

AMEP Quay Material Change Application - EIA Scoping Report

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FAIRHURST

CONTROL SHEET

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EIA Scoping Report

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1.0 Introduction

- 1.1 This Scoping Report has been prepared by Fairhurst on behalf of Able Humber Ports Limited (the Applicant), to support a request for a Scoping Opinion from the Secretary of State. The Scoping Opinion is to inform an updated Environmental Statement (ES) to accompany a material change application for proposed changes to the scheme consented under The Able Marine Energy Park Development Consent Order 2014 (Statutory Instrument 2014 No. 2935), ('the DCO').
- 1.2 The DCO permits, *inter alia*, the development of a new quay and associated development at Killingholme in North Lincolnshire, on the south bank of the Humber estuary. Briefly, the development on the south bank comprises a quay, reclaimed estuarine habitat and the provision of onshore facilities for the manufacture, assembly and storage of components relating to the offshore renewable energy sector. The DCO further permits other associated development comprising environmental habitat on the north bank of the Humber, in the East Riding of Yorkshire. The authorised development is more fully described in Schedule 1 of the DCO and is more specifically detailed on the application drawings listed in Schedule 11, paragraph 6.
- 1.3 The Deemed Marine Licence at Schedule 8 of the DCO has been varied twice by the Marine Management Organisation. Variation No. 1 was issued on 23 June 2017 (<https://www.gov.uk/government/publications/able-marine-energy-park-variation>) and Variation 2 was issued on 16 September 2020 (<https://www.gov.uk/government/publications/amep-marine-energy-park-variation-2>). Further, on 27 July 2020 the Secretary of State for Transport approved extending the 5-year time limit for the commencement of the approved tidal works as required under the provisions of Article 23 of the DCO.
- 1.4 The Applicant is now seeking to amend the authorised development. The proposed changes are summarised below:

- Changes to the proposed quay layout to reclaim the specialist berth at the southern end of the quay, and to set back the quay line at the northern end of the quay to create a barge berth;
- The addition of options to the form of construction of the quay whereby the piled relieving slab to the rear of the quay could be raised or omitted entirely (subject to detailed design), and the quay wall piles could be restrained with more conventional steel anchor piles and tie bars *in lieu* of flap anchors;
- A change to the approved diversion of footpath FP50 in North Lincolnshire to avoid crossing over the existing rail track at the end of the Killingholme Branch Line;
- Provision of a third cross dam within the reclamation area to enable staged completion and early handover of sections of the quay;
- A change to the consented deposit location for 1.1M tonnes of clay to be dredged from the berthing pocket, to permit its disposal at HU082 if required; and,
- An amendment to the sequencing of the quay works (as illustrated on the application drawings AMEP_P1D_D_101 to 103) to enable those works to commence at the southern end of the quay and progress northwards.

1.5 Full details of the proposed changes are discussed in Section 2.0 of this Report.

1.6 An application for a material change to the DCO is to be submitted under Schedule 6 of the Planning Act 2008 and Part 2 of the Infrastructure Planning (Changes to, Revocation of, Development Consent Orders) Regulations 2011. The reasons for proposing a material change are discussed in full in Section 3.0 of this Report.

1.7 The proposed change is considered to represent EIA development as it meets the definition of Schedule 2 development set out in The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (“the EIA Regulations”); namely, that it is a change to a Schedule 1 development, where that development is already authorised (by virtue of the AMEP DCO), and the changes have the potential to give rise to some significant effects of a new or different nature to those reported

in the ES accompanying the original application, albeit these are limited in scope, as discussed further in Sections 5.0 of this Report.

- 1.8 An updated ES will therefore be submitted with the application for a material change to report the significance of any new or materially different impacts. Accordingly, the request for a Scoping Opinion is being submitted under regulations 10(2) and (4) of the EIA Regulations, and this Report sets out the proposed scope of the updated ES, for the agreement of the Secretary of State.

2.0 Proposed Changes

2.1 This section of the Report details the proposed changes in relation to DCO and the accompanying Works Plans.

CHANGES TO THE PERMANENT WORKS

The NSIP: Work No.1

2.2 The following changes and options are proposed to Work No.1:

- The specialist berth at the southern end of the quay is to be reclaimed as the twin hulled vessel that was to use the facility has not been constructed and is not likely to be constructed.
- At the northern end of the quay, the quay line is to be set back 60 m over a length of 288 m to create a barge berth that will also allow end load in and load out of cargo.
- The option to install the piled relieving slab to the rear of the quay at the surface or to omit it altogether subject to detailed design.
- The option to use anchor piles and tie rods instead of the proposed flap anchors in order to tie back the quay wall piles.

2.3 The proposed changes are outlined on the following drawings, refer to Appendix 1:

- AME-036-00001 A Changes to Indicative Masterplan
- AME-036-00002 A Changes to Quay General Arrangement
- AME-036-00003 A Changes to Quay Typical Section

2.4 In addition, the approved diversion of footpath FP50 in the district of North Lincolnshire is to be amended to avoid crossing over existing rail track near the terminus of the Killingholme Branch Line. The path will be diverted to an existing crossing point approximately 200m beyond the consented location, and beyond the buffer stop on the rail track as shown on drawing AME-00004 A, refer to Appendix 1.

2.5 Work No. 1 occupies land owned by the Crown Estate and leased to Associated British Ports, specifically Parcels No.'s 08001 and 09001. The net effect of the

change is that marginally less land would be reclaimed from the estuary. Nevertheless no changes are proposed to the compensation measures located at Cherry Cobb Sands that are already consented, for the loss of intertidal mudflat and other estuarine habitat.

