# Tees Maintenance Dredging Annual Review 2017

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| Client: | PD Teesport |
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| Revision: | 01/Final |
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Royal HaskoningDHV
*Enhancing Society Together*

**HASKONINGDHV UK LTD.**

Marlborough House
Marlborough Crescent
Newcastle upon Tyne
NE1 4EE
Industry & Buildings
VAT registration number: 792428892

+44 191 2111300 **T**
+44 1733 262243 **F**
info.newcastle@uk.rhdhv.com **E**
royalhaskoningdhv.com **W**

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Author(s): Steven Rayner

Drafted by: Steven Rayner

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## Disclaimer

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## Appendices

# 1 Introduction

## 1.1 Rationale

The purpose of this document is to provide an annual review of any changes to PD Teesport's (PDT) existing maintenance dredging practices and any changes to the existing environment within the Tees estuary, set against a known baseline. The original Baseline Document for the Tees estuary was produced in 2005 (ABPmer, 2005). Royal Haskoning subsequently produced an updated Baseline Document in 2008, which incorporated information which is relevant to the integrity of the European and Ramsar sites in the Tees estuary. The updated Baseline Document was published in February 2008 (Royal Haskoning, 2008). Annual reviews and updates to the 2008 Baseline Document have been undertaken during:

- November 2009 (Royal Haskoning, 2009).
- February 2011 (Royal Haskoning, 2012a).
- March 2012 (Royal Haskoning, 2012b).
- February 2013 (Royal HaskoningDHV, 2013).
- May 2014 (Royal HaskoningDHV, 2014a).
- February 2015 (Royal HaskoningDHV, 2015a).
- January 2016 (Royal HaskoningDHV, 2016).
- September 2017 (Royal HaskoningDHV, 2017).

It should be noted that the annual updates are on the reviews themselves, rather than the initial Baseline Document. The main headings of the review are self-explanatory; however, the sub-headings are intended to cover the various aspects of the Baseline Document that could potentially change. Any changes to conclusions and recommendations provided within the last annual update (as a result of any new information) are also presented.

## 1.2 Background

*Maintenance Dredging and the Habitats Regulations 1994, A Conservation Assessment Protocol for England* (referred to as 'the Protocol' hereafter) was published by the Department for Environment, Food and Rural Affairs (Defra) in 2007 and followed the draft Protocol issued in 2003 for pilot studies at three trial sites on the Humber, Medina and Fal/Helford. The protocol set out an approach for operators and regulators to provide a 'Maintenance Dredge Protocol (MDP) Baseline Document' to present existing and readily available information to describe the current and historical patterns of dredging in relation to the conservation objectives of a European site.

Where maintenance dredging is found likely to have, or be having, a significant effect on a European or Ramsar site, a port authorising or undertaking licensed, contracted or otherwise permitted maintenance dredging operations (including disposal) must exercise their functions in compliance with the requirements of the EC Habitats Directive. The Protocol provides assistance to operators and regulators seeking, or giving, approval for maintenance dredging activities that could potentially affect European and Ramsar sites. Following this process enables issues associated with the Habitats Directive to be dealt with in a streamlined and proportionate manner, assisting harbour and port authorities in fulfilling their statutory obligations, and minimising the delay and cost to port and marine operators in obtaining consents.

The requirements of the Water Framework Directive (WFD) extend further, to consider the entire aquatic environment, rather than specific designated sites. However, aiming to achieve Good Ecological Potential

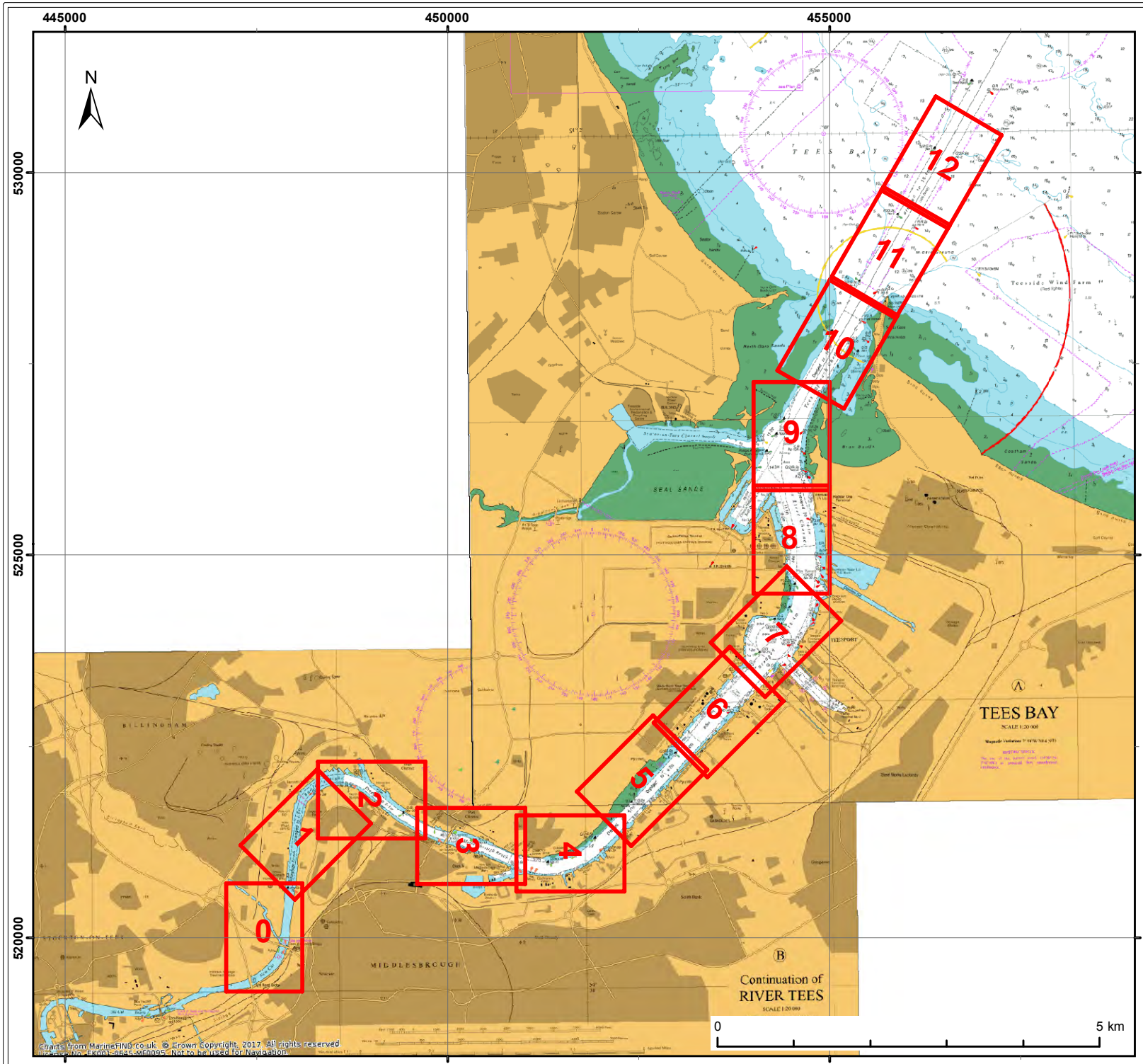
/ Status, which is required under the WFD is also a key requirement for maintaining the designated sites in favourable condition; hence the requirements of the two Directives overlap.

The presumption in assessing any potential consequences of dredging activity is that maintenance dredging will continue in line with the established practice (described herein). The Baseline Document also presumes that existing practice is part of the functioning of the existing system.

PDT has commissioned Royal HaskoningDHV to undertake a review of the 2016 MDP Baseline Document (Royal HaskoningDHV, 2017) in order to determine the impacts of maintenance dredging on European and Ramsar sites in the vicinity of the Tees estuary. The findings of the review are presented in this report.

## 1.3 Study area

The study area is defined as the area within which maintenance dredging is undertaken by PDT; that is, the area commencing 185m down-estuary of the Tees Barrage at Blue House Point to the seaward limit of the Port Authority Area. This area effectively includes all river frontage and facilities within the estuary commencing near the Tees Barrage (see Figure 1). The port facilities within Hartlepool Bay are also included in the study area. As shown on Figure 1, the study area is subdivided into 13 sectors (Sector 0 to 12).





## Legend

Section



| Client: | Project: |
|---|---|
| PD Teesport | Tees Maintenance Dredging Baseline Document |

Title: Section Overview

Figure: 1

| Revision: | Date: | Drawn: | Checked: | Size: | Scale: |
|---|---|---|---|---|---|
| | | | | | |
| 0 | 19/07/2018 | TC | SR | A4 | 1:70,000 |

Co-ordinate system: British National Grid

Royal HaskoningDHV
Enhancing Society Together

ROYAL HASKONINGDHV
Marlborough House
Marlborough Crescent
Newcastle-upon-Tyne, NE1 4EE
+44 (0)191 211 1300
www.royalhaskoningdhv.com

# 2 Existing maintenance dredging regime

PDT has a statutory duty to maintain navigation within the Tees estuary and into the Hartlepool docks. As part of this responsibility, PDT must maintain the advertised dredge depths within the defined areas (hereafter referred to as “the maintained areas”). In order to achieve this, PDT carries out maintenance dredging in the reaches of the river shown in Figure 1.

Previously, maintenance dredging was undertaken within the study area by Hartlepool Marina. This equated to approximately 10,000m$^3$ per annum, however this was not undertaken regularly. There was no dredging within the marina during 2017. Consultation with PDT has identified that there is no longer a marine licence in place allowing Hartlepool Marina to undertake maintenance dredging within the study area.

## 2.1 Dredge and disposal methods

Most dredging occurs in the approach channel and low-middle estuary in order to maintain access to berth pockets and impounded docks. Trailing Suction Hopper Dredgers (TSHD) are currently used for the majority of the dredging and are supported by ploughing where required. PDT employs two TSHDs of 1,500m$^3$ hopper volume to maintain depths within the navigable channel and berths within the Tees estuary and Hartlepool. Both dredgers have active bottom door offloading systems.

PDT also currently operates its own 5m plough dredge (deployed via the buoy tender ‘Wilton’) to supplement ongoing suction dredging operations through the removal of isolated high spots on the riverbed, primarily in frontages or confined areas. This plough is supplemented with a 10m plough chartered in to support the dredge operations. Plough dredging may also be utilised to move recently deposited accumulations of sediment to adjacent scour spots within the river, thus maintaining sediment within the estuarine system and reducing the overall volumes of dredgings requiring disposal to sea. PDT has increased ploughing using contracted-in vessels approximately six times per year, and has procured a new plough dredge in February 2017. It is PDT’s intention to replace contracted-in vessels with an in-house provision and an 11m plough in 2018.

PDT operates its vessels under the requirements of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (the ‘ISM’ code) which is then externally audited by the Maritime and Coastguard Agency. PDT’s operational activities are undertaken in compliance with an Environmental Management System (EMS) meeting ISO14001 requirements and the PD Ports Group Environmental Policy Statement (provided below).

Dredging practices have remained unchanged during the period 2005 to 2017.

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PD PORTS
A Brookfield Ports Company

Environmental Management

## GROUP ENVIRONMENTAL POLICY STATEMENT

PD Ports is an established ports and logistics business offering marine and port operations, warehousing, transport, forwarding, chartering and recycling services throughout the UK.

We recognise environmental protection as one of our guiding principles and a key component of sound business performance. As such we are committed to minimising the environmental impact of our activities and preventing pollution through the implementation of an environmental management system meeting ISO 14001 requirements.

We will:

- Operate as a minimum in compliance with all relevant legal requirements applicable to our business.
- Incorporate the consideration of potential environmental issues into our decision making and operations, including purchasing activities.
- Train, educate and inform our employees about environmental issues that may affect their work and promote environmental awareness to all those working on our sites.
- Promote efficient use of resources and reduction of waste throughout our operations including electricity, fuel, raw materials, water and other resources, particularly those that are non-renewable, thereby reducing our carbon footprint.
- Work with our customers and suppliers to assess opportunities for the use of renewable and alternative energy sources.
- When dealing with hazardous substances take all reasonable steps to prevent pollution during handling, transportation, storage and disposal, including developing procedures for dealing with emergencies and spill response in consultation with our neighbours and tenants as appropriate.
- Aim and work to minimise the impact of our activities on the local community and communicate proactively on the environment with interested parties, including customers, tenants, local residents and public authorities.
- Aim and work to minimise our impact on ecology through the terrestrial and marine planning process.
- Strive to continually improve our environmental performance by periodically reviewing our environmental objectives and targets in the light of new legislation and future plans.

Signature:

Position: Chief Executive Officer PD Ports Limited, February 23 2011

Issue: Final

Date: February 23 2011

## 2.2 Dredge volumes

A summary of dredged volumes (m³) by each reach from 2001 to 2017 is provided in Table 1. Data on dredging was obtained from PDT and extends the time series presented in Royal Haskoning (2008) from 2005 to 2017. As with previous years, no dredging has occurred in Reach 0 (Figure 1, and Figure A in Appendix 1) during the reporting period.

## 2.3 Disposal volumes

Table 1 and Figure 2 provides a summary of the total volume of dredged material (m³) disposed of to the Tees Bay offshore disposal site, from each reach of the river shown in Figures A to M in Appendix 1. Other areas including Tees Berths, Hartlepool and the Seaton Channel are also shown in Table 1. The total volume of maintenance dredged material disposal has decreased from 0.81 million m³ in 2016 to 0.71 million m³ in 2017 This is less than the average annual volume of maintenance dredged material disposal from the period 2001 to 2017, which equates to approximately 1.1 million $m^3$ per annum. Contributing factors to the reduction in volume of material requiring disposal offshore during 2017 are weather conditions and varied deposition rates within maintained areas.

