

## 14 COMMERCIAL AND RECREATIONAL NAVIGATION

### 14.1 Introduction

This section of the EIA Report considers the following potential impacts to commercial navigation:

- Conflict between construction activities and commercial navigation.
- Increased collision risk and delays to shipping due to increased vessel traffic during operation.
- Effects on safety of shipping movements due to changes in the hydrodynamic regime during operation.

### 14.2 Policy and consultation

#### 14.2.1 Policy

##### Marine Policy Statement

As outlined within the UK MPS (HM Government, 2011), port development may result in an increase in shipping activity. When considering any potential increase in shipping activity, the MPS states (in Paragraph 3.4.10) that marine plan authorities and decision makers should ensure that the social and economic benefits and environmental impacts are taken into account and that impacts are considered in line with sustainable development principles.

As outlined in the MPS (Paragraph 3.4.6), environmental impacts arising from shipping activity can be through accidental pollution from ships in the course of navigation or lawful operations, pollution caused by unlawful operations or physical damage caused by collisions. Other pressures on the environment from shipping activity relate to noise and airborne emissions. These potential impacts (with the exception of noise and emissions from vessels which have been considered in the noise and air quality chapters respectively) have been assessed within this section of the EIA Report, where they are relevant to the proposed scheme.

The MPS (authorised by Section 44 of the Marine and Coastal Access Act, 2009) states that marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law (Paragraph 3.4.7).

#### 14.2.2 Consultation

Consultation with PDT was undertaken during June 2020 regarding the potential impacts of the proposed scheme on navigation within the estuary. It was confirmed that a Navigation Risk Assessment (NRA) would be required for PDT to understand the potential impacts of the proposed scheme. An NRA has therefore been undertaken to inform this chapter; the findings which are reported below. The NRA is also presented in full within **Appendix 9**. Consultation with PDT has also been undertaken to inform the design of the proposed scheme; specifically, PDT advised that the berth pocket should be located outside of the approach channel in order to minimise risks to navigation. STDC is undertaking further consultation with PDT to discuss the findings of the NRA.

### 14.3 Methodology

The assessment methodology used to determine the potential environmental impacts on commercial navigation associated with the proposed scheme is generally as set out in Section 5. The methodology used to produce the NRA is detailed in **Appendix 9**.

## 14.4 Existing environment

Many of the riverside industrial plants along the 17km stretch of the River Tees have docking and cargo facilities and, therefore, the River Tees experiences significant commercial vessel traffic. PDT has confirmed that on average, there are between 800 and 950 vessel movements per month within the Tees estuary.

The Tees estuary is approached from the north-east through a deep-water channel in Tees Bay. The approach channel has an advertised depth of 15.4m below CD from Tees fairway light buoy to the entrance, where it reduces to 14.1m below CD. Thereafter the maintained depth is progressively reduced to 4.5m below CD, seven nautical miles from the entrance. The current advertised depths of the channel are shown in **Figure 14.1** (it should be noted that the Harbour Master has stated that the current channel depths do not match the advertised depths due to sedimentation within the channel).

There are currently two turning areas within the estuary; one within the Seaton Channel area which can accommodate vessels 350m in length and is regularly used for large tankers which berth at the Tees North Sea Oil Terminal and large bulk carriers bringing coal and ore to Redcar Ore Terminal. The second is the Tees Dock turning area which is used to turn vessels which berth at Tees Dock and at the bulk liquid jetties opposite.

Large deep drafted ships bound for Tees North Sea Oil Terminal and the Redcar Ore terminal pick up tug assistance after passing South Gare. Fully laden ships can only enter on the high tide but can leave at any time once their cargo has been discharged. Similarly, any fully laden ships to exit the river must wait for the high tide. Vessels are turned when unloaded either in the Seaton Channel turning area or in the Tees Dock Turning Area depending on which quay or jetty they are destined for.

The channel is maintained by PDT which has a statutory responsibility to maintain the channel for safe navigation. Additionally, traffic in the Tees estuary is controlled by a sophisticated vessel traffic system (VTS).