- 2.6 In addition, in order to facilitate the diversion of the Anglian Water sludge and brine mains which currently outfall within the reclamation area, and to enable staged completion of the quay, it is necessary to introduce a third cross dam within the reclamation area to enable early handover of sections of the quay. The changed proposals are shown on drawing AME-036-00005 A, refer to Appendix 1.
- 2.7 In order to facilitate early handover of an operational section of quay, the works will commence at the southern end of the quay and progress northwards. The first two areas to be handed over, comprising around 450 m of quay and associated reclamation will not be surcharged with material to accelerate settlement.
- 2.8 Pursuant to the changes proposed above, the consented plans listed in Table 1 below will be proposed to be withdrawn as part of the application for a material change:

Table 1: Proposed List of Withdrawn Plans

Drawing No.	Title	Reason
AME-02018-A	Old Little Humber Farm Compensation Site Indicative Layout	This part of the application was withdrawn during the application and is erroneously listed in Schedule 11.
AMEP_PID_D_001	Quay General Arrangement	Quay line changed
AMEP_PID_D_002	Indicative Piling Layout	Quay line changed
AMEP_PID_D_003	Quay Sections 1 of 2	Options to anchor and slab details added
AMEP_PID_D_004	Quay Sections 1 of 2	Options to anchor and slab details added. Specialist berth reclaimed.
AMEP_PID_D_005	Front Wall Elevation	Specialist berth reclaimed.
AMEP_PID_D_006	Northern Return Wall Elevation	Set back quay introduced.

AMEP_PID_D_007	Southern Return Wall Elevation	Specialist berth reclaimed.
AMEP_PID_D_009	Concrete Deck General Arrangement	Deck is to be optional
AMEP_PID_D_101	Indicative Sequence Plan View 1/3	Cross Dam added. Quay line changed. Works planned from south to north.
AMEP_PID_D_102	Indicative Sequence Plan View 2/3	Cross Dam added. Quay line changed. Works planned from south to north. Surcharge details amended.
AMEP_PID_D_103	Indicative Sequence Plan View 3/3	Cross Dam added. Quay line changed. Works planned from south to north.
AMEP_PID_D_104	Indicative Sequence Cross Section 1/2	Tie back system options added.
AMEP_PID_D_105	Indicative Sequence Cross Section 2/2	Tie back system options added. Relieving slab optional.
AMEP_PID_D_106	Proposed Site Facilities and Access 1/2	Quay line and surcharge details amended.
AMEP_PID_D_107	Proposed Site Facilities and Access 2/2	Not required.

2.9 The proposed changes will be incorporated into revised and substitute plans which will be submitted with the material change application. A preliminary list of plans is set out in Table 2.

Table 2: Proposed List of New, Revised and Retained Plans

Drawing No.	Title	Status
AME-02006-F	Indicative Masterplan	Revised, quay line amended
AME-02007-D	Indicative Landscaping Plan	Retained, but amendment is currently being sought as a non-material change.
AME-02008-C	Building Key Plan	Retained, no amendments.
AME-02009-A	Maximum Building Dimensions	Retained, no amendments.

AME-02010-C	Footpath No. 50 Diversion Route Section Locations	Revised, Detail A amended.
AME-02011-B	Footpath No. 50 Diversion Route Indicative Sections	Revised, notes amended.
AME-02012-B	Lighting Column Details 30 m & 50 m	Retained, no amendment.
AME-02013-A	Surface Water Pumping Station Indicative Layout	Retained, no amendment.
AME-02014-A	Surface Water Pumping Station Indicative Elevation	Retained, no amendment.
AME-02016-A	Cherry Cobb Sands Compensation Site General Arrangement	Retained, no amendment.
AME-02017-A	Cherry Cobb Sands Compensation Site Detail and Section	Retained, no amendment.
AME-01001-A	Quay General Arrangement	New
AME-01002-A	Indicative Piling Layout	New
AME-01003-A	Quay Sections 1 of 2	New
AME-01004-A	Quay Sections 1 of 2	New
AME-01005-A	Front Wall Elevation	New
AME-01006-A	Northern Return Wall Elevation	New
AME-01007-A	Southern Return Wall Elevation	New
AME-01008-A	Concrete Deck General Arrangement	New
AME-01009-A	Indicative Sequence Plan View 1/3	New
AME-01010-A	Indicative Sequence Plan View 2/3	New
AME-01011-A	Indicative Sequence Plan View 3/3	New

AME-01012-A	Indicative Sequence Cross Section 1 of 2	New
AME-01013-A	Indicative Sequence Cross Section 2 of 2	New

Associated Development Work No. 2

- 2.10 Work No 2 has been completed by Highways England as part of the implementation of the A160/A180 (Port of Immingham Improvement) DCO 2015.

Associated Development Work No. 3

- 2.11 Work No. 3 provides for a new passing loop to be constructed on the North Killingholme Branch Line. This is not being amended.

Other Associated Development (Schedule 1 paragraph 3(a) to (h))

- 2.12 The dredging permissions are proposed to be changed to the extent necessary to dredge the berthing pockets and approaches for the amended quay line. The volumes to be dredged have been recalculated using the current bathymetry and are detailed in Table 3 below, refer also to drawings in Appendix 2. The application will also propose amendments to the Deemed Marine Licence in Schedule 8 of the DCO and the amended volumes will be considered in the updated ES accompanying the material change application. Relevantly, the change requires no increase in the consented disposal volumes.