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*Table 1 Summary of the total volume of dredged material disposal ($m^3$) from each reach of the River Tees (and Hartlepool) from 2001 to 2017*

| Reach | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5,911 | 127,827 | 42,384 | 70,856 | 12,361 | 27,075 | 42,701 | 49,701 | 24,159 | 40,237 | 19,066 | 73,544 | 25,674 | 48,268 | 62,094 | 1,500 | 33,972 |
| 2 | 21,768 | 122,381 | 16,470 | 73,210 | 11,649 | 12,982 | 26,028 | 19,805 | 60,118 | 32,817 | 371 | 9,814 | 8,863 | 15,894 | 29,830 | 61,722 | 25,133 |
| 3 | 0 | 1,366 | 4,176 | 3,205 | 412 | 412 | 1,925 | 735 | 1,772 | 48,532 | 0 | 37,429 | 0 | 52,857 | 64,998 | 65,468 | 33,698 |
| 4 | 3,131 | 1,666 | 127 | 4,468 | 676 | 282 | 1,514 | 0 | 274 | 6,056 | 11,386 | 1,500 | 2,996 | 12,504 | 11,770 | 12,884 | 8,771 |
| 5 | 4,621 | 1,634 | 2,751 | 3,815 | 5,997 | 1,339 | 764 | 0 | 1,336 | 4,745 | 13,496 | 2,541 | 15,018 | 5,370 | 471 | 951 | 0 |
| 6 | 1,625 | 5,282 | 24,645 | 4,859 | 23,640 | 12,092 | 3,088 | 18,906 | 7,037 | 17,009 | 41,303 | 21,755 | 26,210 | 3,630 | 10,534 | 18,383 | 8,242 |
| 7 | 51,303 | 4,804 | 10,765 | 3,297 | 1,243 | 2,642 | 9,841 | 55,084 | 19,322 | 43,157 | 12,502 | 10,160 | 19,746 | 42,200 | 61,866 | 25,041 | 3,339 |
| 8 | 37,075 | 76,297 | 72,261 | 39,251 | 30,172 | 56,926 | 96,160 | 82,531 | 140,839 | 68,357 | 27,102 | 64,468 | 131,948 | 93,188 | 111,145 | 37,485 | 50,317 |
| 9 | 256,158 | 252,715 | 279,054 | 330,835 | 321,316 | 347,365 | 332,679 | 349,982 | 174,009 | 266,187 | 336,050 | 278,883 | 286,441 | 124,821 | 230,316 | 143,677 | 202,051 |
| 10 | 174,248 | 118,613 | 171,950 | 137,022 | 161,349 | 168,733 | 143,089 | 178,819 | 186,336 | 317,961 | 117,635 | 211,799 | 221,176 | 201,953 | 106,326 | 51,239 | 44,053 |
| 11 | 112,437 | 296,471 | 85,385 | 121,807 | 113,304 | 230,099 | 97,682 | 92,427 | 163,910 | 225,143 | 159,529 | 110,787 | 43,032 | 110,777 | 36,893 | 64,146 | 44,546 |
| 12 | 34,747 | 28,437 | 28,156 | 48,707 | 21,307 | 28,262 | 39,441 | 23,548 | 27,937 | 12,133 | 38,877 | 35,415 | 7,662 | 5,954 | 4898 | 11,168 | 4,796 |
| Tees berths | 148,837 | 115,219 | 141,880 | 303,869 | 164,664 | 316,696 | 254,458 | 272,520 | 215,702 | 162,053 | 195,482 | 159,067 | 205,141 | 246,486 | 141,160 | 173,396 | 111,221 |
| Hartlepool | 119,847 | 157,329 | 146,457 | 114,104 | 89,811 | 137,606 | 121,605 | 132,041 | 125,032 | 170,170 | 154,025 | 80,410 | 186,229 | 99,068 | 79,818 | 92,781 | 79,936 |
| Seaton Channel | 0 | 10,900 | 0 | 0 | 0 | 0 | 22,279 | 102,463 | 111,424 | 42,110 | 21,060 | 0 | 49,598 | 74,652 | 0 | 0 | 71,803 |
| Other | 0 | 245 | 9,809 | 0 | 0 | 312 | 23,366 | 34,605 | 54,610 | 46,725 | 461 | 0 | 0 | 0 | 23,972 | 58,842 | 0 |
| **Total (x $10^6$)** | **0.972** | **1.321** | **1.036** | **1.259** | **0.958** | **1.343** | **1.217** | **1.413** | **1.314** | **1.503** | **1.148** | **1.098** | **1.230** | **1.13** | **0.97** | **0.81** | **0.71** |

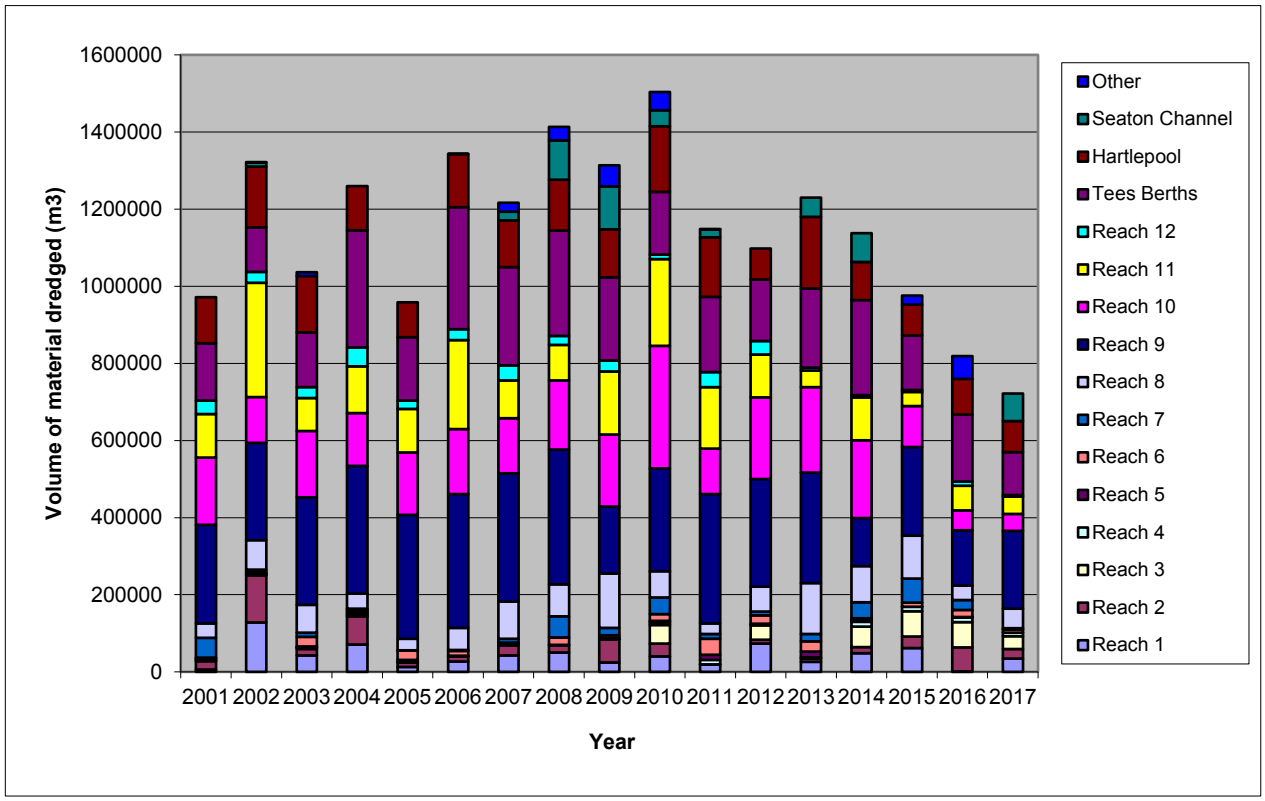



*Figure 2* *Summary of volumes ($m^3$) dredged and deposited offshore during the period 2001 to 2017*

### 2.3.1 Dredge depths

The present main channel has declared depths of 15.4m below Chart Datum (CD) in the approach channel (i.e. in Tees Bay), 14.1m below CD to upstream of Redcar Ore Terminal, 10.4m below CD up to Teesport and then progressively less depth up to 4.5m below CD (bCD) in Billingham Reach. Parts of the channel now declared at 14.1m below CD were originally dredged to a deeper depth. The declared depth of berths and docks varies depending on the location and the vessels which require access.

The approach channel to Hartlepool Docks is currently maintained to 5.7m bCD. Victoria Dock is maintained to 6.8m bCD and the deep water berths within the docks are maintained to 9.5m bCD. The berth pocket within Tees Dock has been dredged to a depth of 14.5m bCD, with the general dock area dredged to 10.9m bCD. Declared depths are required for navigational purposes, however actual dredge depths may be commonly up to 0.5m greater in depth given the tolerances associated with dredging practices. It should be noted that PDT is proposing to deepen the Tees navigation channel and turning circle to a maximum depth of 14.0m bCD, and is considering deepening and realigning the approach channel to Hartlepool Docks to a depth of 7.5m bCD.

# 3 Consents and licences

## 3.1 Marine licensing

Part 4 of the Marine and Coastal Access Act 2009 (MCAA) provides a framework for the licensing of activities below the level of Mean High Water Spring (MHWS) tides. The 'marine licensing' system has been in force since 6 April 2011. The Marine Management Organisation (MMO) is the regulator for marine licensing in English inshore and offshore waters.

### 3.1.1 Marine licences

Since the Baseline Document was first produced, a number of licences have been issued under the marine licensing system and its predecessors (most notably with regard to this document is the 10 year marine licence held by PDT for the disposal to sea of maintenance dredging (L/2015/00427/1)). It should be noted that those licences issued prior to 6 April 2011 (i.e. under the Food and Environment Protection Act 1985) became 'deemed' marine licences on that date. Marine licences which have been issued post-production of the Baseline Document within the Tees estuary are outlined below. The licences have been split into projects which have been completed, and those which are currently uncompleted or have not started.

Completed projects:

- Licence 33195/06/0 granted 05/09/06 – 04/09/08 for 19,800 tonnes (Dawson`s North Sea Supply Base (completed 2009) and Teesside Cast Products (TCP) Heavy Lift Quay (completed 2008)). An application was submitted in 2011 to dredge to 8.5m below CD. This development is now complete with limited dredge works remaining.

- Licence 32880/06/01 granted 14/09/06 – 14/04/09 for 88,000 tonnes (Billingham Reach Wharf, Tees Dock Turning Circle, Tees Dock Water Area and Corporation Dock). This operation is now complete.

- Licence 32717/08/0 granted 21/05/2008 – 20/05/2009 for the disposal of up to 1,934,836 tonnes of capital dredgings from Seaton Channel, the Holding Basin and Quays 10/11 of the Able (UK) yard was made by Able (UK) Ltd. on 2 December 2004. The licence was approved in May 2008 for disposal at Tees Bay A (TY160) and Seaton Channel was dredged in October 2010.

- Licence 34371/10/0 granted 4 June 2010 for works commencing between 5 June 2010 and 31 October 2010 for the reconstruction of an approximately 150m length of half tide embankment in the River Tees. The reconstruction used 45m long sections of Geotube filled with suitable dredged material. This work was completed in November 2010.

- Licence L/2011/00052/3 granted 1 June 2011 for works commencing between 1 June 2011 and 30 September 2012 for the disposal of dredged material (licensed quantity of 2,804,000 tonnes) from River Tees Channel, Berths and Frontages; Hartlepool Channel and docks and water area; and Seaton Channel basin and berths. The approved disposal site is Tees Bay A (TY160). This operation is now complete.

- Licence L/2011/00335/1 granted 21 December 2011 for works commencing between 1 January 2012 and 31 March 2013 for the placement of a rock mattress to support the spud legs from jack-

up barges as part of the loading facilities for offshore wind construction in Hartlepool Docks. This work has been completed.

- Licence L/2014/00014 granted 29 January 2014 for works commencing between 1 April 2014 and 31 October 2014 to undertake refurbishment works to an existing jetty at Simon Storage. No dredging was required as part of the scheme. The work commenced and was completed during 2014.

- Licence L/2013/00217 granted 10 July 2013 for works commencing between 10 July 2013 and 31 March 2018 to undertake capital dredging and construction to improve the Tees Dock No.1 Quay. Work started in April 2014 and has been completed.

- The MMO approved a variation request to licence L/2013/00217 on 26 January 2017(L/2013/00217/7), for the dredging and disposal of an additional 15,000m$^3$ (33,000 wet tonnes) of material from within Tees Dock. The additional material to be removed is clay (geological material). As with the previous versions of the licence, the material will be disposed of within Tees Bay. This version of the licence supersedes all earlier version of this licence. The work has been completed.

Uncompleted projects or projects which have not yet started:

- Licences 34376/09/0 and 34377/09/0 were both granted on 26 October 2009 for works commencing no sooner than 1 January 2010 to the end of the day of 31 December 2013, for deposits in the sea in connection with marine construction works associated with the proposed QEII berth development; and for the deposit of 42,000 tonnes (21,000m³) of capital dredged material (Mercia Mudstone constituent only) from the QEII berth, at disposal site Tees Bay C (TY150). A variation to extend both licences was requested on 20 November 2013, which was issued on 31 December 2013, and therefore licence L/2013/00403 now supersedes Licence 34376/09/0; and Licence L/2013/00404 now supersedes Licence 34377/09/0. Both licences have an end date of 31 December 2016. A subsequent change was then required to transfer the licence holder from PDT to MGT Teesside Limited. These varied licences were issued on 24 December 2014 (L/2013/00403/3 and L/2013/00404/3) (with an expiry date of 31 December 2016). Licence L/2013/00404/5 was granted on 27 May 2015 and extends the licence end date to 31 December 2018; this varied licence supersedes all previous variations to this licence. This work has not yet commenced.

- Licence 34963/11/0 granted 28 January 2011 for works commencing between 28 January 2011 and 27 January 2012 for the disposal of dredged material (licensed quantity of 3,496 tonnes) from South Bank, Wharves (TATA) on the River Tees. The approved disposal site is Tees Bay A (TY160). This work has not commenced.

- Licence L/2012/00366 granted 28 September 2012 for works commencing between 1 October 2012 and 31 May 2015 for the disposal of dredged material (licensed quantity 2,889,700 tonnes) from River Tees Channel, Berths and Frontages; Hartlepool Channel and docks and water area; and Seaton Channel basin and berths. The approved disposal site is Tees Bay A (TY160). This marine licence has now been superseded by Licence L2015/00427/1. Licence L2015/00427/1 was granted 30 December 2015 for maintenance dredging disposal. This is a 10 year licence commencing from 1 January 2016.

- A deemed marine licence was included within the Sirius Minerals Harbour Facilities Order 2016, issued by the Secretary of State. The Order permits Sirius Minerals to carry out construction of a new quay, capital dredging and disposal and enhancement works in Bran Sands lagoon..

- The MMO approved a variation request to licence L/2013/00217 on 28 March 2018 (L/2013/00217/8), for the installation of a 30m floating pontoon to the newly refurbished Tees Dock No.1 Quay. The MMO also granted permission to extend the expiry date of the licence from 31 March 2018 to 1 September 2018, to allow the pontoon installation works to take place.

## 3.2 Harbour Revision Orders

## 3.3 The Teesport Harbour Revision Order 2008

PDT obtained a Harbour Revision Order (HRO) for the Northern Gateway Container Terminal (NGCT) in April 2008. The HRO, which came into force on 8 May 2008 for a period of 10 years, provided powers to dredge for the construction and maintenance of the NGCT development (see Section 4.1). A marine licence will be required for the construction works and the disposal of dredged material to offshore disposal sites.

PDT submitted an application to the MMO in January 2018 to extend the end date of the 2008 Teesport HRO for an addition 10 years. The MMO granted the extension and, therefore, the expiry date of the HRO is 7 May 2028. .

# 4 Existing disposal strategy

## 4.1 Disposal protocol

The volume of dredged material requiring disposal from maintenance dredging operations must be recorded and provided to the MMO and CEFAS as a condition of the marine licence (L/2015/00427/1). It is often recommended that a disposal protocol be developed to manage this process. However, it is the intention that this document adequately addresses the requirement of any such protocol and, as such, PDT has not developed a separate protocol for this purpose. All relevant information regarding disposal procedures and practices (including any beneficial uses) is provided in the following sections.

## 4.2 Disposal locations and quantities

No changes have occurred to the location of the offshore disposal sites during the reporting period. The active disposal sites present in Tees Bay are summarised in Table 2. In general, Tees Bay A (TY160) is used for the disposal of maintenance dredge arisings while Tees Bay C (TY150) is used for capital dredge arisings (Figure 3). Tees Bay B (TY110) and Tees Bay Foreshore (TY170) are closed.

