REPORT

South Bank Quay

EIA Report

Client: Tees Valley Combined Authority

Reference:PC1084-RHD-SB-EN-RP-EV-1100Status:S0/P01.01Date:06 November 2020





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

Document title: South Bank Quay

Reference: PC1084-RHD-SB-EN-RP-EV-1100 Status: P01.01/S0 Date: 06 November 2020

Project number: PC1084 Author(s): RHDHV EIA Team

Drafted by: RHDHV EIA Team

Checked by: Steven Rayner and Matt Simpson

Date / initials: 14/10/2020

Approved by: Matt Simpson

Date / initials: 26/10/2020



Disclaimer

No part of these specifications/printed matter may be reproduced and/or published by print, photocopy, microfilm or by any other means, without the prior written permission of HaskoningDHV UK Ltd.; nor may they be used, without such permission, for any purposes other than that for which they were produced. HaskoningDHV UK Ltd. accepts no responsibility or liability for these specifications/printed matter to any party other than the persons by whom it was commissioned and as concluded under that Appointment. The integrated QHSE management system of HaskoningDHV UK Ltd. has been certified in accordance with ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018.

i.



Table of Contents

1	INTRODUCTION AND BACKGROUND	1
1.1	Background	1
1.2	Study area	1
1.3	Report structure	4
2	NEED FOR THE PROPOSED SCHEME	5
2.1	Introduction	5
2.2	Factors influencing the proposed scheme design	5
3	DESCRIPTION OF THE PROPOSED SCHEME	7
3.1	Introduction	7
3.2	Site compound	7
3.3	Demolition	7
3.4	Quay construction	8
3.5	Environmental enhancement measures	14
3.6 the rive	Capital dredging of marine sediments and excavation of soils / landsid erbank	e materials within 14
3.7	Installation of rock blanket	16
3.8	Disposal of dredged material	17
3.9	Programme of construction works	17
3.10	Construction phase employment	19
3.11	Summary of plant to be used during demolition and construction	19
3.12	Embedded mitigation measures	20
3.13	Operational phase	22
3.14	Decommissioning phase	23
3.15	Description of alternatives	23
4	LEGISLATIVE FRAMEWORK	27
4.1	Marine and Coastal Access Act	27
4.2	Harbours Act	27
4.3	Town and Country Planning Act	28
4.4	Environmental Impact Assessment Directive	28
4.5	Habitats Directive	28
4.6	Wildlife and Countryside Act (as amended)	29
4.7	Water Framework Directive	29
4.8	Waste Framework Directive	29

ii



	National, regional and local planning policy	50
5	APPROACH TO THE EIA	34
5.1	The EIA process	34
6	HYDRODYNAMIC AND SEDIMENTARY REGIME	43
6.1	Introduction	43
6.2	Policy and consultation	43
6.3	Methodology	45
6.4	Existing environment	52
6.5	Potential impacts during the construction phase	82
6.6	Potential impacts during the operational phase	124
7	MARINE SEDIMENT AND WATER QUALITY	134
7.1	Introduction	134
7.2	Policy and consultation	134
7.3	Methodology	136
7.4	Existing environment	139
7.5	Potential impacts during the construction phase	149
7.6	Potential impacts during the operational phase	160
8	LAND QUALITY AND GEOLOGY	161
8.1	Introduction	161
8.2	Policy and consultation	161
8.3	Methodology	165
8.3 8.4	Methodology Existing environment	165 171
8.3 8.4 8.5	Methodology Existing environment Potential impacts during the construction phase	165 171 178
8.3 8.4 8.5 8.6	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase	165 171 178 180
8.3 8.4 8.5 8.6 9	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY	165 171 178 180 183
8.3 8.4 8.5 8.6 9 9.1	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction	165 171 178 180 183 183
8.3 8.4 8.5 8.6 9 9.1 9.2	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation	165 171 178 180 183 183 183
8.3 8.4 8.5 8.6 9 9.1 9.2 9.3	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology	165 171 178 180 183 183 183 183
 8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment	165 171 178 180 183 183 183 186 187
 8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 9.5 	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment Potential impacts during the construction phase	165 171 178 180 183 183 183 183 186 187 199
 8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 9.5 9.6 	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase	165 171 178 180 183 183 183 183 186 187 199 206
 8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 9.5 9.6 10 	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE MAMMALS	165 171 178 180 183 183 183 183 186 187 199 206 209
8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 9.5 9.6 10 10.1	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase Potential impacts during the operational phase MARINE MAMMALS Introduction	165 171 178 180 183 183 183 183 186 187 199 206 209 209
 8.3 8.4 8.5 8.6 9 9.1 9.2 9.3 9.4 9.5 9.6 10.1 10.2 	Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE ECOLOGY Introduction Policy and consultation Methodology Existing environment Potential impacts during the construction phase Potential impacts during the operational phase MARINE MAMMALS Introduction Policy and consultation	165 171 178 180 183 183 183 183 186 187 199 206 209 209 209