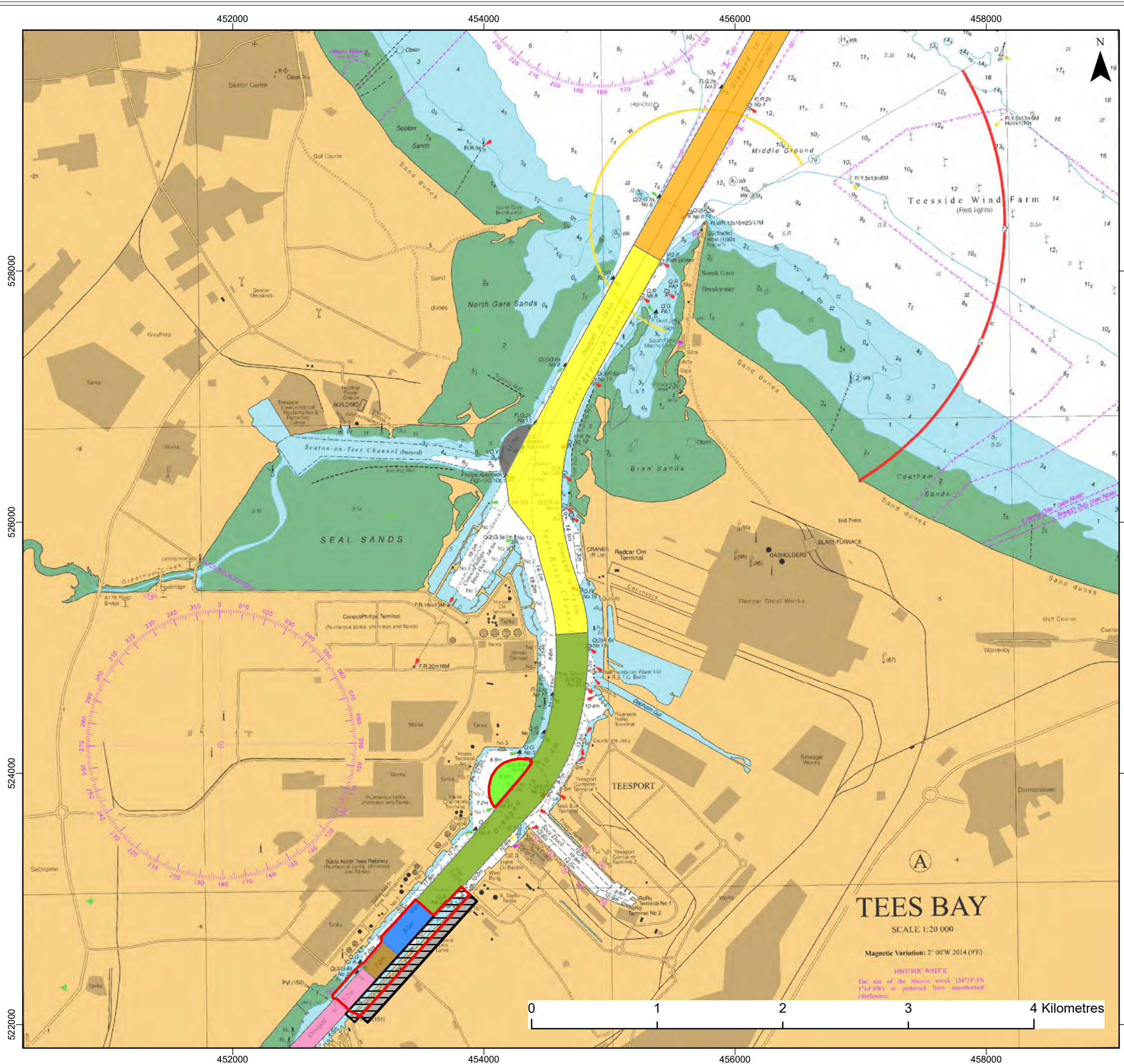
The proposed scheme is currently occupied by a dilapidated wharf and three concrete jetties. The wharf (and the three downstream jetties) has not been used for a number of years and has fallen into a state of disrepair.