Table 3: Approximate Capital Dredge Quantities

Area	Consented Tonnes (approx. m ³)	Volume (m ³) Using Updated Estuary Bathymetry (Appendix 2)	
	DCO, Schedule 8, Paragraph 11(2)	Consented Scheme	Proposed Scheme
Reclamation Area	725,000 (345,000)	345,000	500,000
Berthing Pocket	1,835,000 (840,000)	814,340	762,940
Approach Channel	1,650,000 (840,000)	611,378	696,120
Turning Area	250,000 (125,000)	109,348	109,348
TOTAL	(2,150,000)	1,880,066	2,068,408

- 2.13 Dredging works are also proposed to be changed to permit all clay arisings from the berthing pocket to be deposited at the HU082 deposit site in the Humber Estuary, instead of some having to be deposited on *terrestrial areas landward of the existing Killingholme Marshes flood defence wall* (DCO Schedule 8, paragraph 11(2)). This is needed because the deposit areas have already been substantially raised with engineered fill, and the remaining undeveloped part of the site is likely to be developed concurrently with the reclamation works and before the dredging works are undertaken. Given this anticipated sequence, it is now unlikely that there will be anywhere to deposit the clay material within the AMEP site by the time the arisings are actually available. The applicant will still seek options for beneficial use of the clay elsewhere but needs to ensure that an alternative disposal site is available if no such use is identified at the material time.
- 2.14 No changes are proposed to the onshore development of facilities for the manufacture, assembly and storage of components related to offshore renewable infrastructure.
- 2.15 No changes are proposed to any improvement works to Rosper Road necessary for the operation of AMEP. In any event, these have been completed following the

granting of planning permission for those works from North Lincolnshire Council (NLC). All road improvement works needed on the A160 have been completed following implementation of the A160/A180 (Port of Immingham Improvement) DCO 2015.

- 2.16 No changes are proposed to the arrangements for the disposal of surface water and foul water from the development site. A foul water pumping station suitable for the AMEP development has been constructed pursuant to planning permission PA/2017/265.
- 2.17 No changes are proposed to the lighting levels on the site, whilst the precise arrangements for external lighting are reserved matters requiring the submission of written details and their subsequent approval in accordance with Schedule 11, paragraph 24 of the DCO.
- 2.18 No changes are proposed to the arrangements for parking detailed on the consented Indicative Masterplan. Parking arrangements are identical in the revised Indicative Masterplan.
- 2.19 No changes are being sought in this application to any of the ecological mitigation works in North Lincolnshire or to the ecological compensation works in the East Riding of Yorkshire. A non-material change (NMC) application has been submitted to relocate Mitigation Area A from Killingholme Marshes to Halton Marshes but at this stage there is no assumption that it will be consented. A decision on the NMC application is expected by the Applicant in Q1 2021, although there is no statutory timescale.

Diversion of Public Rights of Way

- 2.20 Schedule 5 of the DCO permits the diversion of two public footpaths. A minor change to the diversion of Footpath 50 is proposed to avoid crossing the Killingholme Branch railway where the line is still operational, refer to drawings in Appendix 1. The diversion route will be within the Applicant's ownership up to the point where it crosses the railway, where the route will cross through Parcel 07001, as it does in the consented diversion.

CHANGES TO THE CONSTRUCTION METHODOLOGY

Terrestrial Development of the AMEP Site

- 2.21 No changes are proposed to construction methods in the terrestrial development areas.

Marine Development on the AMEP Site

- 2.22 Whilst the alignment of the front wall piles is proposed to be amended and some flexibility is being sought in relation to certain details, no materially different construction operations are proposed.
- 2.23 As in the consented scheme, tubular and sheet piles will be installed from barges operating within the estuary to form a quay wall (Schedule 8 paragraph 4(1)(a) to (b)); it is anticipated that two jack-up barges may operate simultaneously. These piles will be vibrated through any soft superficial deposits that are present and will then be driven to their design depth using hydraulically operated piling hammers. Between the tubular piles, the sheet piles will be driven by a vibrating ram until they reach their design depth. In order to mitigate the risk of premature pile refusal in the chalk, the tubular piles may be partly drilled in order to remove chalk from the pile toe and thereby reduce internal skin friction and end resistance. Any drilled arisings will be disposed of at a suitably licensed facility. Piling works are already subject to the approval of a method statement (Schedule 8 paragraph 37).
- 2.24 As well as flap anchors (Schedule 8 paragraph 4(1)(c)), the tubular piles are consented to be fixed close to their top to anchor piles using traditional tie bars (Schedule 8 paragraph 4(1)(d)). The applicant simply requires greater flexibility in the precise form of tie to be used at any location so that either flap anchors or anchor piles with ties rods may be used subject to detailed design. Further, whilst a piled relieving slab is approved to be constructed behind the front wall (ES paragraph 4.4.7), it may be more economic to use larger diameter front wall piles (compared to the diameter if a relieving slab was incorporated) and omit the relieving slab altogether, refer to drawings in Appendix 1.
- 2.25 Parts of the footprint of the new quay will overlies soft alluvial deposits that would settle significantly under the weight of the reclamation material if left in place. Accordingly,

a proportion of this existing bed sediment will be dredged. This pre-dredge may now be greater at the southern end of the quay which is to become operational by the end of 2023. The northern parts of the quay will still be surcharged to accelerate settlement of the soft material that is left in-situ. A small change is proposed to the tonnage of soft material to be dredged from within the quay limits to that already consented in the DCO (Schedule 8, paragraph 11(2)).