***Table 2 Active disposal sites present in Tees Bay***

| Disposal site | Status | Description | Comment |
|---|---|---|---|
| Tees Bay A (TY160)<br><br>Within the area bounded by joining the points:<br><br>54 40.800 N 01 03.500 W<br>54 41.500 N 01 02.200 W<br>54 41.000 N 01 00.300 W<br>54 40.200 N 01 01.500 W<br>54 40.800 N 01 03.500 W | Active | Active site for soft non-cohesive maintenance material | DEFRA records show volume fluctuating from 0.3 million to 2.4 million wet tonnes over a 15 year period. Volumes drop off post 1996. Largest volume deposited since 1996 was 1.8 million wet tonnes. |
| Tees Bay C (TY150)<br><br>Within the area bounded by joining the points:<br><br>54 42.600N 00 58.600W<br>54 41.900N 00 57.400W<br>54 41.400N 00 58.700W<br>54 42.300N 00 59.900W<br>54 42.600N 00 58.600W | Active | Predominantly used for capital dredged material. Some maintenance dredging has been disposed of at this site. | DEFRA records show small scale usage. Peak volume deposited was 1.9 million wet tonnes in 1999, associated with the construction of the downstream Ro-Ro berths. Typical annual volume is 0.1 million wet tonnes. Some years show no usage at all. |

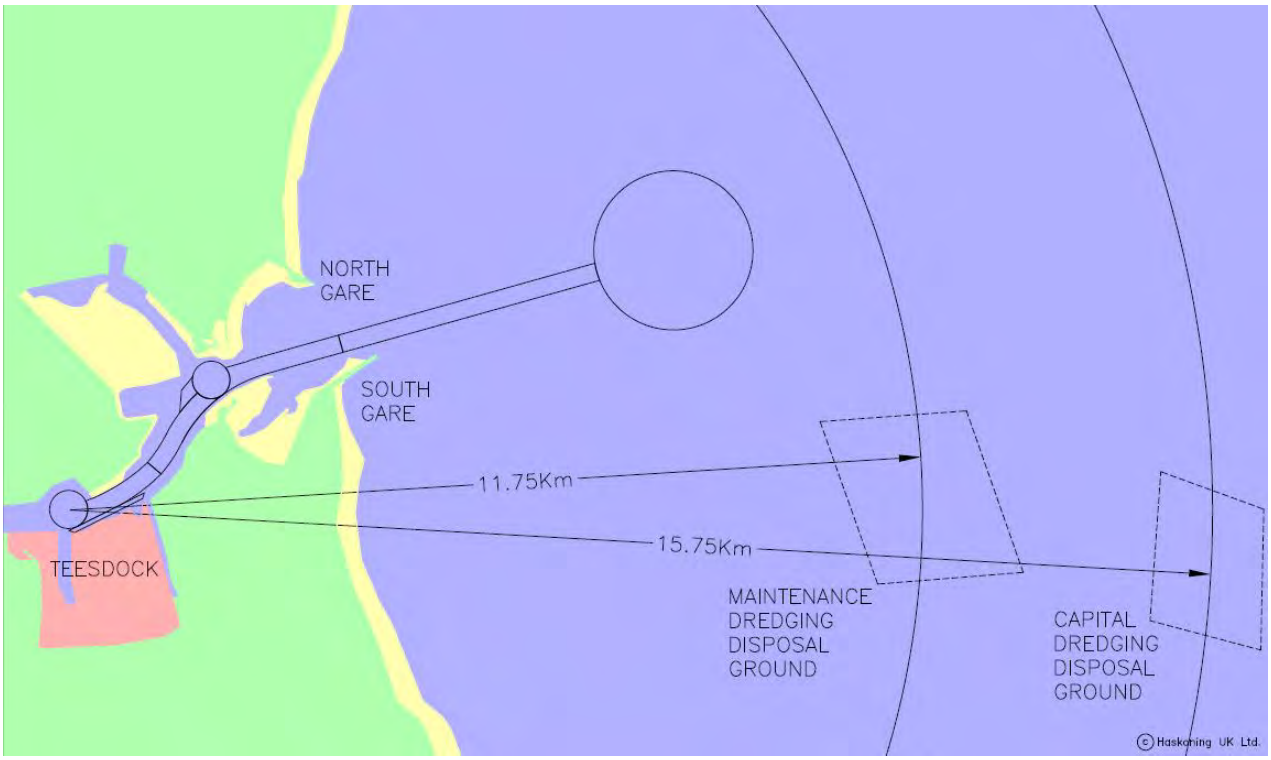



*Figure 3* ***The location of dredging disposal grounds TY160 (maintenance material) and TY150 (capital material) and their distance (km) offshore from Tees Dock***

## 4.3 Beneficial use of dredged material

Where suitable, a proportion of dredged arisings are proposed for alternative (beneficial) use within the estuary (alternative use considerations are a legal requirement of the marine licensing process for disposal of dredged material under the Waste Framework Directive). Areas of potential interest for beneficial use include the North Tees mudflat; regeneration of the mudflat using dredged material could be considered at this location if it becomes evident that accretion of the mudflat is not occurring following reinstatement of the half-tide embankment in 2010 (no requirement for use of material at this location is currently evident).

The use of geo-textiles is also being considered for the construction of 'bird islands' at Bran Sands, to replace those lost over the past few years. Various options for fill are being considered, including contaminated silts obtained through dredging operations from the proposed QEII Berth Development. Such proposals are still being investigated at a high-level and would be subject to consultation and regulatory approval prior to implementation.

The Sirius Minerals Harbour facilities scheme includes a number of habitat enhancement measures within Bran Sands lagoon, designed to provide shallow water areas with intertidal fringes. The creation of this habitat would involve the placement of uncontaminated fine sediment (i.e. silt) from normal maintenance dredging operations on top of sands and gravels from capital dredging undertaken as part of the Sirius Minerals Harbour facilities scheme. This Baseline Document will be updated to reflect the actual works which are undertaken following progression of the construction works.

A 'Mitigation and Beneficial Use' plan is being developed by PDT in conjunction with Natural England to consider and incorporate these and other potential beneficial uses within the estuary. Beneficial use and mitigation will be part of the Tees Estuary Partnership's remit which is addressing these items on a port

wide basis. There is the potential for the development of a 'habitat banking system' to be developed, which would identify possible mitigation or beneficial use options within and around the Tees estuary, which developers could adopt (if required) to offset habitat loss. This Baseline Document will be updated to reflect the findings of these discussions as and when they are available.

## 4.4 Mechanism of disposal

The mechanism for disposal during the reporting period has been for the dredger to steam out to Tees Bay A (TY160) and to release the dredged arisings over the disposal site via bottom door release (capital arisings from operations on the Tees are disposed of via a split hopper into site TY150).

Tees Bay A comprises 12 areas, as shown on Figure 4. These areas each receive dredged material during a certain month of the year, with the volume of disposed material varying during each month. PDT has undertaken bathymetric surveys which demonstrate the success of the managed disposal within each of the 12 areas. The current plan will be retained without changing areas and once CEFAS has carried out its survey of the area (e.g. for contamination), PDT may act on that data and amend the disposal plan.

Table 3 reports the average monthly disposal quantities from 2006 to 2017 and shows that the disposal of material is distributed throughout the disposal site, thus avoiding mounding of material at one location within the disposal site boundary.

***Table 3 Average disposal quantity per month from 2006 to 2017***

| Month | Disposal quantity ($m^3$) | Month | Disposal quantity ($m^3$) |
|---|---|---|---|
| January | 118,538 | July | 99,790 |
| February | 198,665 | August | 113,949 |
| March | 128,727 | September | 129,802 |
| April | 100,559 | October | 127,260 |
| May | 109,540 | November | 105,757 |
| June | 105,991 | December | 80,816 |

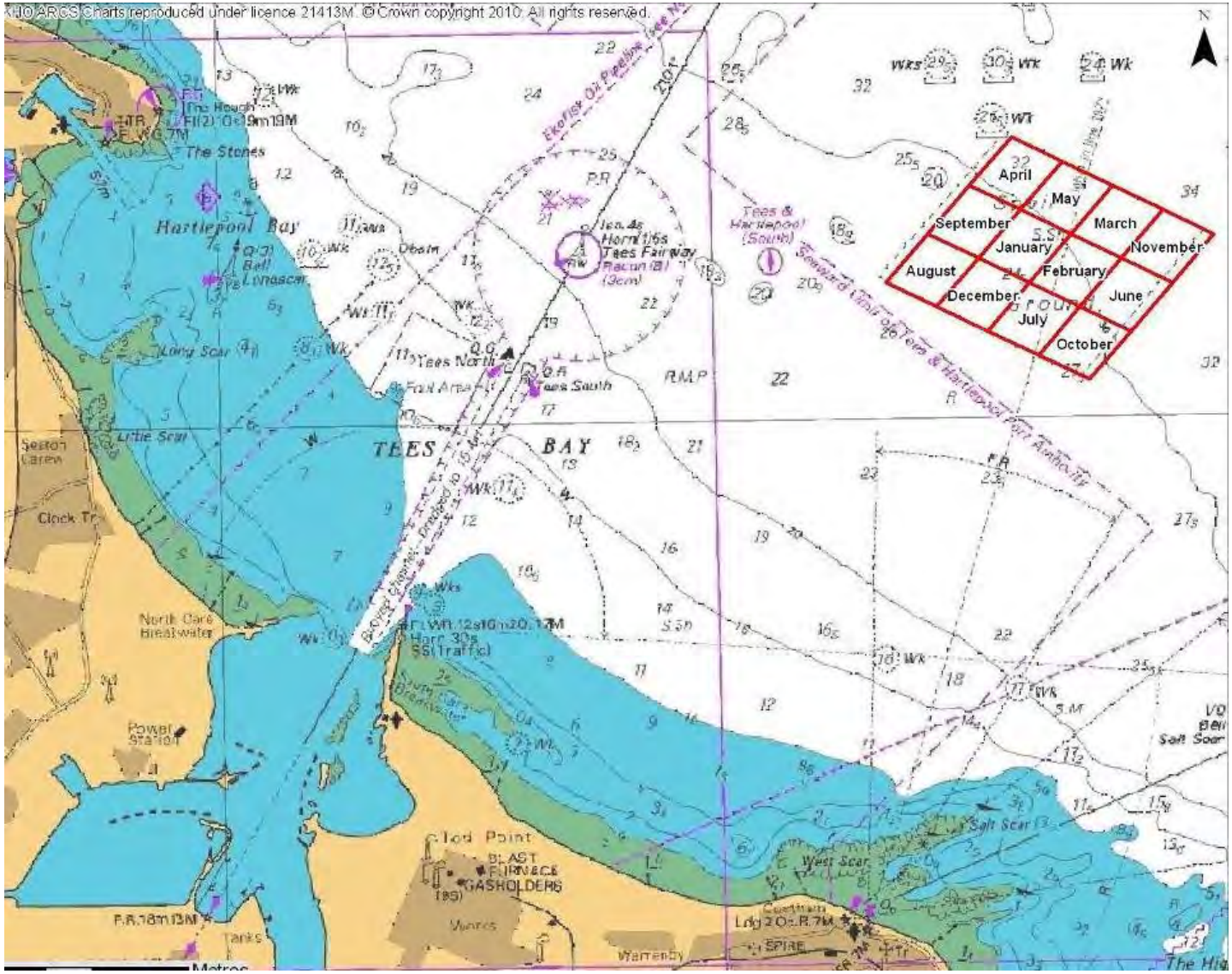



*Figure 4* *Tees Bay A maintenance dredging disposal ground identifying disposal location by month*

# 5 Update on proposed projects in the Tees estuary

This section updates the current status of the major consented and proposed projects in the maintained areas of the Tees estuary and Hartlepool. Detail regarding the marine licences for each project is included in Section 3.

## 5.1 Northern Gateway Container Terminal

In April 2008, PDT applied for and received an HRO and outline planning permission for the NGCT. The HRO gave PDT the power to dredge for the purposes of 'construction and maintaining the works and affording access to the works by vessels from time to time to deepen, dredge, scour, cleanse, alter and improve the river bed, shores and channels in the vicinity of NGCT operations'. The marine elements of the NGCT project have not yet been implemented, and a marine licence will be required from the MMO prior to commencement of such works.

The HRO and outline planning permission required an extensive programme of ground investigations to be undertaken within the river and adjacent terrestrial sites, prior to commencing works. A ground investigation was undertaken on land proposed to be developed as part of the NGCT during October 2015, which involved excavation of four trial pits and recovery of soil samples for laboratory analysis. Following production of an interpretative report, a pavement was installed on the proposed NGCT site during 2015. Redcar and Cleveland Borough Council confirmed during December 2015 that development with regard to reference numbers R/2006/0433/OO, R/2012/0605/RM and R/2012/0764/RM (i.e. the reference numbers of planning permissions relating to NGCT) had formally commenced on site. No marine construction works have been undertaken to date.

The HRO expired on the 8th May 2018 (as the HRO was originally granted for a period of 10 years). PDT submitted an application to extend the expiry date of the HRO by an additional 10 years, until the 8th May 2028 in January 2018. The MMO agreed to the extension in May 2018 and PDT therefore have an additional 10 years in which to implement the NGCT scheme; the expiry date of the HRO is 7 May 2028.

## 5.2 Queen Elizabeth II Berth Development EIA

As part of the investigations to inform the QEII Berth Development EIA, a limited number of boreholes and grab samples were undertaken in early 2009 from the vicinity of the existing QEII berth. In addition, a sediment dispersion modelling study relating to the development was also undertaken as part of the EIA.

Chemical analyses showed that unconsolidated sediments from part of the proposed QEII Jetty capital dredge area are contaminated to such a level as to preclude their disposal offshore. The Mercia Mudstone constituent of the proposed capital dredge required for this development (approximately 42,000 tonnes or 21,000m³) was licensed for offshore disposal at the Tees Bay C (TY150) site (marine licence L/2013/00404/5). This project is yet to be implemented.

## 5.3 Tees Dock No.1 Quay EIA

PDT has undertaken improvement works (comprising Phase 1 and Phase 2 of a three phase scheme) within the existing Tees Dock, including the deepening and widening (capital dredging) of the berth at Tees Dock No.1 Quay, and resultant strengthening and reconstruction of the existing quay. These works are required to enable the reintroduction of the existing business operations at Teesport into No.1 Quay.

Work on the No 1 Quay commenced in April 2014 and has now been completed (Phase 2 of the proposed scheme was completed in 2016, with Phase 3 complete in 2017).

## 5.4 Sirius Minerals Harbour facilities

A DCO for the Sirius Minerals Harbour facilities was granted in 2016. The scheme, designed to export polyhalite bulk fertiliser, will comprise the following elements:

- A port terminal on the southern bank of the Tees estuary (with a quay and deepening (dredging) of a section of the approach channel and to create a berth pocket).
- A conveyor system to transfer product to the port terminal from a Materials Handling Facility (MHF) at Wilton.
- Product storage facilities (surge bins) adjacent to the quay and ship loaders on the quay.
- Staff welfare and office facilities.
- Habitat enhancement measures in Bran Sands lagoon.

The scheme is to be implemented in two phases, with an increased volume of product to be exported during Phase 2.

The dredging required for the scheme will generate silts, sands, gravels, clay and rock. Some of the (uncontaminated) sand and gravel from the capital dredging during Phase 1 of the scheme will be used within Bran Sands lagoon as part of the habitat enhancement proposals. This will comprise the placement of dredged material within the lagoon to raise the bed level and provide a feeding habitat for waterbirds. A proportion of the capital dredged clay and mudstone will be used to create a series of islands in the lagoon to provide nesting and roosting areas for waterbirds.

The Sirius Minerals Harbour facilities Environmental Statement (ES) (Royal HaskoningDHV, 2015b) states that average infill rates into the deepened areas (created due to dredging for the Sirius Minerals Harbour facilities scheme) are predicted to be up to 5,900m$^3$ per year. However, this would not represent an additional 5,900m$^3$ of deposition a year (because there would be no effect on sediment transport into the estuary). The effect of the scheme will be a localised redistribution of (existing) sediment deposition, in response to predicted changes in current speeds. It is predicted that this very small change in the overall fine sediment regime will not alter the present frequency of, or methodology used for maintenance dredging and no effect on sediment supply to intertidal areas throughout the Tees estuary will occur.

The programme of works as presented within the DCO application stated that the minimum construction period for both Phase 1 and Phase 2 is 17 months. Phase 2 works are programmed to commence within six years of completion of Phase 1. Construction works for the Harbour facilities have not yet commenced.

## 5.5 Hartlepool channel alignment

PDT is proposing to undertake works to the Hartlepool navigation channel on the approach to and within Victoria Harbour, located to the immediate south of Hartlepool Headland. PDT is investigating a realignment and deepening of the channel to accommodate the needs of both the offshore wind industry and other existing customers. The proposed works may include the installation of an underwater retaining wall adjacent to Middleton Breakwater. PDT is proposing to submit a marine licence application the MMO for these works in 2018/2019.