Consultation with PDT during December 2017 confirmed the volume of cargo handled by Teesport. This information is detailed in Table 14.1 (alongside information from 2004 as a comparison), and confirms that liquid bulk remains the dominant material handled at the port. The data shows that there has been a reduction in the overall tonnages of cargo handled by PDT since 2004 (however the volume of unitised cargo has increased). This reduction is largely as a result of the closure of the steel works and reduced exports from the Conoco Philips facility.

**Table 14.1 Tonnages of cargo handled by Teesport during 2004 and 2016**

Material handled	2004 tonnages	2016 tonnage
Liquid bulk	36.2 million tonnes	20 million tonnes
Dry bulk	12.5 million tonnes	2.3 million tonnes
Unitised cargo	3.6 million tonnes	4 million tonnes
Overall	53.8 million tonnes	26.7 million tonnes





**Legend**

- Proposed Dredge and Excavation Envelope (including side slopes)
- Proposed Quay Envelope
- Proposed Demolition Area

**Advised Dredge Depths (m)**

- 5.7
- 7.2
- 8.5
- 8.8
- 10.4
- 11.7
- 14.1
- 15.4

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Not to be used for navigation.

Client: <b>Tees Valley Combined Authority</b>	Project: <b>South Bank Quay</b>
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Title: <b>Advised Dredge Depths</b>
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Figure: 14.1

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	29/10/2020	TC	SR	A3	1:30,000

Co-ordinate system: British National Grid

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#### **14.4.1 Future evolution of the baseline in the absence of the proposed scheme**

In the absence of the proposed scheme, commercial navigation within the Tees estuary would continue in order to support the existing operators along its banks. From a container terminal perspective, it is predicted that Teesport would be at full capacity by approximately 2024, preventing the future growth of the port for container cargo. The port may therefore need to look to other markets to allow growth of the port, which could result in a change in the nature of vessels transiting through the river.

### **14.5 Potential impacts during the construction phase**

#### **14.5.1 Potential conflict between construction activities and commercial navigation within the Tees estuary**

During the construction phase there is the potential for conflict between the construction activity and navigation within the Tees estuary. Given that the proposed construction works for the quay are proposed to be undertaken on land using predominantly land based plant, this potential for conflict arises largely due to the presence of the dredger and barges within and adjacent to the navigation channel (as well as any support vessels required during demolition and construction). Construction activity will be focused on the area in the vicinity of the proposed quay but the capital dredging will, at certain stages in the construction programme, affect the wider estuary between the proposed quay and the Tees Dock turning circle.

The potential conflict between construction plant and shipping traffic could take a number of forms, including delays to shipping, increased risk collision, obscuring navigational aids and the prevention/interference of activities of other operators that are present in the vicinity of the proposed quay. This potential conflict exists for the duration of the construction which is predicted to last for a period of approximately three years overall.

As detailed in the NRA, a number of embedded mitigation measures are already enforced by PDT which have been taken into account during the construction phase risk assessment undertaken by Marico Marine (see **Appendix 9**). These embedded mitigation measures comprise:

- Adherence to risk control measures listed within the current Port Navigation Risk Assessment.
- Use of the existing VTS.
- Post dredge surveys and promulgation.
- Issue of Notices to Mariners.

It is envisaged that PDT would manage any potential conflicts in the same way as routine dredging and other construction activities, through co-ordination between STDC, the appointed Contractor and the Harbour Master. Management of dredging operations within a busy port environment is a standard activity for the Harbour Master. It is considered that the use of a VTS would provide a satisfactory mechanism for the effective management of all shipping traffic within the Tees estuary and Tees Bay. STDC would liaise with the Harbour Master to ensure that Notices to Mariners are issued at the appropriate times to inform other users of the proposed construction works. In addition, construction vessels would use appropriate signals as required by International Regulations to allow safe navigation.

The Port Maritime Safety Code will be taken into account within the detailed design of the proposed scheme. Liaison with the Harbour Authority will be undertaken to develop a robust Safety Management System, which would be implemented and adhered to during the construction phase for the proposed scheme.

As reported in **Appendix 9**, the NRA concludes that construction phase hazards have been assessed to be 'As Low As Reasonably Practicable', and are therefore, acceptable in terms of risk with the proposed scheme determined to have minimal effect on the existing navigation profile (Marico Marine, 2020).