- 2.26 Backfilling of the quay will be the same in principle as the consented scheme except that within the main reclamation area four cells, rather than three (Schedule 8 paragraph 4(1)(f)), are proposed to be created using imported granular material. A system of pipelines would then be installed that would transport either imported marine dredged material or material from the dredge, from the supply vessel or dredger respectively, into the cells.
- 2.27 Subject to detailed design, the two southern cells may also be subject to vibro compaction to accelerate settlement and avoid the use of surcharge. Vertical sand drains may also be installed to aid this process.
- 2.28 A minimum 2 ½ year construction programme is anticipated for the marine works given the calendar restrictions in the DCO imposed on working in the estuary.

Dredging

- 2.29 Whilst the total volume of dredging is likely to be slightly changed by the proposals, there will be no proposed change to the overall tonnage consented or the dredging methods.

CHANGES TO OPERATIONAL DETAILS

General

- 2.30 There are no proposed changes to the terrestrial operations of the proposed development.

The Quay

2.31 As the specialist berth is to be omitted, the specialist vessel will no longer be required to berth at the facility. The new barge berth at the northern end will enable barges and Ro-Ro vessels to berth and to load and unload directly rather than requiring cranes to facilitate these operations. Section 4.8 of the original ES described the operational details of the proposed development. With regards to the quay itself, paragraphs 4.8.3 – 4.8.7 stated the following:

‘4.8.3 The application includes for the creation of a new harbour authority to manage the operation of the facility. On completion, the quay will be used for the export of goods and for the import of materials and components that are procured from overseas or from other coastal locations within the UK.

4.8.4 A number of berths will be designated along the quay and allocated for use by different tenants. Each berth will be around 200 m long. Whilst the berths will be primarily designated for installation craft this does not exclude their use by other vessels delivering raw materials and other products either related to marine energy or otherwise.

4.8.5 Energy generation components will be moved onto the quay using self-propelled mobile transporter (SPMT) units that can be linked together in various permutations to manoeuvre large and heavy items. To take into account the potential for future optimisation of the installation procedure, it is assumed that OWT's that are assembled on the site may be fully erected on the quayside prior to load out.

4.8.6 Loading of the installation vessels will be undertaken using a combination of heavy duty mobile dock cranes and the vessels own cranes. Loading of each vessel will be undertaken on a 24/7 basis with a typical total turnaround time for each vessel of between 24 and 48 hours. However loading is a weather critical operation with crane lifts being subject to limiting wind speeds for safety reasons.

4.8.7 Vessels alongside will also replenish their consumables and may undertake some routine maintenance. (Chapter 4, ES underline added).'

- 2.32 When vessels are loaded and unloaded by crane, as described in paragraph 4.8.6 above, these are termed 'lift on-lift off' or Lo-Lo operations. The alternative method for loading and unloading vessels is for delivery vehicles to simply drive onto or off the vessel, an operation termed 'roll on-roll off' or Ro-Ro. The change to the quay will facilitate the means of Ro-Ro operations by allowing SPMT vehicles (see paragraph 4.8.5 above), to access vessels directly and so reduce the need for crane lifts. This does not result in any environmental effects which have not been assessed in the original ES as SPMTs were always an integral and significant part of the site's logistical operations.

CHANGES TO CONSTRUCTION SEQUENCE

- 2.33 Whilst the original ES described the construction activities, except for the quay (refer to paragraph 1.4) there was no specific sequencing proposed in the ES or taken into account in the assessment. The DCO nevertheless contains some sequencing restrictions and these are set out in Schedule 8 paragraph 25, and Schedule 11 paragraph 21. No change to these restrictions is proposed.
- 2.34 Schedule 11, paragraph 3 of the DCO includes a requirement to obtain approval for '*stages of the authorised development*'. Each stage of the development is then subject to the approval of numerous plans applicable to that stage are that are to be approved under other paragraphs in the same Schedule as detailed below.

Schedule 11

- Requirement 10 – Highway access (construction and permanent)
- Requirement 12 – Fencing (construction and permanent)
- Requirement 16 – Contaminated land
- Requirement 22 – Code of construction practice
- Requirement 24 – Construction lighting
- Requirement 25 – Construction traffic
- Requirement 26 – Control of noise during construction
- Requirement 28 - Control of emissions (construction and permanent)

- Requirement 30 – Traffic management plan (construction and operation)
- Requirement 31 – European protected species (pre-construction survey)
- Requirement 37 – Piling.

This approach allows a great deal of flexibility in the sequencing of the works.

3.0 Reasons for Proposing a Material Change

3.1 The proposed changes have been reviewed against the DCLG guidance “*Planning Act 2008: Guidance on Changes to Development Consent Orders*” (December 2015) which states that there are four key ‘characteristics’ which may indicate that a change is more likely to be considered material. In summary, these are that the change would:

- 1) give rise to new, or materially different, likely significant effects on the environment which mean an updated ES is required;
- 2) invoke a need for a Habitats Regulations Assessment or a new or an additional licence in respect of European Protected Species (the guidance suggests that applicants should consider discussing the need for a Habitats Regulations Assessment or a protected species licence with the appropriate statutory nature conservation body before any application for a change is prepared);
- 3) authorise the compulsory acquisition of any land, or an interest in or rights over land, that was not authorised through the existing Development Consent Order; and/or
- 4) impact local people and businesses sufficiently to indicate that the change should be considered as material.

3.2 Taking each of these points in turn, firstly it is necessary to consider the likely significant effects of the proposed changes and whether there are any new or materially different effects which may mean an updated ES is required. Section 5.0 of this Report goes through each of the environmental effects, by topic, as originally assessed in the ES for the AMEP. This exercise demonstrates that there **may** be potential for the proposal to give rise to some effects of a new or different nature to those assessed in the original ES, albeit these are likely to be limited in scope. Without further detailed assessment it is not possible to categorically confirm whether these changes will be significant, therefore it is considered that an updated ES will be required.