# 6 New environmental information

## 6.1 Designated sites

### 6.1.1 Teesmouth and Cleveland Coast SPA and Ramsar site

The Teesmouth and Cleveland Coast SPA includes a range of coastal habitats, including sand and mudflats, rocky shore, saltmarsh, freshwater marsh and sand dunes. Together these habitats provide feeding and roosting opportunities for important numbers of waterbirds in winter and during passage periods. In summer, little tern *Sterna albifrons* breed on beaches within the SPA, while Sandwich tern *Sterna sandvicensis* occur on passage.

Natural England has reviewed the suite of nature conservation designations in the Teesmouth and Cleveland Coast area, including seven Sites of Special Scientific Interest (SSSI) and the Teesmouth and Cleveland Coast SPA and Ramsar site. Natural England has recommended to Government that the existing SPA and Ramsar site be revised to include extensions (see Figure 5 and 6) and additional qualifying interests.

An extension to the existing SPA is being proposed to protect the at sea foraging areas for little tern and common tern, which breed at the existing SPA. Additionally, the proposals include adding common tern, breeding avocet and non-breeding ruff as new features to the site and include additional wetland areas such as saltmarsh, wet grassland and intertidal areas which are important for other foraging and roosting waterbirds.

It is proposed that the existing Teesmouth and Cleveland Coast SPA boundary is extended to cover an area from Castle Eden Denemouth in the north to Marske-by-the-Sea in the south and includes the River Tees up to the Tees Barrage. The seaward boundary includes waters out to around 3.5km from Crimdon Dene (to include the areas of greatest importance to the little terns at that colony) and out to around 6km offshore further south (to include the areas of greatest important to the common terns at the Saltholme colony). Additional terrestrial areas are included in the extension as they provide important habitat for the waterbird assemblage.

It is also proposed to extend the existing Ramsar site to include additional wetland areas. The Ramsar site extension would not extend outside of the SPA extension and would only cover those terrestrial areas of the SPA down to mean low water.

Consultation on the proposals set out above commenced on 31st July 2018 and is due to end on 30th November 2018.

### 6.1.2 Sites of Special Scientific Interest

Natural England has confirmed that it has undertaken a review of the existing SSSIs around the Teesmouth and Cleveland Coast. Seven SSSIs have been notified previously in the area, comprising Seal Sands, Redcar Rocks, Seaton Dunes and Common, Hartlepool Submerged Forest, South Gare and Coatham Sands, Cowpen Marsh and Tees and Hartlepool Foreshore and Wetlands. Natural England has notified a new SSSI on 31st July 2018, known as the Teesmouth and Cleveland Coast SSSI, which includes the majority of the area of the previously notified SSSIs (Figure 7). The new site rationalises and clarifies the special interest of the area within a single designation covering 2,977ha, combining and linking existing designations with substantial extensions (totalling 1,584ha).

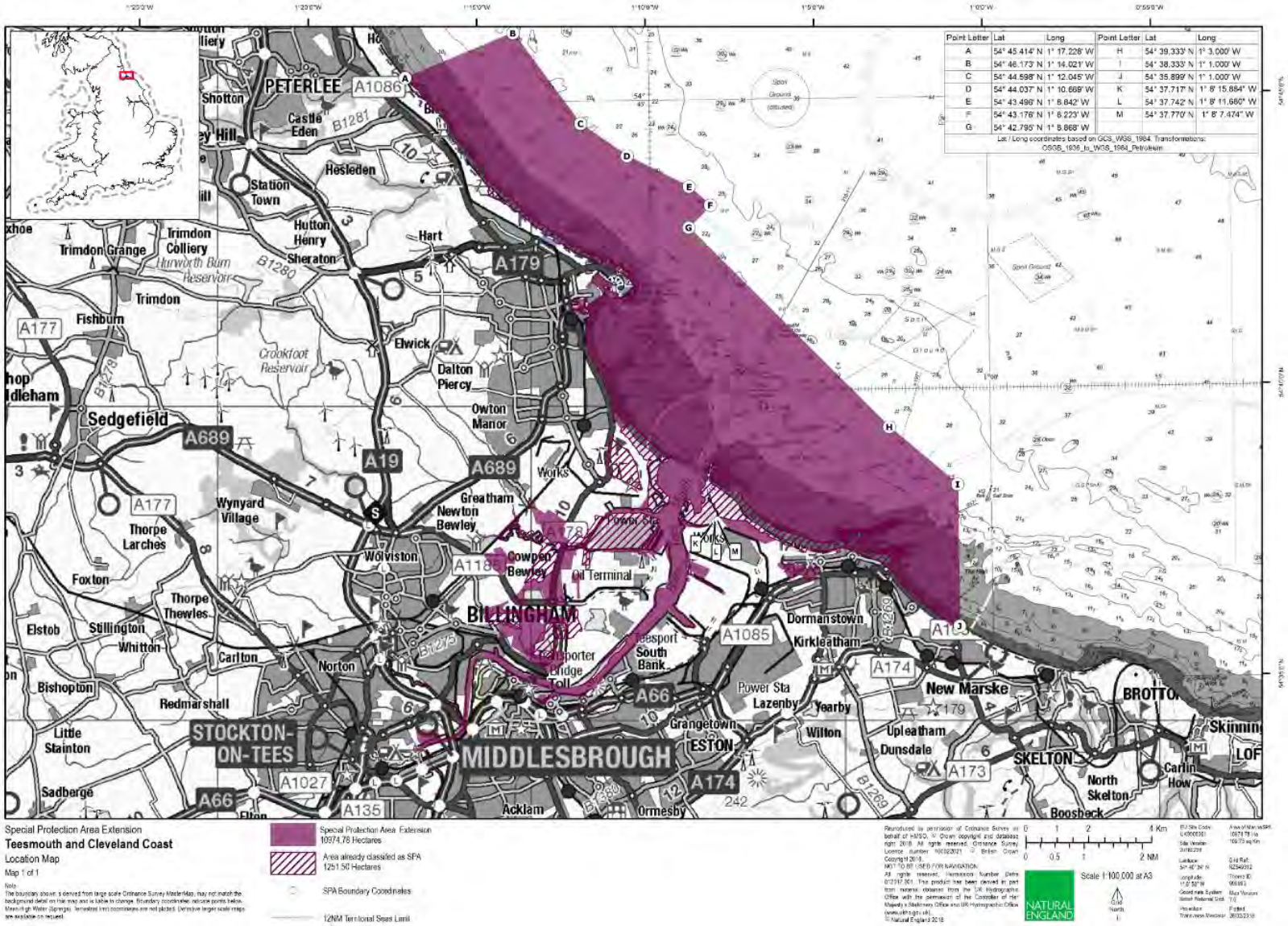



***Figure 5 Proposed extension to the Teesmouth and Cleveland Coast SPA boundary***

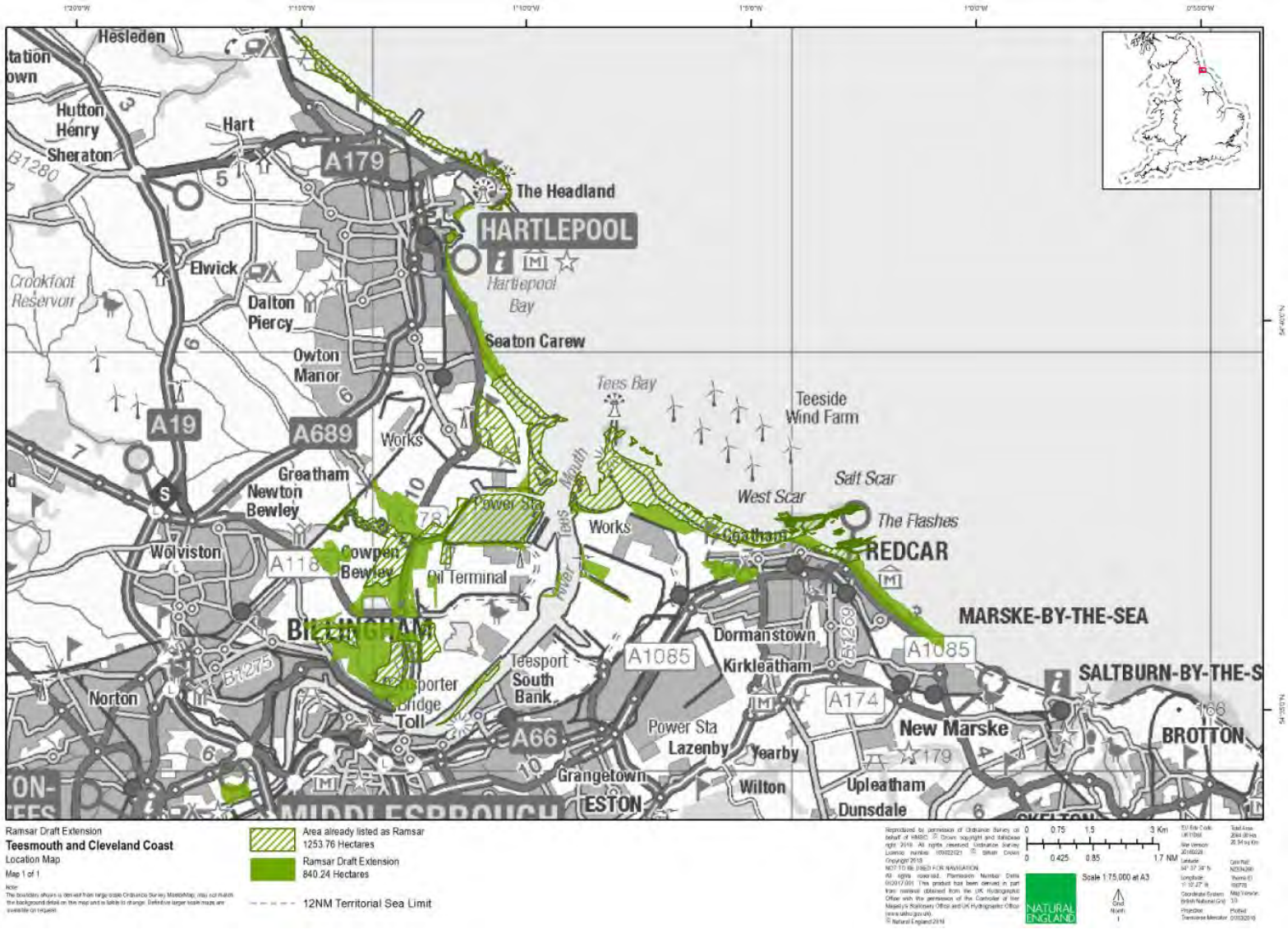



***Figure 6*** ***Proposed extension to the Teesmouth and Cleveland Coast Ramsar site***


# Land under consideration for SSSI designation

Land under consideration

Current SSSI

**Scale (at A3): 1:70,000**

NATURAL ENGLAND

Map produced by Natural England, Northumbria Team
Date: 10/11/2017.

This encompasses key elements of the estuarine and coastal system, including core areas of nesting, feeding and roosting habitats for nationally important numbers of breeding and non-breeding seabirds and waterbirds.

Parts of the previously notified Seal Sands SSSI are no longer considered to be of special interest by Natural England, and have therefore been proposed for denotification.

### 6.1.3 Memorandum of Understanding for the Teesmouth and Cleveland Coast Special Protection Area and proposed extension

As noted above, Natural England is considering proposals to extend the boundary and interest features of the Teesmouth and Cleveland Coast SPA. This announcement (in 2015) initially created concern / challenge amongst some industry stakeholders, specifically regarding potential implications on future development applications or activities within the Tees estuary.

The Tees Estuary Partnership (TEP) was subsequently formed (in 2016), and is made up of businesses, industry, regulators, local government and environmental organisations.

One of the aspirations of the TEP was for regulators to set out a 'Memorandum of Understanding' (MoU) for the Tees estuary. The MoU (principles document) was produced in October 2017, and has been signed by the MMO, Environment Agency and Natural England. As well as protecting and enhancing the nature conservation sites along the Teesmouth and Cleveland coast, the MoU is intended to make it easier for developers and businesses to navigate through the regulatory framework in a number of ways, including:

- Providing a single point of entry – pointing applicants to other bodies as relevant and in some cases proactively informing other MoU signatories or consenting bodies that an application or an advice request has been received.
- One lead authority – aiming to reduce the duplication of evidence requirements and to streamline regulatory processes around Environmental Impact Assessments and Habitats Regulations Assessments.
- Dispensing with, or deferring regulatory responsibilities – exploring the legal options available for streamlining within the regulatory process.
- Certainty on evidence requirements – identifying common evidence needs, enabling parallel tracking of work to satisfy evidence requirements, and assessing the level of support that could be provided to proactively fill strategic gaps in evidence.
- Co-ordination of advice – providing coordinated advice between organisations within agreed timescales.

The second part of the TEP's vision for the Tees seeks ambitious outcomes for nature conservation, exploring the development of a habitat banking system which will facilitate a wide range of environmental projects and simultaneously enable future developments on the estuary.

## 6.2 Sediment quality data

Condition 5.2.3 of PDTs maintenance dredge and disposal licence states that:

*"a regime of future sediment sampling is undertaken by PDT, of at least three yearly intervals, which must be agreed in advance with the MMO. Samples must be collected, analysed and the report of their notification signed off prior to dredging in the fourth and subsequently the seventh and tenth year of this licence*".

The original sampling and analysis undertaken to inform the 10 year licence application was undertaken during 2015. PDT is therefore proposing to undertake additional surface sampling in 2018 to ensure it complies with the marine licence condition 5.2.3.

# 7 Implications of the new information on the Teesmouth and Cleveland Coast SPA and SSSIs around the Teesmouth and Cleveland coast

As noted above, Defra has commenced consultation on proposals to extend the boundaries and interest features of the Teesmouth and Cleveland Coast SPA and Ramsar site, and the SSSIs around the Teesmouth and Cleveland Coast.

As these changes are yet to be confirmed and adopted, an assessment of their implications has not been undertaken; however, this will be done in subsequent updates to this document (following completion of the formal confirmation of the proposed changes to the SPA and underpinning SSSIs).

As maintenance dredging practices have remained unchanged during the reporting period (2017) there is no potential for additional impacts on the existing interest features of the SPA (or Ramsar site) to have arisen. In addition, there is no new environmental information for the current reporting period that could affect the previous impact assessment and, therefore, there are no implications for the interest features of the designated sites.

# 8 The Water Framework Directive

## 8.1 Introduction

In December 2016, the Environment Agency published guidance entitled 'Clearing the Waters for All' (Environment Agency, 2016), developed in association with the UK Major Ports Group, the British Ports Association and other interested parties.

The Environment Agency's 2016 guidance states that if the activity (i.e. maintenance dredging) was carried out during 2009 and 2014 (when evidence was collected for the 2015 River Basin Management Plans (RBMPs)) there is no need to repeat the existing WFD assessment unless there has been a change to how the activity is carried out, or there has been a pollution incident since the activity was last carried out. There is no existing WFD compliance assessment for the ongoing maintenance dredging activities undertaken by PDT, as the Environment Agency's previous 'Clearing the Waters' WFD guidance (Environment Agency, 2012) allowed maintenance dredging activities to be screened out of the assessment process.

Maintenance dredging was ongoing when evidence was collected for the 2015 RBMPs, and therefore the effect of maintenance dredging has been taken into account within the baseline data reported in the Northumbria RBMP (Environment Agency, 2015). It is therefore not considered appropriate to adopt the WFD compliance assessment approach set out in the Clearing the Waters for All guidance (Environment Agency, 2016) for ongoing maintenance dredging activities. Rather, a more proportionate WFD compliance assessment has been undertaken. The assessment has comprised determining the WFD water bodies at risk from ongoing maintenance dredging, followed by a review of how the dredging could impact on each of the WFD compliance parameters (to determine if maintenance dredging could cause or contribute to deterioration in status or jeopardise the water body achieving good status). To inform the assessment, baseline information has been sourced from the Environment Agency's Catchment Data Explorer and the Northumbria RBMP (Environment Agency, 2016).

