of the MMO public access register, there are no relevant nearby projects outwith the accepted operation of the Statutory Harbour Authority, which forms the baseline of the area. As such, it is considered that there will be no jeopardy of WFD status as a result of cumulation of this application's pressures with others.</p>
<p>Can any of the mitigation measures proposed in the Humber RBMP be delivered within this application?</p>	<p>There are a number of present and future potential measures identified which are of relevance to the proposed works, in particular: Living Waterways; Tees Estuary Habitat Vision; Tees INNS initiative and the Tees Tidelands project.</p> <p>The proposed development includes embedded and additional mitigation measures which ensure that the proposed development complies with the intentions of the RBMP measures e.g., avoiding and minimising disturbance to intertidal habitats, implementation of all best practice measures with regards to the prevention of the spread of INNS, as well as undisturbed periods for disposal and sensitive lighting direction in order to minimise disturbance to migratory fish. Overall, it is considered that the aforementioned elements of the works do deliver towards the stated RBMP improvement measures. However, due to the small scale of the works, and the regional scale of many of the RBMP measures, it is not considered proportionate or plausible for the proposed development to commit to delivering the type of measures posed in the RBMP in isolation.</p>
<p>Can the development support the delivery of those measures identified in the current River Basin Management Plan that are required to achieve waterbody objectives?</p>	<p>The Tees is designated as a HMWB, and therefore all practicable mitigation must be taken to achieve good ecological potential. However, as identified above, the existing baselines of the river mean that Good status is not achievable. The proposed development involves a range of</p>

	<p>measures which contributes to the overall slight/negligible pressures expected to result from the works. Given the small scale and limited impacts of the proposed dredging works, it is considered that a suitable suite of practicable mitigation measures has been put in place to protect the Moderate ecological status of the <i>Tees</i> waterbody and its tributaries, whilst still enabling the operation of the site to continue.</p> <p>As noted above, the proposed development measures are considered to support the relevant RBMP measures towards the <i>Tees</i> waterbody objectives as far as is practicable.</p>
<p>Statement of compliance with WFD:</p>	<p>These works are considered to be in compliance with the Water Framework Directive, as illustrated by the screening, scoping and impact assessment processes which have been undertaken in order to generate this report.</p>

- 6.4 This assessment has been based on currently available WFD baseline data, and the available information relating to the proposed dredging works. It is considered a 'live' document and should be reviewed and updated during the works if any elements are subject to change.

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