- 3.3 Secondly, in regards to the need for a Habitats Regulations Assessment (HRA), the exercise in Section 5.0 demonstrates that impacts from the proposed changes which may affect HRA qualifying species could arise as a result of direct impacts on habitat as a result of the changes to the footprint of the reclamation area. Further changes to the hydrodynamic regime arising from the amended quay layout result could result in indirect changes to habitat. Where this has potential to affect designated estuary habitat, there could potentially be subsequent impacts on SPA qualifying bird species and assemblage. Therefore, if the updated ES concludes that the hydrodynamic and morphodynamic effects do result in likely significant effects, then these will be included in an updated Appropriate Assessment.
- 3.4 It is the case that no new or additional licences are required in respect of European Protected Species.
- 3.5 Thirdly in terms of compulsory acquisition of land, the area of the proposed changes to the quay is on land owned by the Crown Estate and formerly leased to Associated British Ports, specifically Parcel No's 08001 and 09001. The lease was compulsorily acquired by AHPL on 16 June 2015 and immediately surrendered back to the Crown. AHPL now has an option to lease the land from the Crown Estate, and this option will be exercised immediately prior to Work No. 1 commencing. No additional land needs to be compulsory acquired in order to facilitate the proposed changes.
- 3.6 The proposed diversion of Footpath 50 does not require the exercise of compulsory acquisition powers.
- 3.7 Finally the impacts on local people and businesses need to be considered. There will be no impacts on local residents as a result of the proposed changes. There may be potential impacts on local business should the impacts on the sedimentary regime, discussed in more detail in Section 5.0, result in a material change to the maintenance dredging requirements of the berths adjacent to AMEP. Should the proposed changes give rise to increased sedimentation, and neighbouring businesses therefore need to undertake maintenance dredging more frequently, there could be an associated impact on these businesses related to the increased costs and disruption associated with more frequent dredging.

- 3.8 In summary, therefore, the proposed changes are at this stage considered to represent a material change to the DCO. An application for a material change will therefore be submitted under Schedule 6 of the Planning Act 2008 and Part 1 of the Infrastructure Planning (Changes to, Revocation of, Development Consent Orders) Regulations 2011, as amended in 2015.
- 3.9 For the avoidance of doubt the changes are not so substantial that the project should be treated as a new project (see paragraph 18 of the guidance). The nature of the project is the same, it is to take place on the same land within the same timescales and will serve an identical purpose.

4.0 Updated Description of the Site and Surroundings

The AMEP Site

4.1 The AMEP site was described in the original ES as follows:

‘1.2.2 The proposed AMEP site is located east of North Killingholme, within North Lincolnshire, on the south bank of the River Humber. The site is approximately 1 km downstream of the Humber Sea Terminal (HST) and immediately upstream of the South Killingholme Oil Jetty.

1.2.3 The site, excluding the area of ecological mitigation, covers approximately 268 ha, of which approximately 122.4 ha is covered by existing consent for port related storage, 100.3 ha is existing arable land that will be developed for industrial use and 45 ha is reclaimed land from the estuary to provide a new quay. A further 47.8 ha of existing arable land will be converted to managed grassland to mitigate for the effects of the development on ecological receptors including birds that use the adjacent Humber Estuary SPA.

1.2.4 A large proportion of the site’s terrestrial area currently comprises hard-standing for the storage of imported cars, particularly in the north-east/east of the site and in the west of the site. A railway line passes through the site, and a redundant sewage works can be found to the south-west of the site. Former clay pits to the north of the site, which are now flooded, are classified as a Site of Special Scientific Interest (SSSI) and are also part of the Natura 2000 network of sites. A raised embankment along the eastern boundary supports a flood defence wall, which protects the site from tidal flooding’, (Chapter 1, ES)

4.2 In the years since the DCO application, the Applicant has developed the site, both in accordance with planning permissions extant at the time of the application and in accordance with further planning consents obtained under the Town and Country Planning Act 1990 (TCPA). In some cases, works have been undertaken to progress development in accordance with the DCO and in other cases it was to enable use of the site for purposes other than those permitted by the DCO, namely, car storage.

- 4.3 Chapter 3, Table 3.2 and Figure 3.1 of the original ES provided details of the extant planning consents within the AMEP site. Table 4 below replicates that information with the addition of column to provide an update, as of January 2021, of the status of the referenced planning permissions.
- 4.4 Planning permissions for the AMEP site obtained since the DCO application, and their current status, are summarised in Table 5 below.
- 4.5 Aerial pictures showing the development of the site at the time of the application and more recently are reproduced in Figures 4.1 and 4.2 below. Appendix 3 contains further drawings which also illustrate the changes to the site since the DCO application in 2011.



Figure 4.1: The AMEP site, January 2012



Figure 4.2: The AMEP site, April 2019

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Table 4 – Update of Planning Permissions for the Site Granted on the AMEP site by End-2011