iii



10.3	Methodology	211
10.4	Existing environment	213
10.5	Potential impacts during the construction phase	223
10.6	Potential impacts during the operational phase	234
11	TERRESTRIAL ECOLOGY	236
11.1	Introduction	236
11.2	Policy and consultation	236
11.3	Methodology	240
11.4	Existing environment	246
11.5	Potential impacts during the construction phase	257
11.6	Potential impacts during the operational phase	261
12	MARINE AND COASTAL ORNITHOLOGY	262
12.1	Introduction	262
12.2	Policy and consultation	262
12.3	Methodology	266
12.4	Existing environment	271
12.5	Potential impacts during the construction phase	287
12.6	Potential impacts during the operational phase	296
13	FISH AND FISHERIES	299
13.1	Introduction	299
13.2	Policy and consultation	299
13.3	Methodology	301
13.4	Existing environment	302
13.5	Potential impacts during the construction phase	310
13.6	Potential impacts during the operational phase	322
14	COMMERCIAL AND RECREATIONAL NAVIGATION	324
14.1	Introduction	324
14.2	Policy and consultation	324
14.3	Methodology	324
14.4	Existing environment	325
14.5	Potential impacts during the construction phase	327
14.6	Potential impacts during the operational phase	328



15	TRAFFIC AND TRANSPORT	330
16	ARCHAEOLOGY AND CULTURAL HERITAGE	331
16.1	Introduction	331
16.2	Policy and consultation	331
16.3	Methodology	335
16.4	Existing environment	341
16.5	Potential impacts during the construction phase	350
16.6	Potential impacts during the operational phase	352
17	NOISE AND VIBRATION	354
17.1	Introduction	354
17.2	Policy and consultation	354
17.3	Methodology	358
17.4	Existing environment	364
17.5	Potential impacts during the construction phase	364
17.6	Potential impacts during the operational phase	368
18	AIR QUALITY	370
18.1	Policy and consultation	370
18.2	Methodology	374
18.3	Existing environment	376
18.4	Potential impacts during the construction phase	379
18.5	Potential impacts during the operational phase	387
19	LANDSCAPE AND VISUAL	389
19.1	Introduction	389
19.2	Legislation, policy and consultation	389
19.3	Methodology	392
19.4	Existing environment	396
19.5	Landscape and visual effects	406
19.6	Potential landscape and visual effects during the construction phase	407
19.7	Potential landscape effects during the operational phase	408
19.8	Potential visual effects during the operational phase	408
19.9	Compliance with planning policy.	412
20	FLOOD RISK AND COASTAL DEFENCE	413
20.1	Introduction	413
20.2	Policy, guidance and consultation	413