## 8.2 Baseline waterbody information

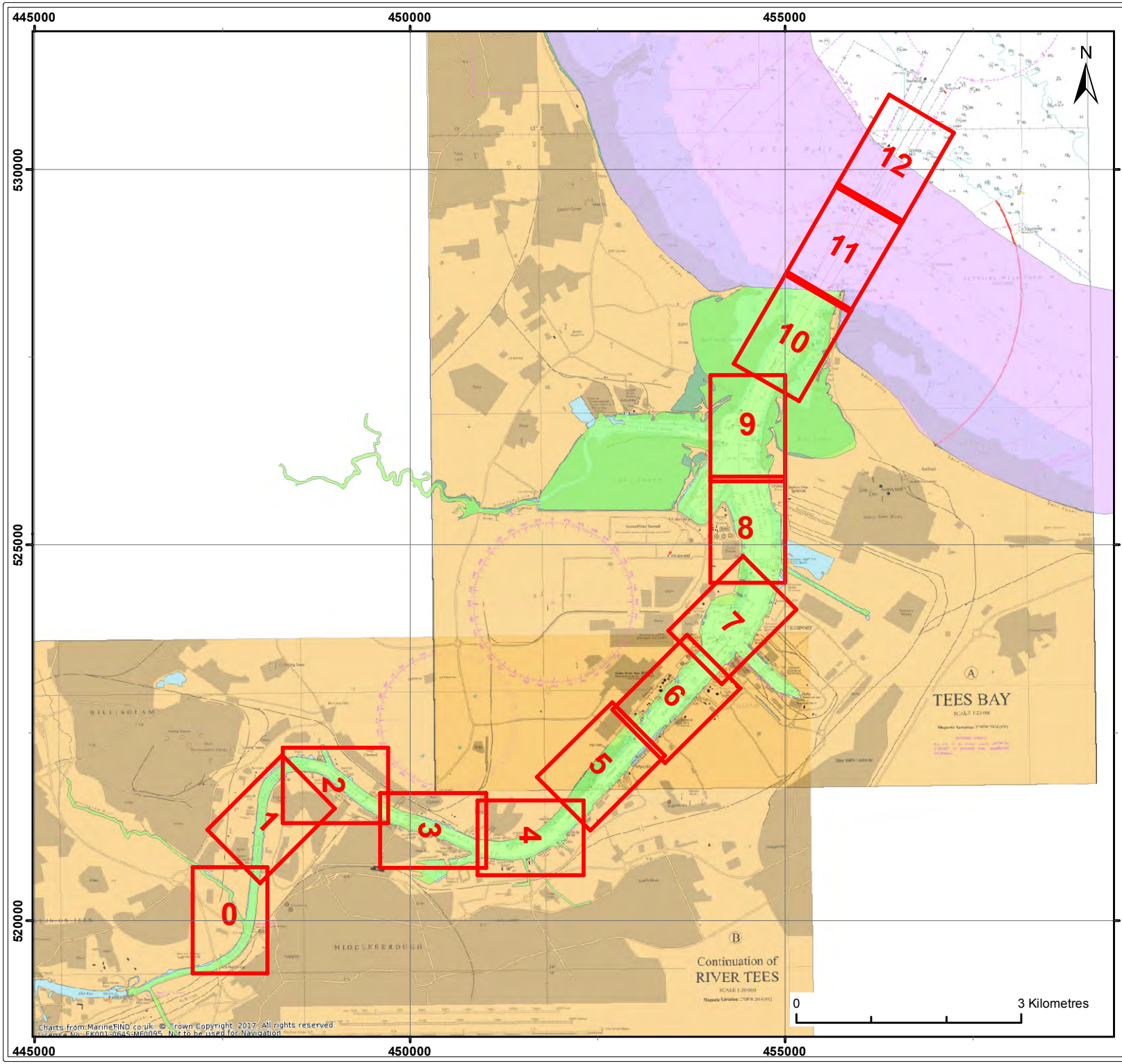
Water bodies that could potentially be affected by maintenance dredging activities within the Tees estuary have been identified using the Environment Agency's Catchment Data Explorer website. Water bodies were selected for inclusion within the assessment using the following criteria:

- All surface water bodies that could potentially be directly impacted by the dredging activity (i.e. those within the footprint of the maintenance dredge area).
- Any surface water body downstream that has direct connectivity and could potentially be affected by the ongoing maintenance dredging (i.e. due to migration of a sediment plume).

The water bodies identified using the selection criteria presented above are shown in Figure 8, and comprise:

- Tees transitional water body (maintenance dredging is undertaken within this water body).
- Tees coastal water body (maintenance dredging is undertaken upstream of and partly within this water body).

Summaries of the baseline information available regarding the status and objectives of these water bodies are provided in Table 4 and 5.





## Legend

- Section
- WFD Transitional Waterbody: Tees (GB510302509900)
- WFD Coastal Waterbody: Tees Coastal (GB650301500005)



| Client: | Project: |
|---|---|
| PD Teesport | Tees Maintenance Dredging Baseline Document |

Title: Waterbodies in the context of maintenance dredge sections

Figure: 8

| Revision: | Date: | Drawn: | Checked: | Size: | Scale: |
|---|---|---|---|---|---|
| | | | | | |
| 0 | 19/07/2018 | TC | SR | A4 | 1:70,000 |

Co-ordinate system: British National Grid

ROYAL HASKONINGDHV
Marlborough House
Marlborough Crescent
Newcastle-upon-Tyne, NE1 4EE
+44 (0)191 211 1300
www.royalhaskoningdhv.com

*Table 4 General water body information for the Tees transitional water body (taken from the Northumbria RBMP)*

| Water body category | Description, notes or more information |
|---|---|
| Water body name | Tees |
| Water body ID | GB510302509900 |
| Water body type | Transitional |
| Water body area (hectares) | 1146 |
| Overall water body status | Moderate |
| Ecological status | Moderate |
| Chemical status | Fail (Priority hazardous substances – tributyl tin) |
| Target water body status | Moderate by 2015 (i.e. the 2015 status matches the predicted future status. Here, the predicted future status has already been achieved and no further improvement in status is expected. The main objective is to prevent deterioration between 2015 and 2021). |
| Hydromorphology status | Supports good |
| Heavily modified and for what use | Yes – flood protection and navigation, ports and harbours. |
| Higher sensitivity habitats present | Saltmarsh and subtidal kelp beds |
| Lower sensitivity habitats present | Cobbles, gravel and shingle; intertidal soft sediment; rocky shore; subtidal rocky reef; subtidal soft sediment |
| WFD phytoplankton status | Good |
| History of harmful algae | Not monitored. |
| Linked protected areas | Conservation of Wild Birds Directive (Teesmouth and Cleveland Coast SPA), Nitrates Directive, Urban Waste Water Treatment Directive (Seal Sands) |
| Mitigation measures (that are considered to be in place) | Vessel management, dredging disposal strategy, reduce impact of dredging, reduce sediment resuspension, retime dredging or disposal, sediment management, dredge disposal site selection, manage disturbance, modify channel. |

*Table 5 General water body information for the Tees coastal water body (taken from the Northumbria RBMP)*

| Water body category | Description, notes or more information |
|---|---|
| Water body name | Tees coastal |
| Water body ID | GB650301500005 |
| Water body type | Coastal |
| Water body area (hectares) | 8838 |
| Overall water body status | Moderate |
| Ecological status | Moderate (mitigation measures assessment) |
| Chemical status | Good |
| Target water body status | Good by 2027 |
| Hydromorphology status | Not assessed |
| Heavily modified and for what use | Yes – coastal protection, flood protection, navigation, ports and harbours |
| Higher sensitivity habitats present | Mussel beds and subtidal kelp beds |
| Lower sensitivity habitats present | Cobbles, gravel and shingle, intertidal soft sediment, rocky shore, subtidal rocky reef, subtidal soft sediment |
| WFD phytoplankton status | No information available |
| History of harmful algae | Not monitored |
| Linked protected areas | Bathing Water Directive (numerous), Conservation of Wild Birds Directive (Teesmouth and Cleveland Coast) |
| Mitigation measures | None identified |

### 8.2.1 Pollution incidents

A review of the Environment Agency's pollution incident database has been undertaken to determine the history and nature of pollution incidents within and adjacent to the Tees estuary. Table 6 summarises the pollution incidents of relevance.

*Table 6 Summary of pollution incidents within or adjacent to the Tees estuary*

| Date | Category of impact* | Indicative location |
|---|---|---|
| 16/05/2007 | Significant (Category 2) | Dabholm Gut (feeds into the Tees estuary from the southern bank) |
| 23/05/2008 | Significant (Category 2) | Seal Sands |
| 23/01/2009 | Minor (Category 3) | Port Clarence (adjacent to the northern bank of the River Tees) |
| 07/01/2009 | Minor (Category 3) | |
| 30/03/2009 | Significant (Category 2) | |
| 08/05/2009 | Minor (Category 3) | |
| 11/08/2009 | Major (Category 1) | Portrack (Lustrum Beck which is a tributary of the Tees estuary) |
| 10/03/2012 | Minor (Category 3) | Port Clarence (adjacent to the northern bank of the River Tees) |
| 21/04/2014 | Significant (Category 2) | Dabholm Gut (feeds into the Tees estuary from the southern bank) |

*Note: Category 1 (Major) – major, serious, persistent and/or extensive impact or effect on the environment, people and/or property; Category 2 (Significant) – significant impact or effect on the environment, people and property; Category 3 (Minor) – minor or minimal impact or effect on the environment, people and/or property.

As noted above, there have been no pollution incidents within or immediately adjacent to the Tees estuary that are classified as of minor significance or worse, since 2014.

## 8.3 Consideration of maintenance dredging activities under the WFD

### 8.3.1 Hydromorphology

The Tees transitional waterbody has a hydromorphological status of 'Supports good'. The hydromorphological status of the Tees coastal water body has not yet been assessed. As maintenance dredging activities were being undertaken at the time when this classification was made, it can be concluded that maintenance dredging activities are not adversely impacting the hydromorphological quality element of the Tees transitional water body.

As there is no information available regarding the hydromorphological status of the Tees coastal water body, it is not possible to assess the implications of maintenance dredging on this water body. Given the size of the water body in relation to the area which is subject to maintenance dredging (as shown on Figure 8), it is considered that there would be no effect on the hydromorphology of the coastal water body at water body level.

### 8.3.2 Biological (habitats and fish)

Both the Tees transitional and the Tees coastal water body have an ecological status of 'Moderate', and both water bodies contain areas of higher sensitivity and lower sensitivity habitat. These areas of habitat have potential to be directly and indirectly affected by ongoing and future maintenance dredging activities. However, as noted above, maintenance dredging activities were ongoing at the time of identifying the presence of these areas of habitat which informed the classification of the ecological status of the water

body. It is therefore concluded that maintenance dredging at current levels would have no effect on the areas of existing habitat within the Tees transitional and Tees coastal waterbody.

With regard to fish, the Tees transitional water body reports 'Good' status. Maintenance dredging was being undertaken at the time when the classification of 'Good' was made for the Tees transitional water body. It is therefore concluded that maintenance dredging at current levels would have no effect on the ability of the Tees transitional water body to support fish, or the fish utilising the water body.

There is no information within the Northumbria RBMP for fish with regard to the Tees coastal water body. Consequently, it is not possible to assess the implications of maintenance dredging on this aspect of the water body. Given the size of the water body in relation to the area which is subject to maintenance dredging (as shown on Figure 8), it is considered that there would be no effect on the fish populations within the coastal water body at water body level.

### 8.3.3 Water quality

As noted in Section 3, PDT holds a 10 year marine licence for the disposal to sea of maintenance dredged sediment from the Tees estuary and Hartlepool channel (L/2015/00427/1). Condition 5.2.3 of the licence states that:

*"a regime of future sediment sampling is undertaken by PDT, of at least three yearly intervals, which must be agreed in advance with the MMO. Samples must be collected, analysed and the report of their notification signed off prior to dredging in the fourth and subsequently the seventh and tenth year of this licence*".

As noted in Table 4, the Tees transitional water body has been classified at poor chemical status due to the concentrations of tributyl tin (TBT) within the water. The Tees coastal water body has good chemical status (which was classified at the time when maintenance dredging was being undertaken, suggesting that maintenance dredging is not impacting the water quality of the coastal water body).

PDT is in the process of collecting sediment quality samples for analysis in accordance with the conditions on its marine licence. Based on the samples collected during 2015 to inform the 10 year maintenance dredge disposal licence, it is considered that the maintenance dredging at currents levels would not result in a reduction in the overall status of the waterbody.

### 8.3.4 Protected areas

There are a number of linked Protected Areas identified within Table 4 and 5, specifically sites protected under the Conservation of Wild Birds Directive, Bathing Waters Directive, Nitrates Directive and the Urban Waste Water Treatment Directive.

Bathing Waters require the consideration of specific parameters which relate to the protection of human health. As a result, baseline information in relation to these specific Protected Areas is not deemed relevant to this Baseline Document and therefore Bathing Waters are not considered further.

Sites designated under the Nitrates Directive relate to actions associated with farming and land use and as such, are protected by the defining of Nitrate Vulnerable Zones (NVZ). The objective of the Nitrates Directive is to reduce water pollution caused by nitrates from agricultural sources and to prevent further such pollution occurring. NVZs are therefore designated where nitrate concentrations in water bodies are high or increasing, or water bodies are, or may become, eutrophic due to agricultural nitrate pollution. Farmers within NVZs must comply with mandatory action programme measures to reduce agricultural

nitrate losses. In addition, a code of good agricultural practice has been established for voluntary implementation by all farmers. It is therefore considered that there are measures in place to minimise the risk of nitrates entering the Tees transitional water body and no further consideration of the Nitrates Directive is required.

Areas designated under the Urban Waste Water Treatment Directive are defined in order to protect the environment from the adverse effects of waste water discharges. Sensitive areas are designated for water bodies affected by eutrophication or where surface water abstraction is affected by elevated nitrate concentrations. Reductions or emission standards for nutrients in sewage effluent must be met within areas sensitive to nutrient pollution. Sensitive areas may also be designated due to the presence of bathing waters for example which drives the requirement for improved treatment levels, such as the addition of ultra violet (UV) disinfection for waste water discharges to the area. It is therefore considered that there are measures in place to protect the Tees transitional water body from waste water discharges and no further consideration is required.

In terms of the European and Ramsar sites, the potential effects of maintenance dredging are considered in Section 7 and Section 9.

# 9 Changes to previous recommendations

The assessment of potential effects of maintenance dredging on the Teesmouth and Cleveland Coast SPA and Ramsar site was originally presented in Section 5 of the Baseline Document (Royal Haskoning, 2008). The Baseline Document identified that maintenance dredging has the potential to affect the SPA and Ramsar site through the following mechanisms:

- Changes to habitats as a result of hydrodynamic change, leading to changes in the morphology of the estuary.
- Increases in levels of suspended sediment during dredging operations. This could potentially impact on the food resource of the SPA interest features; particular the little tern which feeds on sandeels and small fish in the mouth of the estuary.
- The remobilisation and redistribution of sediments, which may be contaminated within the study area. These sediments could potentially impact on the intertidal benthic organisms used by the waterbirds as a feeding resource.
- Increased disturbance: potentially, an increase in noise levels could impact on SPA waterbird populations. This is of particular concern during the winter period when waterbirds feed and gather energy.

The 2008 Baseline Document concluded that the existing maintenance dredging activity being undertaken in the study area does not appear to be having, or has historically had, an impact on the designated site which would alter its condition. No mitigation measures were relied on within 2008 Baseline Document to come to the conclusions made.