Based on the above, the magnitude of the impact is anticipated to be very low on a medium sensitivity receptor. The proposed scheme is, therefore, predicted to have an impact of **negligible** significance on commercial navigation during the construction phase.

#### ***Mitigation measures and residual impact***

No mitigation measures are required and the residual impact is predicted to be of **negligible** significance.

## **14.6 Potential impacts during the operational phase**

### **14.6.1 Increased collision risk and delays to shipping due to increased vessel traffic during operation**

During the operational phase, there would be an increase in shipping traffic within the estuary as a result of the proposed scheme. It has been estimated that up to 390 offshore wind vessel calls would take place at the facility on an annual basis. This includes approximately 300 vessel calls per year associated with offshore wind staging and 90 vessel calls per year associated with offshore wind manufacturing activities. Such an increase in vessel numbers has potential to impact on the existing vessel movements within the estuary, due to increased collision risk of delays to shipping movements.

As noted above, a number of embedded mitigation measures are already enforced by PDT which have been taken into account during the operational phase risk assessment undertaken by Marico Marine (see **Appendix 9**). These embedded mitigation measures which are applicable to the operational phase comprise:

- Adherence to risk control measures listed within the current Port Navigation Risk Assessment.
- Use of the existing VTS.
- Movements associated with barges carrying windfarm cargos would be treated as 'project moves' in accordance with PDT procedures.
- Review navigation aids in the vicinity of the proposed berths as directed by PDT,
- Establishment of a 15m safety zone on the riverside of stowed windfarm blades.

As reported in **Appendix 9**, the NRA concludes that operational phase hazards have been assessed to be 'As Low As Reasonably Practicable', and are therefore, acceptable in terms of risk with the proposed scheme determined to have minimal effect on the existing navigation profile (Marico Marine, 2020).

In addition to the above embedded mitigation measures, the following measures are proposed to be adopted as part of the proposed scheme:

- marking and lighting of overhanging blades; and,
- introduction of a safety zone in the vicinity of overhead cables whereby vessels may not enter if they or their load exceeds the given height restrictions.

Based on the above, the magnitude of the impact is anticipated to be very low on a medium sensitivity receptor. The proposed scheme is, therefore, predicted to have an impact of **negligible** significance on commercial navigation during the construction phase.

***Mitigation measures and residual impact***

No additional mitigation measures are required beyond those detailed above (to be built into the proposed scheme) and the residual impact is predicted to be of **negligible** significance.

**14.6.2 Potential effects on navigation safety due to changes in hydrodynamic regime**

There is potential for effects on navigational safety during the operational phase as a result of changes to the existing hydrodynamic regime. As reported in Section 6.6, the effects of the proposed scheme on the hydrodynamic regime can be summarised as follows:

- The proposed new quay alignment and capital dredging to deepen the Tees Dock turning circle and approach channel and to create a berth pocket will not significantly affect the existing baseline hydrodynamic conditions.
- There will be flow newly occurring in the area of the new quay because it is being set-back from the existing riverbank, but even the peak flows in this area will be low.
- Elsewhere, there will be a general small magnitude reduction in baseline flows varying during different phases of the tidal cycle, but always remaining largely within the reach immediately opposite the new quay. This reduction in baseline flows is caused by both a slight widening of the channel (due to the new quay alignment) and the local deepening of the bed due to the capital dredging.
- The reductions in baseline current speeds in these areas may lead to a slight increase in deposition of sediment. In areas adjacent to the north bank opposite the quay, this is positive as it will help the existing North Tees Mudflat be sustained in light of sea level rise. In the main channel the deposition will require periodic dredging to maintain the design depths.
- There is no measurable change caused by the capital dredging at the Tees Dock turning circle.
- There is no predicted effect on local wind-generated waves at the site since the changes in hydrodynamics are so small and localised.
- There are no estuary scale effects on baseline hydrodynamic conditions.

Based on the above, the magnitude of the impact is anticipated to be very low on a high sensitivity receptor (human health/safety). The proposed scheme is, therefore, predicted to have an impact of **negligible** significance on navigation safety during the operational phase.

***Mitigation measures and residual impact***

No mitigation measures are required and the residual impact is predicted to be of **negligible** significance.