20.3	Methodology	416
20.4	Existing environment	418
20.5	Potential impacts during the construction phase	424
20.6	Potential impacts during the operational phase	425
21	SOCIO-ECONOMICS	429
21.1	Policy and consultation	429
21.2	Methodology	434
21.3	Existing environment	437
21.4	Potential impacts during the construction phase	445
21.5	Potential impacts during the operational phase	448
22	CLIMATE CHANGE	452
22.1	Introduction	452
22.2	Policy and consultation	452
22.3	Methodology	456
22.4	Existing environment	462
22.5	Potential impacts during the construction phase	463
22.6	Potential impacts during the operational phase	464
23	USE OF NATURAL RESOURCES	466
23 24	USE OF NATURAL RESOURCES DISASTER RISK	466 467
23 24 25	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT	466 467 468
23242525.1	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation	466 467 468 468
 23 24 25 25.1 25.2 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase	466 467 468 468 468
 23 24 25 25.1 25.2 25.3 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase	 466 467 468 468 468 469
 23 24 25 25.1 25.2 25.3 26 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL	 466 467 468 468 468 469 470
 23 24 25 25.1 25.2 25.3 26 26.1 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction	 466 467 468 468 469 470 470
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of	466 467 468 468 468 469 470 470 on water
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.2 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Dredieted effects	466 467 468 468 469 470 470 on water 470 471
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Predicted effects	466 467 468 468 469 470 470 on water 470 471
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 27 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Predicted effects CUMULATIVE IMPACT ASSESSMENT	466 467 468 468 469 470 470 00n water 470 471 482
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 27 27.1 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Predicted effects CUMULATIVE IMPACT ASSESSMENT Introduction	466 467 468 468 469 470 470 00n water 470 471 482 482
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 27 27.1 27.2 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Predicted effects CUMULATIVE IMPACT ASSESSMENT Introduction Guidance on cumulative impacts and cumulative effects assessment	466 467 468 468 469 470 470 470 471 471 482 482 482
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 27 27.1 27.2 27.3 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect Predicted effects CUMULATIVE IMPACT ASSESSMENT Introduction Guidance on cumulative impacts and cumulative effects assessment Assessment methodology	466 467 468 468 469 470 470 470 471 482 482 482 482 483
 23 24 25 25.1 25.2 25.3 26 26.1 26.2 quality 26.3 27 27.1 27.2 27.3 27.4 	USE OF NATURAL RESOURCES DISASTER RISK HEALTH RISK ASSESSMENT Policy, methodology and consultation Potential impacts during the construction phase Potential impacts during the operational phase OFFSHORE DISPOSAL OF DREDGED MATERIAL Introduction Modelling the dispersion and deposition of capital dredged material and effect of Predicted effects CUMULATIVE IMPACT ASSESSMENT Introduction Guidance on cumulative impacts and cumulative effects assessment Assessment methodology Scope of assessment	466 467 468 468 469 470 470 470 471 482 482 482 482 483 483



28	WATER FRAMEWORK DIRECTIVE COMPLIANCE ASSESSMENT	514	
28.1	Introduction	514	
28.2	Consultation	514	
28.3	Activities and WFD water bodies	516	
28.4	WFD Scoping	519	
28.5	Detailed assessment – C2 Capital dredging	522	
28.6	Detailed Assessment – C3 Riverbank excavation	532	
28.7 wall	Detailed Assessment – C5 Construction of the quay wall and O1 presence of new	quay 533	
28.8	Summary of water body enhancement	535	
28.9	Ability of water body to achieve objectives	535	
28.10	Cumulative impacts assessment	535	
28.11	Overall findings	541	
29	HABITATS REGULATIONS ASSESSMENT	543	
29.1	Introduction	543	
29.2	Overview of the HRA process	543	
29.3	Screening for LSE	545	
29.4	Consideration of other plans and projects to include in the in-combination assessment 552		
29.5	Information to inform the Appropriate Assessment	563	
29.6	Assessment of in-combination effects	573	
29.7	Conclusion	579	
30	REFERENCES	580	
Apper	ndices		
1	Waste appendix		
2	Scoping note Scoping consultation		
4	Metocean survey report		
5	Hydrodynamic and sedimentary plume modelling report		

- 6 Sediment sampling plan
- 7 Land quality desk study
- 8 Underwater noise assessment
- 9 Navigation risk assessment
- 10 Transport Statement
- 11 Air quality assessment method
- 12 Representative viewpoint analysis tables
- 13 Landscape and visual impact assessment methodology
- 14 Landscape and visual impact assessment figures
- 15 Flood Risk Assessment
- 16 Water Framework Directive compliance assessment scoping tables



1 INTRODUCTION AND BACKGROUND

1.1 Background

South Tees Development Corporation (STDC) is proposing to construct a new quay at South Bank in the Tees estuary (referred to hereafter as the proposed scheme) (see **Figure 1.1**). The proposed scheme is required to support STDC's landside proposals for general industry and storage or distribution uses within part of the South Industrial Zone (described in **Section 2**). It is envisaged that the new quay would be utilised predominantly by the renewable energy industry, as well as supporting more general industrial and storage/distribution activities.

In summary, the proposed scheme comprises demolition, capital dredging, offshore disposal of dredged material and construction and operation of a new quay (to be set back into the riverbank) (see **Figure 1.1**).