The 2008 Baseline Document recommended that these conclusions must be reviewed if a significant change in maintenance dredging practices should occur as a result of new developments. There have been no changes to dredging and disposal practices since production of the 2016 Baseline Document update, and there have been no significant proposed developments which have received consent within the Tees estuary during 2016 which could impact on the ongoing maintenance dredge practices.

In addition to the above, it is concluded that maintenance dredging is not causing a reduction in status or jeopardising the WFD water bodies screened into the assessment from meeting their objectives.

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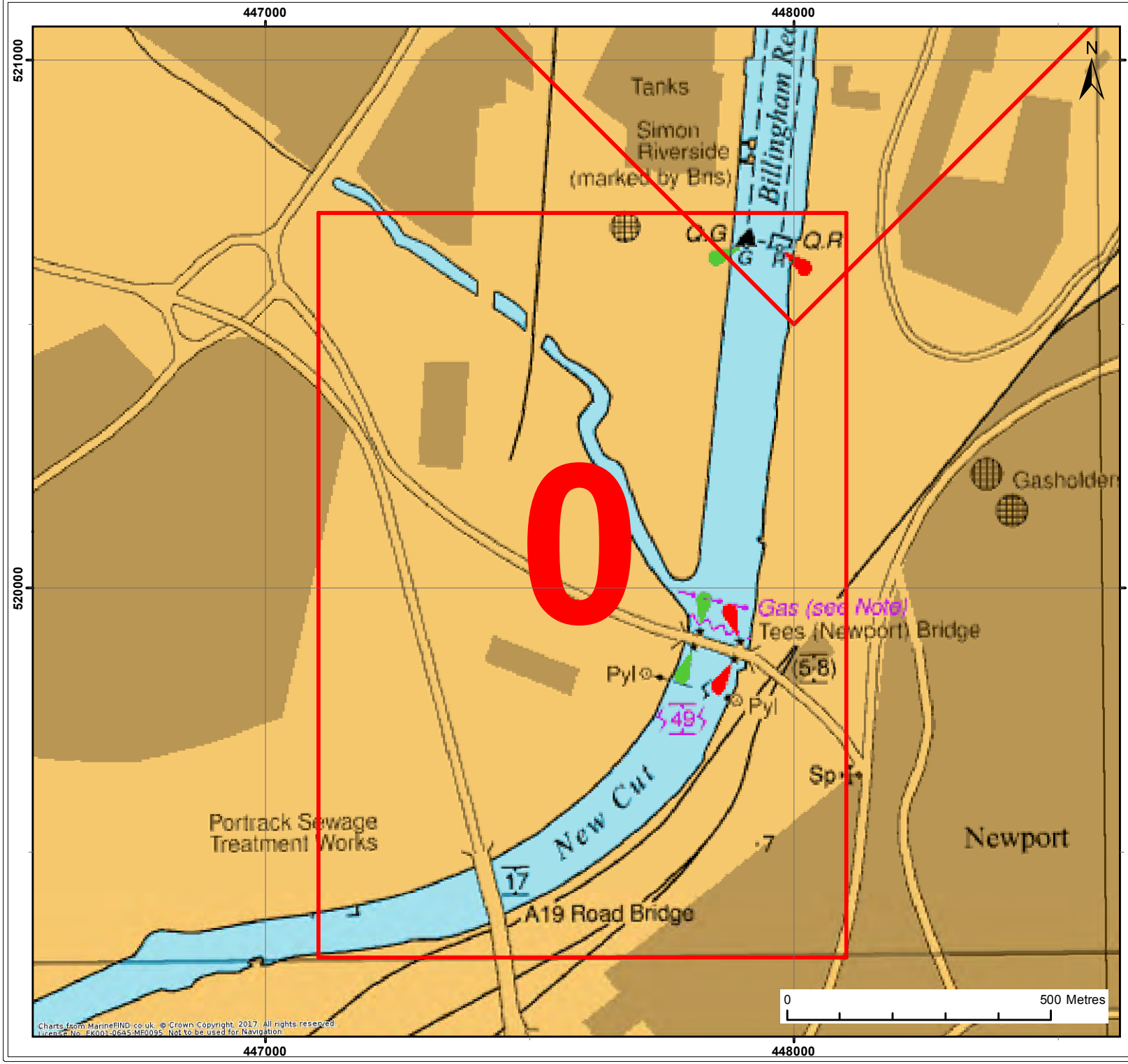
# Appendix 1

# Dredge areas and volumes

Royal HaskoningDHV





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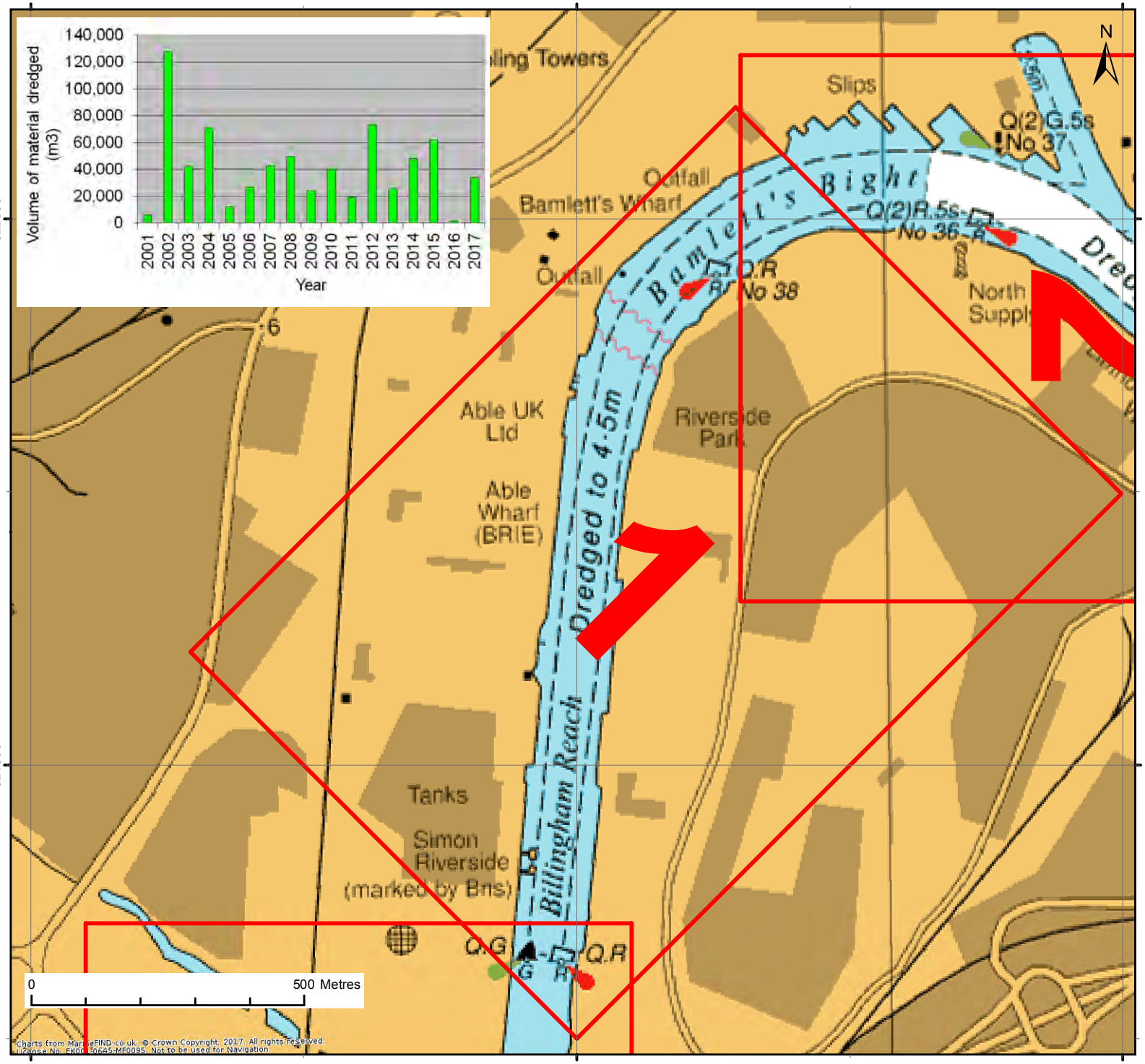



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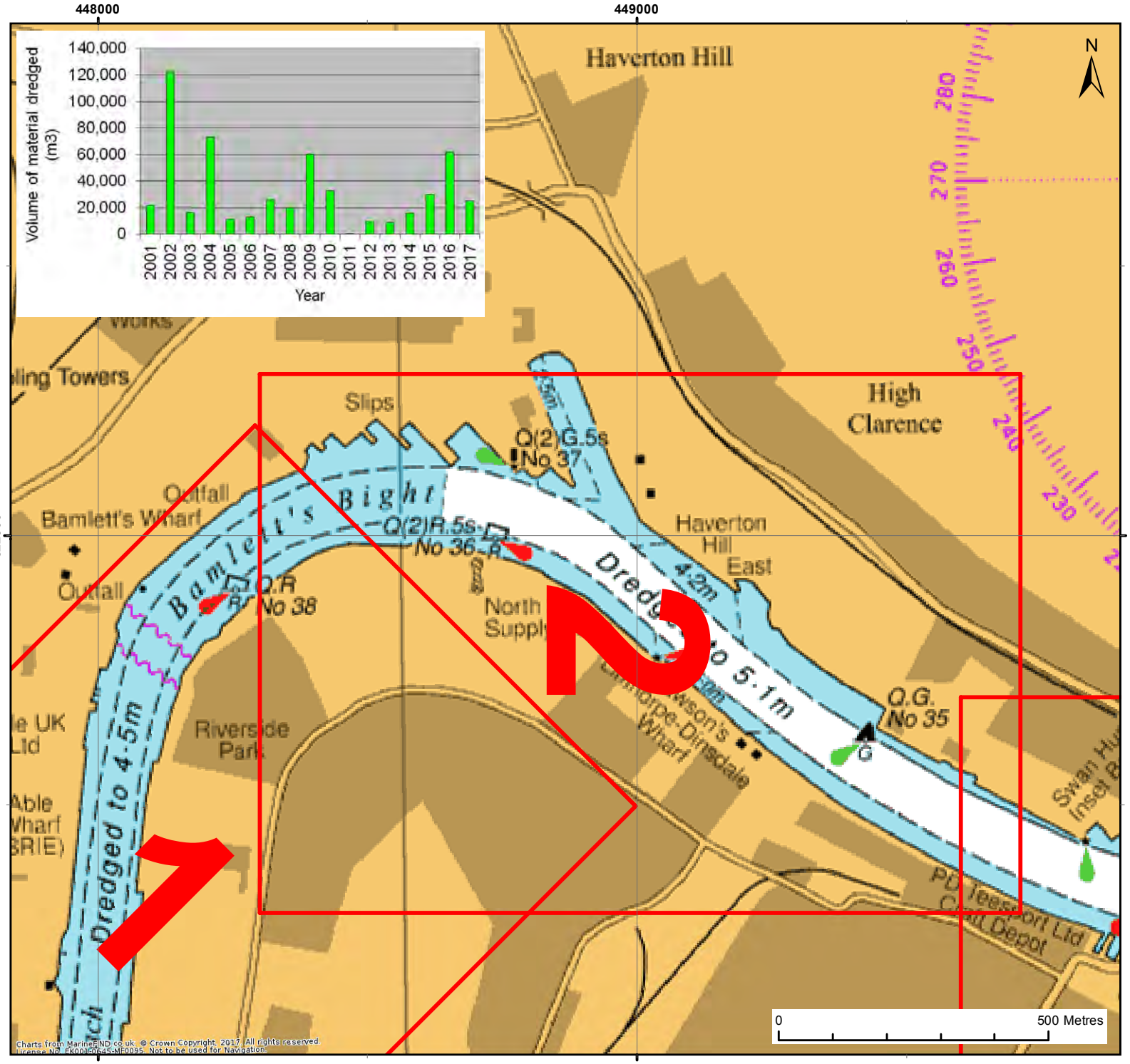



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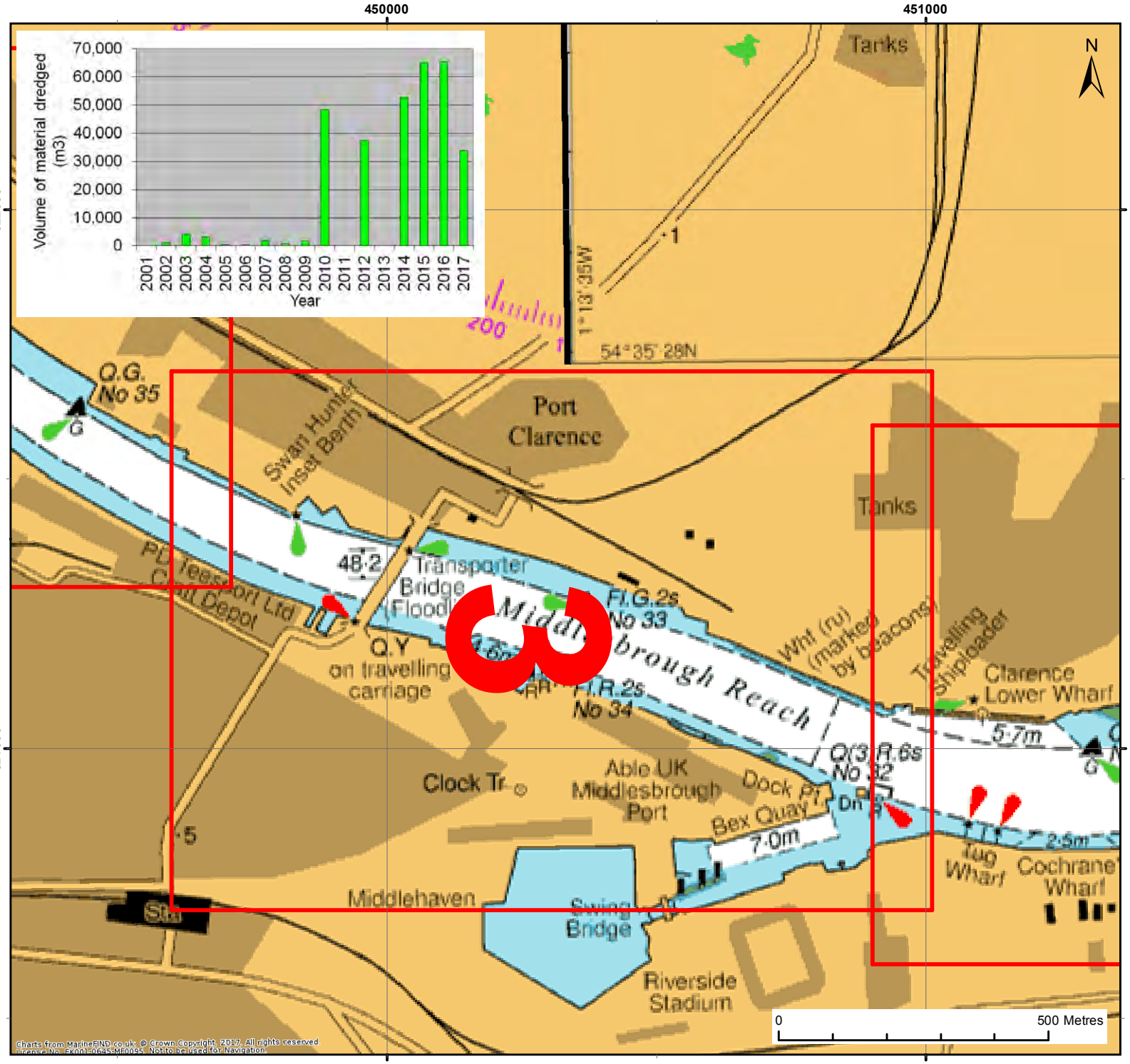