Planning Ref	Location	Details	Status (as in submitted ES)	Comments as of January 2021
PA/2005/0562	Area D, AHPF*, Rosper Road, North Killingholme, DN40 3JP	Planning permission to construct a port related storage facility including erection of various buildings, construction of car parking, erection of lighting towers and 2.4 m high electrified security fencing.	Granted 14/11/2006	This was substantially implemented and the site operational, at the time of the DCO application, so was already considered in the baseline of the ES. This parcel of land has not changed since the DCO application
PA/2007/0101	Area C, AHPF*, Rosper Road, North Killingholme, DN40 3JP	Planning permission to tarmac the 22.11 ha site for port-related external storage, to include the construction of 2 workshop buildings, a modular office building, a modular security building, construction of a wash pad wash bay and associated staff and visitor car parking and install a 3 m high security fencing, lighting towers and a sewage treatment plant.	Granted 16/01/2008	This was substantially implemented and the site as operational at the time of the DCO. This parcel of land has not changed since the DCO application.
PA/2008/1401	Area B Able Humber Port Facilities, Rosper Road, North Killingholme, DN40 3JP	Planning permission to remove condition 1 on PA/2004/1528 (use to be discontinued on or before 31 December 2008) and condition 9 on PA/2002/1828 (site to have a permeable surface at all times) in connection with use of land for vehicle distribution and storage.	Granted 18/12/2008	This was fully implemented at the time of the DCO so was already considered in the baseline of the original ES. This parcel of land has not changed since the DCO application
PA/2008/1428	Area G, AHPF*, Rosper Road, North Killingholme, DN40 3JP	Remove Condition 1 (no access to and egress from Haven Road) and Condition 2 (the use shall be discontinued before 31/12/2008) on planning permission PA/2004/1601.	Granted 19/12/2008	This was fully implemented at the time of the DCO so was already considered in the baseline of the original ES. This parcel of land has not changed since the DCO application

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Planning Ref	Location	Details	Status (as in detailed submitted ES)	Comments as of January 2021
PA/2008/0571	Area D1 & D2, AHPF*, Rosper Road, North Killingholme, DN40 3JP	Remove Condition 1 of planning permission 2004/1528 to make permanent the existing temporary consented use of vehicle storage and distribution, erect a single storey cabin, workshop and office building, raise ground levels to 3.1-4.0 m OD and surface with tarmac, install 3 m high electrified fencing with bird deflectors and erect 4 No. 30 m high lighting masts on land off Rosper Road.	Granted 22/12/2008	This planning permission was partly implemented at the time of the DCO application and lighting and hard paving was constructed in 2019. This parcel of land can be used for its consented purpose under the DCO without further development.
PA/2008/1375	Area E, AHPF*, Rosper Road, North Killingholme, DN40 3JP	Planning permission to vary Condition 3 on application PA/2006/0039 dated 01/08/2007 (relating to low level shrubbery and hedging) to replace the words 'Within ten months of the permission...' to 'Prior to the commencement of operation...'	Granted 22/12/2008	This was partially implemented at the time of the DCO application and was fully implemented in 2017/18, resulting in further ground raising and hard surfacing of the area. This parcel of land can be used for external storage under the DCO without further development.
PA/2010/1263	Land Off, Rosper Road, North Killingholme, DN40 3JP	Planning permission to construct a test foundation (12 x 12 m) and a tower (5 m diameter) with a total height of 67 m (approximately).	Granted 06/12/2010	This permission has lapsed.
DECC 01.08.10.04/439C	West of the MOD Tank Farm	Construction and operation of a biomass fuelled generating station at South Killingholme, near Immingham	Granted 10/08/2011	This permission has lapsed.

*Able Humber Ports Facility

Table 5 – Local Planning Permissions Granted on the Site since the DCO Application

Planning Ref	Description of Development	Status	Commentary
PA/2013/0519	Planning permission for consent for enabling works associated with the construction of AMEP, a Nationally Significant Infrastructure Project which will include and extend beyond this application site. The proposal is to remove topsoil from three fields currently in agricultural use (amounting to approximately 35,000 cubic metres of material) and to import, deposit and compact approximately 140,000 cubic metres of clean stone fill material, raising levels from approximately 2.4 m AOD to a minimum of 3.1 m AOD, and creating a level, durable surface for use as a site compound for the contractors constructing the AMEP quay. Works will include the installation of piped crossings across existing ditches and new sub-surface drainage that will discharge into existing surface water ditches that outfall into the Humber Estuary	Approved 21/07/2014	<p>As detailed in the Officer's Delegated Report, the proposal subject to this planning permission was for substantial preliminary works to facilitate the construction of AMEP. These works were subject to a planning application due to delays in the determination process of the AMEP DCO in order to allow the works to progress in a timely manner. These works are now complete and were identical to those approved in the DCO. On this basis, it is considered that this planning permission does not alter the characteristics of the receiving environment in this location nor does it have any consequential impacts to construction activities.</p> <p>Furthermore, it is clear that the original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>
PA/2014/0512	Planning permission to undertake enabling works in support of the AMEP project which will comprise site clearance, ground raising works, felling of a copse, creation of a footpath, removal offsite of the topsoil layer, importation spreading and compacting of approximately 275,000m ³ of fill material, new drainage ditches and the construction of a new twin cell drainage culvert	Approved 18/02/2015	<p>As for PA/2013/0519, this permission merely replicates some of the construction activities permitted by the DCO. The permission has been implemented. On this basis, it is considered that this planning permission does not alter the characteristics of the receiving environment in this location nor does it have any consequential impacts to construction activities.</p> <p>Furthermore, it is clear that the original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>