The proposed scheme would require works in both the marine and terrestrial environments and requires Environmental Impact Assessment (EIA) in support of a marine licence application to the Marine Management Organisation (MMO) and a planning application to Redcar and Cleveland Borough Council (RCBC).

1.2 Study area

The study area for the EIA in respect of the proposed scheme is the area over which the direct and indirect effects of the proposed scheme may be detected during the construction and operational phases. Typically, for estuarine and marine development projects, the study area is defined as the area over which potential effects on tidal currents and sediment transport may occur (i.e. the potential zone of influence). The hydrodynamic modelling domain (which includes the offshore disposal site in Tees Bay and the majority of the Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar site) shown in **Figure 1.2** therefore defines the study area for the marine elements of the proposed scheme (namely the demolition, dredge and disposal activities).

The study area detailed above extends to cover the landside elements of the proposed scheme, namely the construction of the proposed quay within the riverbank. As with the marine parts of the proposed scheme, the study area for the landside parts of the proposed scheme is defined as the area over which potentially significant direct and indirect effects may occur. In this instance, the landside study area is likely to vary by topic (as detailed in the respective technical chapters of this report and summarised in **Table 1.1** below). The study area is shown on **Figure 1.2**. Landscape and visual impact assessment has been detailed separately within **Table 1.1** as the zone of influence for landscape and visual impacts is predicted to extend the greatest distance from the proposed scheme footprint.

Technical topic	Study area
Marine topics	The study area for marine topics comprises the hydrodynamic and sedimentary modelling domain, which covers the potential zone of influence of both the dredge and disposal activities.
Landscape and visual impact assessment	The study area extends to 5km and the assessment considers high sensitivity receptors within that zone. The assessment focusses on the area within 2km from the proposed scheme footprint; however, significant impacts are envisaged within a 1km zone only.
Other landside topics	The potential impacts on other landside environmental receptors are not predicted to extend beyond 1km from the proposed scheme footprint. Further detail is provided within the technical chapters regarding study areas being considered, where required.

 Table 1.1
 Description of study areas



lingham A66 A1053					
- Pro	nosed Dreda	e and Exc	avation Fr	velone	
(inc	cluding side s	lopes)			
Pro	posed Quay	Envelope			
Pro	posed Demo	lition Area			
askoningDH	HV UK Ltd.	ins OS data @	Crown Copyrigh	t and data	base right 2020
ge (C) Crov d for naviga	wn Copyright, 2019 tion.	. All Rights res	served. Licence	no. EMS-	EK001. Not to be
ent:		F	Project:		
	Tees Valley		, Cauth	Deel	0.000
Cor	mbined Autho	ority	South Bank Quay		
e:					
	Si	te Locati	ion Plan		
^{ure:} 1.	1				
evision:	Date:	Drawn:	Checked:	Size:	Scale:
0	07/40/0000	TO	05		4.45.000
U	27/10/2020	IC	SK	A3	1:15,000
-ordinate	system: Brit	ish Nation	al Grid		
ROYAL HASKONINGDHV Mariborough House Mariborough Crescent Newcastle-upon-Tyne, NE1 4EE +44 (0)191 211 1300 www.royalbaskoniandby.com					
					J









1.3 Report structure

This report presents the findings of the EIA process and explains how the conclusions have been reached. The intention has been to present the information in such a way to allow readers to form their own opinions on the acceptability of the residual impacts associated with the proposed scheme.

Section 1 outlines the background to the proposed scheme and defines the study area. **Section 2** presents the need for the proposed scheme, and **Section 3** discusses the relevant legislative regime, identifying the various consents and licences required. **Section 4** describes the proposed scheme, whilst **Section 5** describes the EIA process and defines the EIA methodology adopted.

Sections 6 to **26** contain the technical assessments of the potential impacts of the proposed scheme. These sections describe the nature of the existing (baseline) environment for various parameters considered during the EIA process. The potential impacts of the proposed scheme during construction and operational phases on each of these parameters are then identified and assessed and, where appropriate and practicable, mitigation measures are defined. The residual impacts (potential impacts remaining assuming the proposed mitigation measures are effectively implemented) are then assessed.

Section 27 presents the assessment of potential cumulative impacts with other plans and projects. **Section 28** considers the implications of the proposed scheme under the requirements of the Water Framework Directive (WFD). **Section 29** considers the implications of the proposed scheme for European and internationally designated sites (for nature conservation). **Section 30** lists the references used during the production of this EIA Report.