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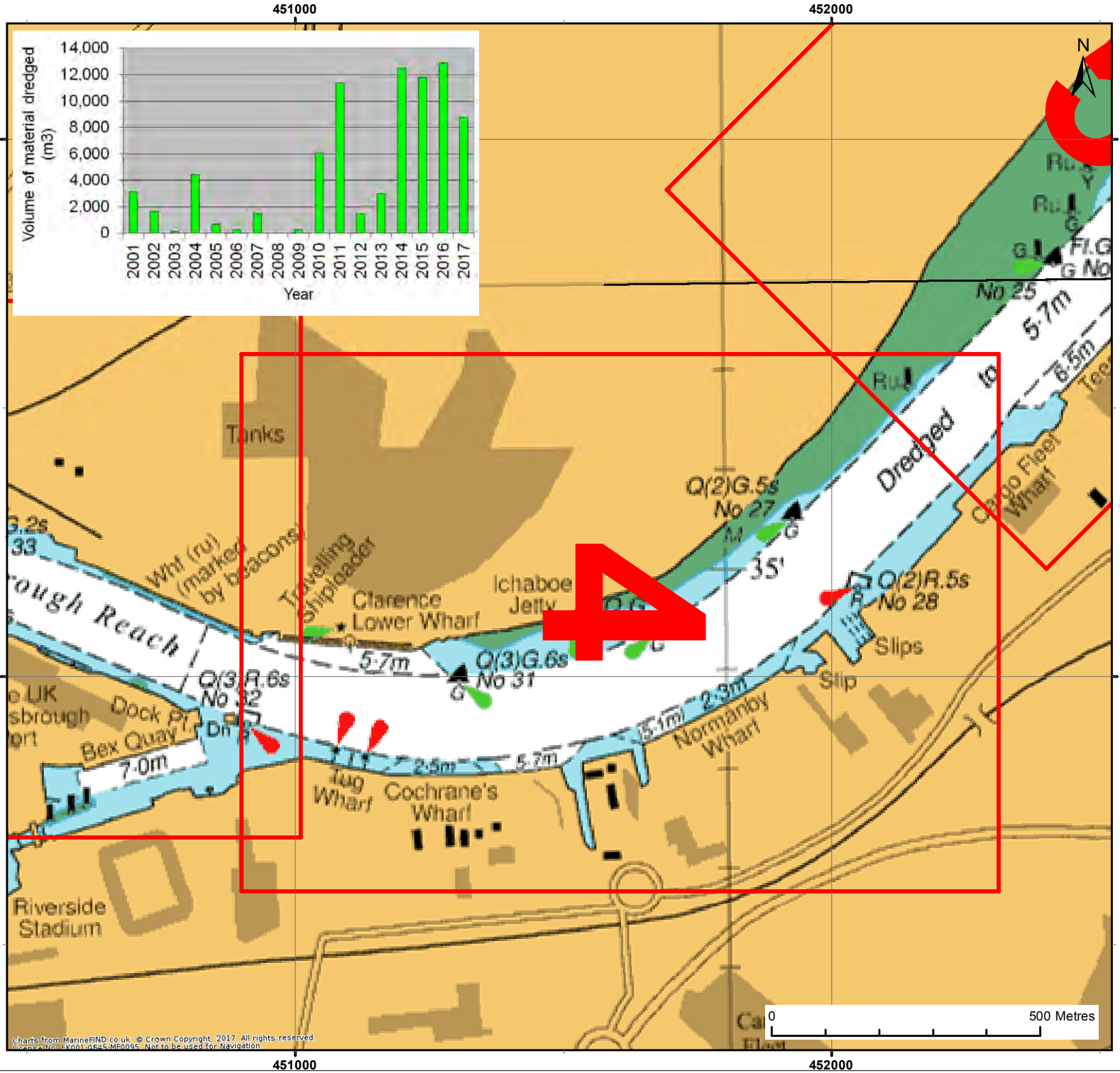



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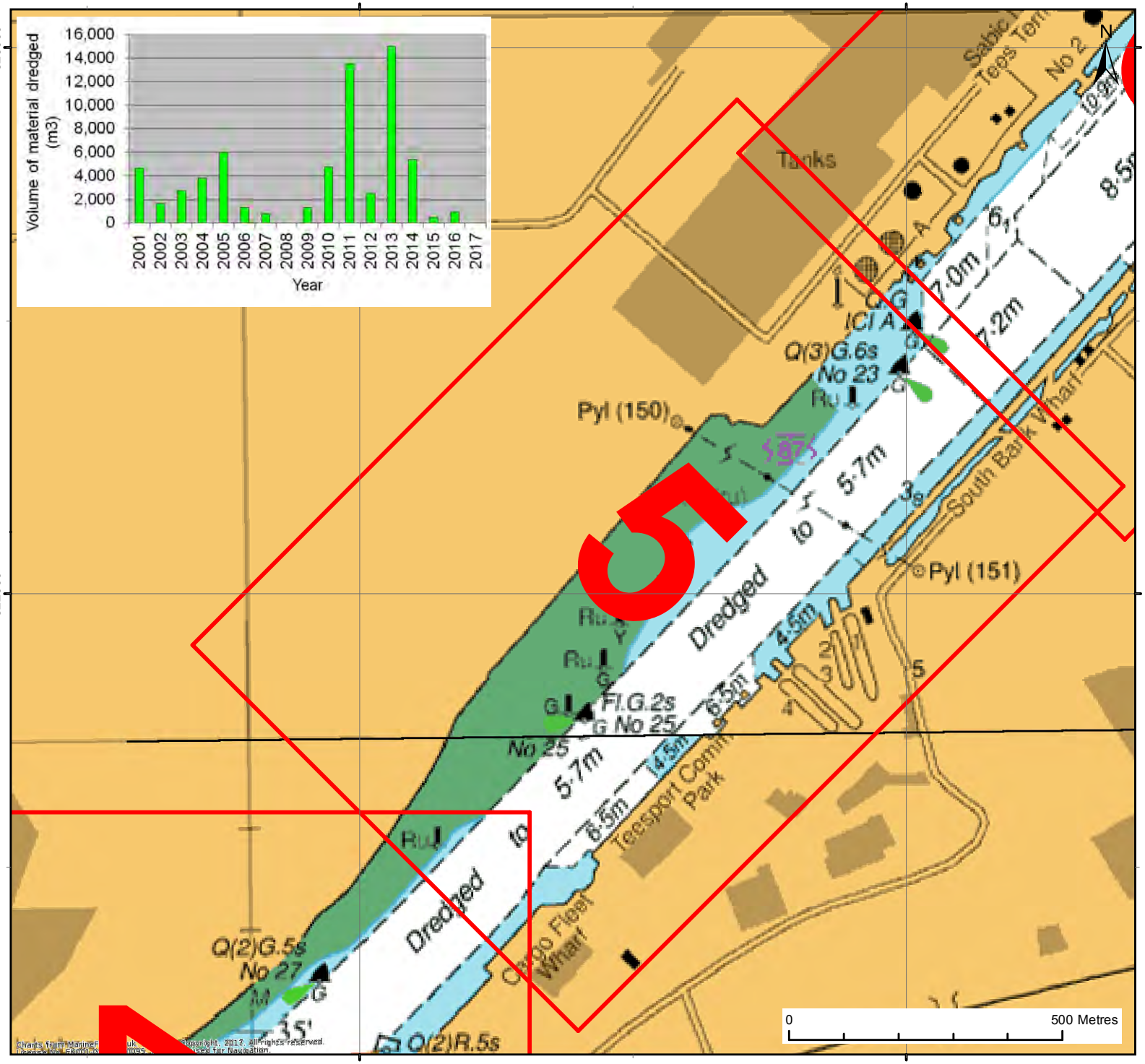



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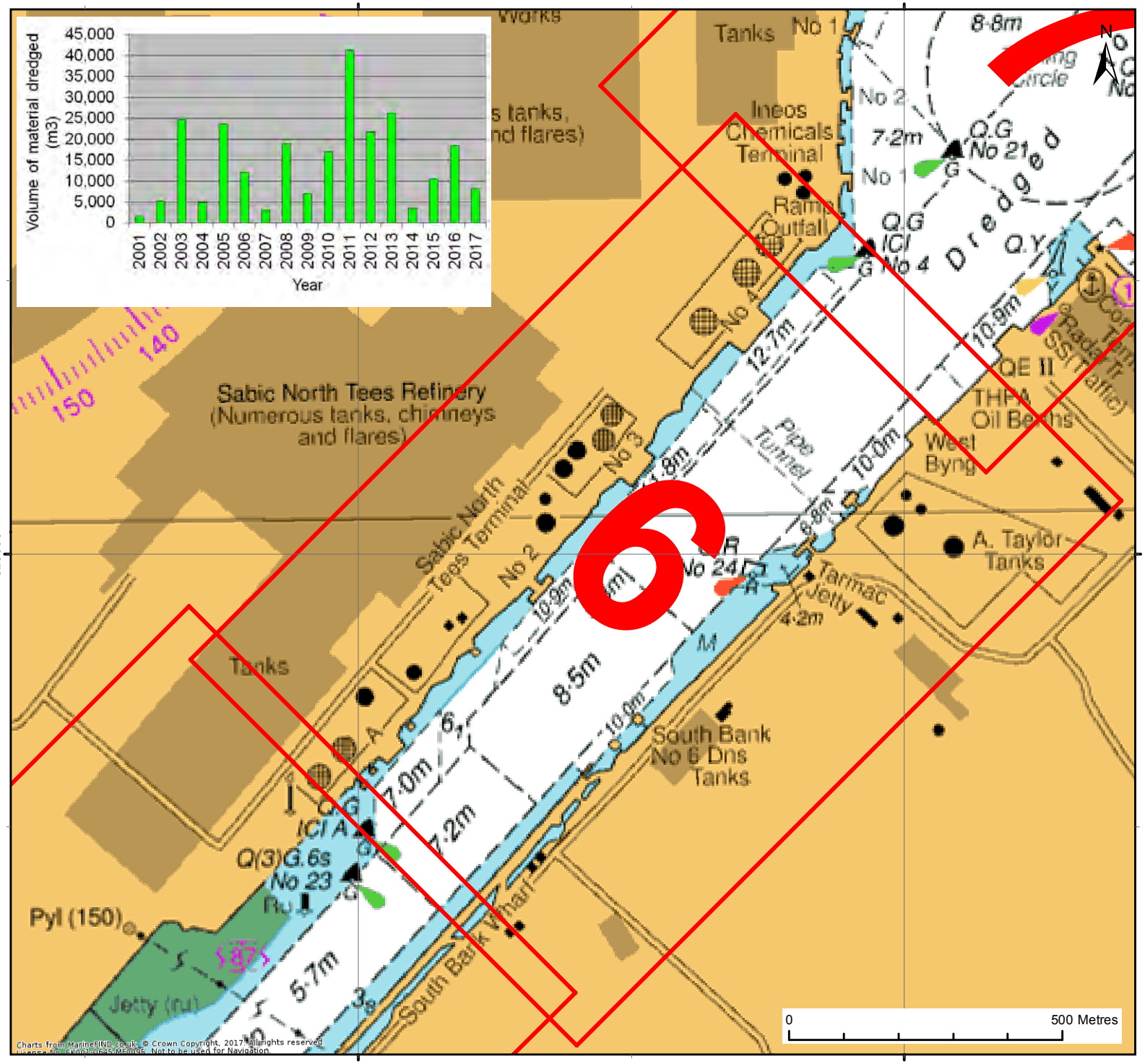



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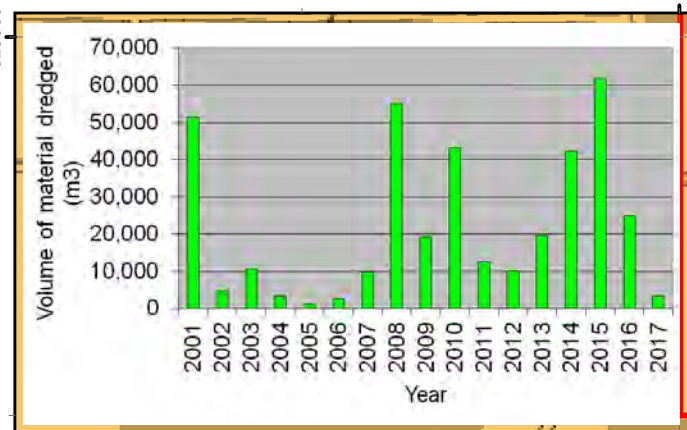



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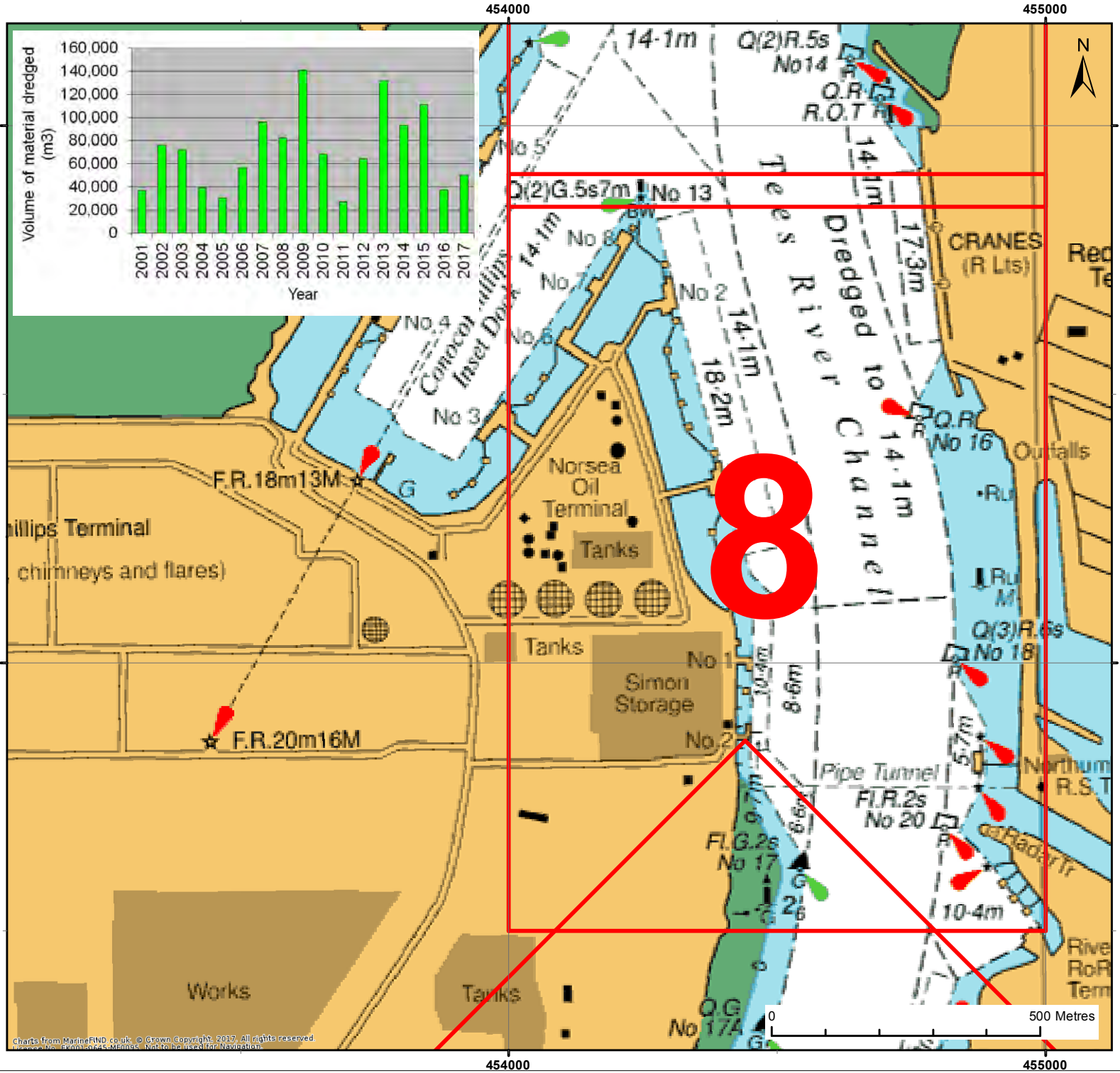