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Planning Ref	Description of Development	Status	Commentary
PA/2016/1654	Planning permission to erect a new two-storey PDI (pre-delivery inspection) vehicle facility, with associated separate ancillary facilities including a fuel station, security cabin, driver welfare, propane tanks, staff car parking facilities and additionally culverted ditch crossing works	Approved 06/01/2017	<p>This development has been fully constructed and is operational. The buildings that have been constructed may be mothballed, re-purposed and incorporated into the AMEP development, or demolished, the remainder of the area is suitable for use as external storage which is consistent with the DCO.</p> <p>The original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>
PA/2017/27	Temporary car storage until January 2018	Approved 08/05/2017	<p>This permission had an end date of 8 January 2018 (varied to 8 January 2020 by planning permission PA/2017/1780). Therefore, the development approved by this planning permission has no impact on the development approved by the DCO nor does it have any consequential impacts to construction activities. As this permission has now expired, the original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>
PA/2017/1780	Application to vary condition 1 of PA/2017/27 dated 08/05/2017 to extend the restoration period for a further 2 years until 8th January 2020	Approved 11/05/2018	Refer to comments above for PA/2017/27
PA/2017/265	Planning permission for foul water pumping station, autoscan building, driver welfare. Relocation of fuel station.	Approved 31/05/2017	<p>This permission has been fully implemented.</p> <p>The autoscan building is an automated building designed to scan cars prior to delivery. It therefore is not occupied by any staff. The driver welfare facility is a portacabin. The foul water pumping station is approved via the DCO and has been constructed to accept the flows from the development approved by the DCO. As a result, the development approved by this planning permission</p>

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Planning Ref	Description of Development	Status	Commentary
			<p>is not considered to be sensitive to any environmental impact.</p> <p>The buildings that have been constructed may be mothballed, re-purposed and incorporated into the AMEP development, or demolished.</p> <p>Based upon the scale and use of the proposed development, it is considered that this planning permission does not alter the characteristics of the receiving environment in this location nor does it have any consequential impacts on construction activities consented by the DCO.</p>
PA/2018/1416	Planning permission to construct new railway siding parallel to existing railway including loading and unloading ramps	Approved 05/12/2018	<p>These works are consistent with Work No. 3 of the DCO, '<i>a passing loop on the North Killingholme Branch Line</i>'.</p> <p>This planning permission does not alter the characteristics of the receiving environment in this location nor does it have any consequential impacts to construction activities.</p>
PA/2018/114	Planning permission to change the use of land for car storage and distribution for a temporary period, the construction and operation of an electricity substation and the construction of new access along Station Road, including a new junction with Rosper Road	Approved 04/01/2019	<p>The construction activities permitted by this consent being a new electricity substation and a new access on Station Road (modified by PA/2019/497) merely replicate works that are permitted by the DCO. Both have been implemented.</p> <p>Condition 3 of this planning permission permits car storage until 4 January 2021.</p> <p>As this permission has now expired, the original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>

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Planning Ref	Description of Development	Status	Commentary
PA/2019/497	Planning permission for change of use to car storage and distribution for a temporary period, provision of an access road, security cabin, drainage ditches and new foul drainage system	Approved 10/09/2019	<p>The construction activities permitted by this consent merely replicated works that were permitted by the DCO.</p> <p>Condition 3 of this planning permission permits car storage until 10 September 2021. This planning permission therefore does not alter or prejudice the delivery of AMEP as approved by the DCO nor does it have any consequential impacts to construction activities.</p> <p>Furthermore, it is clear that the original assessment of effects in the ES are not altered by this planning permission through either a different impact or a more sensitive receptor than that considered in the original ES.</p>

- 4.6 Drawings illustrating the use of the site, and the use of immediate area at the time of the Application and in January 2021, are included in Appendix 3.
- 4.7 On the basis of the above information, whilst planning permissions have been granted on the application site since the DCO was submitted, and further development of the site has been undertaken, it is evident that:
- No planning permissions prejudice the delivery of the AMEP scheme;
 - No planning permissions have any consequential impact on the phasing of construction activities; and
 - No planning permissions alter the original assessment of effects by way of a different impact or a more sensitive receptor on the site than was considered in the original ES.

Mitigation Area B

- 4.8 At the time of the application a colony of Great Crested Newts (GCN's) was present at the site. In 2014, the Applicant obtained a License from Natural England to relocate the population, and trapping and relocation was completed in 2015. The population was relocated to ponds created within the Mitigation Area B site in accordance with the mitigation proposed in the original ES at paragraphs 11.7.14 *et seq*, abstract below:

'Six new ponds will be created to replace three ponds lost to AMEP in accordance with the guidance set out in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). The new ponds will be located in Area B (approximately 1 km from the existing ponds).'

- 4.9 An aerial photograph of the GCN relocation site is reproduced in Figure 4.3. Subsequent monitoring has shown that population numbers remain healthy.



Figure 4.3: Mitigation Area B, completed in 2014

The Area Surrounding the South Bank Site

- 4.10 With regard to planning consents in the surrounding AMEP area, EX44.1 of the original ES detailed planning applications that had been consented but not implemented or were only partly implemented at the time of the application. The original ES considered these projects cumulatively with the impacts of AMEP.
- 4.11 In the intervening years since the DCO application, further major development has been consented in the area surrounding the AMEP site, as illustrated in Figure 4.4. The relevant EIA developments are further described in Table 6 below. In brief, the new developments do not, or will not, introduce receptors that were not already existing at the time of the DCO application. For example, residential development has been consented next to existing residential development and new industry has been consented within an industrial setting.
- 4.12 The principal physical changes in the area immediately surrounding the AMEP site that have actually occurred since the DCO application are:

- Improvements to the A160-A180 trunk road by Highways England in accordance with the A160-A180 (Port of Immingham Improvements) DCO.
- The demolition of the Centrica power station in 2017.
- The development of Hornsea One Onshore Substation (in accordance with the Hornsea One Offshore Wind Farm DCO 2014)
- The construction of a roundabout at the junction of Chase Hill Road and Eastfield Road pursuant to PA/2016/1254.
- The development of biomass storage at the Port of Immingham and associated rail transport infrastructure.