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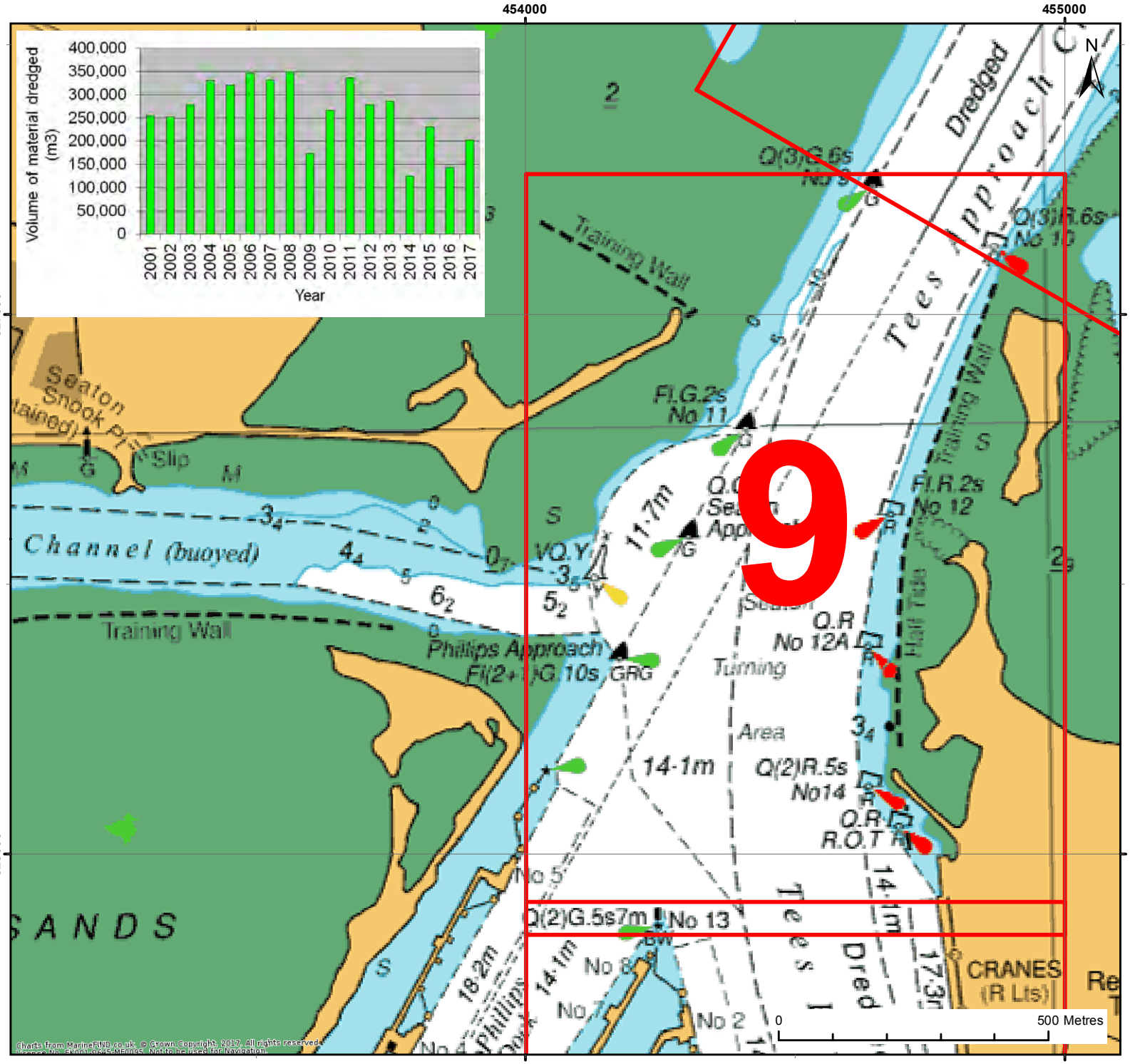



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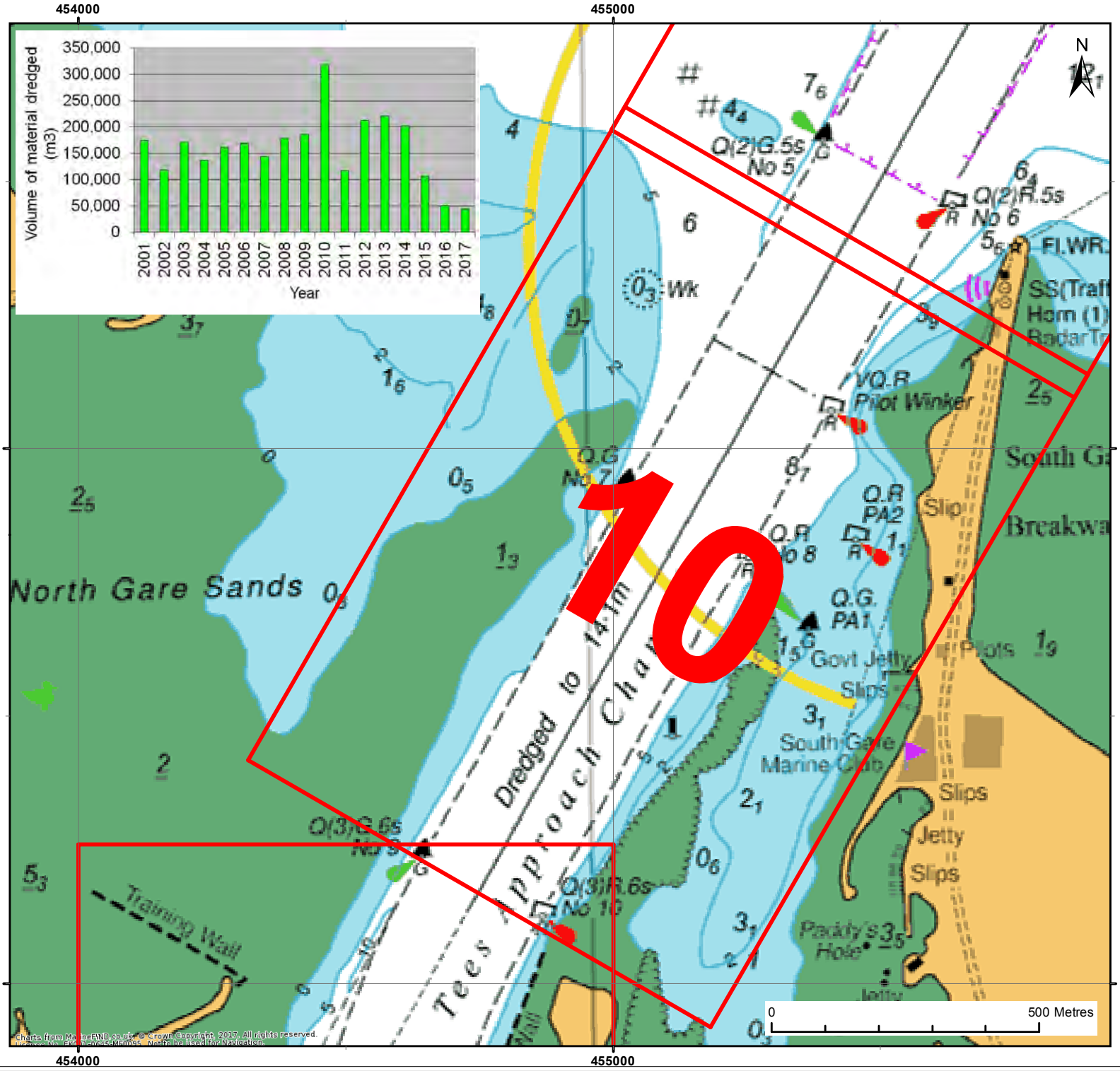



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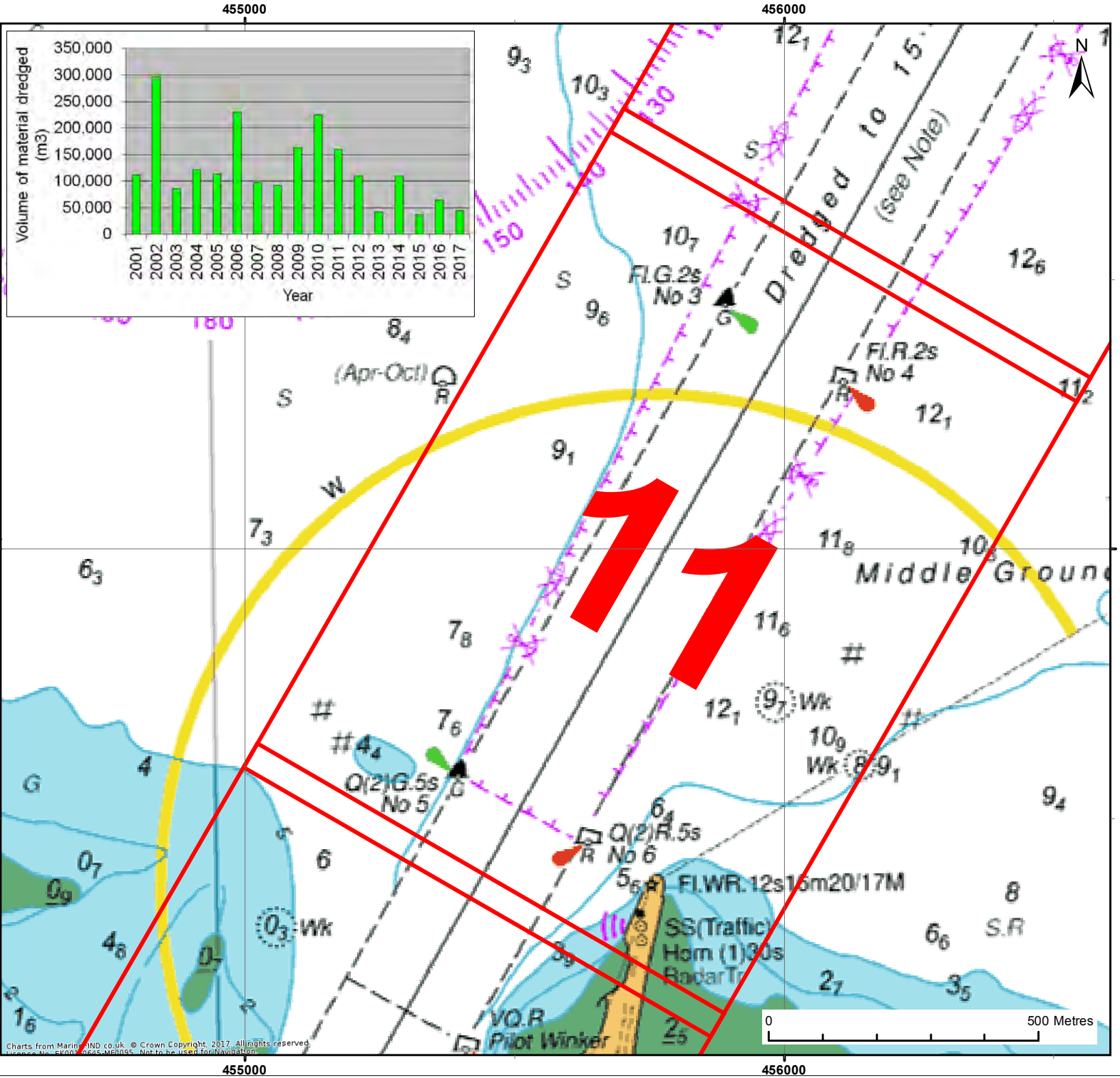



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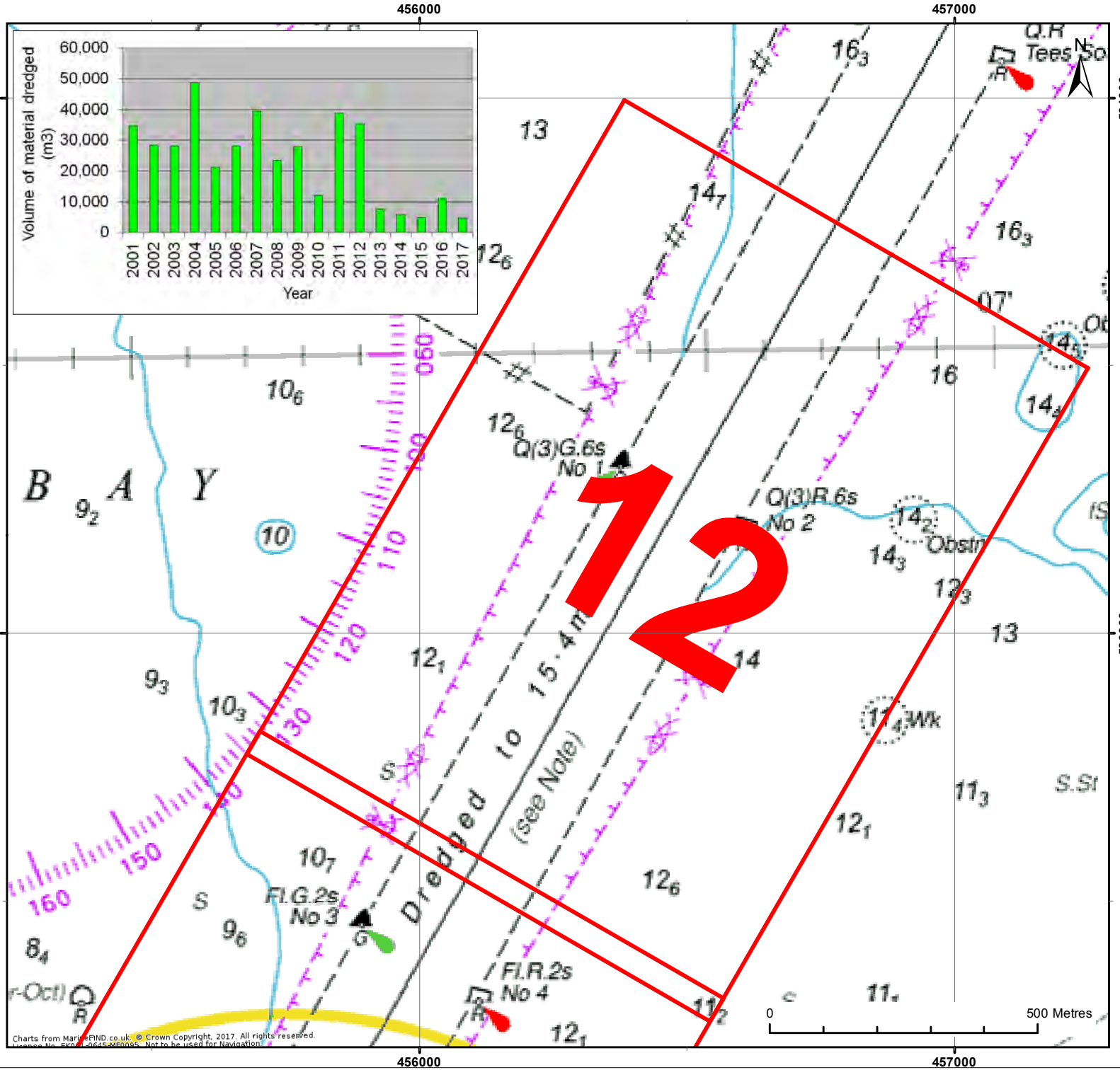



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