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Figure 4.4: Major Developments Consented in the vicinity of AMEP since the DCO Application

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Table 6 –Planning Permissions in the Surrounding Area Accompanied by an ES Granted since the DCO was made in January 2014

Name	Planning Application	Description	Status
A160/180 (Port of Immingham Improvement)	DCO	Upgrade the existing single carriageway section of the A160 to dual carriageway with associated junction improvements along the length of the route, at South Killingholme to the west of the Port of Immingham.	Completed. AMEP considered as a cumulative development so cumulative impacts of AMEP with this development have already been assessed and found to be acceptable
North Killingholme Power Project	DCO	Thermal generating station that would operate either as a Combined Cycle Gas Turbine (CCGT) plant or as an Integrated Gasification Combined Cycle (IGCC) plant, with a total electrical output of up to 470MWe at North Killingholme, Lincolnshire	Approved on 11 September 2014. AMEP considered as a cumulative development so cumulative impacts of AMEP with this development have already been assessed and found to be acceptable. An application for a non-material change to extend the time limits for development was submitted on 13 August 2020 and the cumulative assessment was refreshed.
Queens Road Estate, Immingham	DM/1027/13/OUT (North East Lincolnshire Council)	Proposed Outline development of site E1/3 in the NELC local plan for general industry (B2) storage and distribution (B8) and minor office development, research and development, light	Approved on 10 April 2014. AMEP considered as a cumulative development in submitted Transport Technical Note date 21 February 2014. Therefore, cumulative impacts of AMEP with this development have already been assessed and found to be acceptable.

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		industry (B1) with associated access & landscaping.	
Kia	DM/0147/16/FUL (North East Lincolnshire Council)	Reconfiguration and extension of existing commercial buildings, clearance of existing site office and gatehouse and erection of new buildings, change of use of agricultural land to external vehicle storage (approximately 16.34 hectares) and associated resurfacing, creation of a new access onto North Moss Lane, new boundary treatments, engineering works and other associated works. Engineering works and use of land for external car parking, internal site access works, boundary works, and other associated works. Decided - Approved Conditions and Signing of S106	Approved on 9 June 2016. Traffic flows from AMEP considered as committed development in the ES which accompanied this planning application. Therefore, cumulative impacts of AMEP with this development have already been assessed and found to be acceptable.
Stallingborough Interchange	DM/0105/18/FUL	Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62ha Business Park comprising up to 120,176 sq.m for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution), associated	Approved on 12 October 2018. AMEP considered as a cumulative development within the ES which accompanied this planning application. Therefore, cumulative impacts of AMEP with this development have already been assessed and found to be acceptable.

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		infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations, pumping stations, drainage and landscaping. (Amended FRA and Drainage Strategy July 2018).	
Immingham Rail Freight	DM/0628/18/FUL (North East Lincolnshire Council)	Partially demolish existing building and erect 20MWE waste to energy power generation facility, 65m stack and associated plant, machinery, parking and external works	Approved on 20 December 2018. AMEP considered as a committed development in Chapter 6 of the ES submitted with this planning application. Therefore, cumulative impacts of AMEP with this development have already been assessed and found to be acceptable.
South Humber Bank Energy Centre	DCO	An energy from waste power station with a gross electrical output of up to 95 MW	Application made. Too remote to give rise to cumulative effects.

Cherry Cobb Sands Compensation Site

4.13 The original ES described the Compensation site in paragraph 1.2.5, abstract below:

'The Compensation Site is located on the north bank of the Humber Estuary, within East Riding of Yorkshire, opposite the AMEP site and some 4 km to the south-west of Keyingham. The site is divided into an area to be developed into intertidal habitat, and an area to be developed as wet roosting and feeding habitat. The proposed intertidal site, known as Cherry Cobb Sands, is roughly triangular in shape and currently comprises arable fields defined at their boundaries by drainage ditches, hedges and a flood defence embankment.'

4.14 The Compensation Site continues in use as agricultural land and lies within an extensive rural setting which, because of its low-lying nature, is not allocated for any other form of economic development. As such, the site and its surroundings are materially unchanged since 2010, refer to Figure 4.5.



Figure 4.5: Cherry Cobb Sands Compensation Site and Wet Grassland (the smaller of the red-line areas)

4.15 The Compensation Site has been fully designed since the DCO was made and the following approvals have been granted:

- Schedule 11 Req 3 – Stages of the Development (20 April 2017)
- Schedule 11 Req 5 – Plans approval (2 Dec 2020)
- Schedule 11 Req 7 – Landscaping Scheme (9 May 2016)
- Schedule 11 Req 10, 25, 29 and 30 – Highways (5 Nov 2020)
- Schedule 11 Req 11 – PROW Implementation Plan (4 April 2018)
- Schedule 11 Req 16 – Contaminated Land (23 December 2015)
- Schedule 11 Req 17 – Archaeology (17 July 2015)
- Schedule 11 Req 19 (1) – CEMPP (15 Jan 2016)
- Schedule 11 Req 24 – External Lighting (6 May 2016)
- Schedule 11 Req 31- Protected Species, re-survey 2020
- Schedule 11 Req 32 – Radar impact assessment (11 July 2016)
- Schedule 11 Req 36 – Cooling Water Intakes and Outfalls (10 July 2019)
- Schedule 11 Req 38 – Sedimentation (10 July 2019)
- Schedule 11 Req 39 - A scheme for sedimentation monitoring of Stone Creek (16 November 2016)
- Schedule 11 Req 40 – Contaminated Land (23 December 2015)
- Schedule 11 Req 41 – Contaminated Land (23 December 2015)
- Schedule 11 Req 43 (4), an assessment of the impacts on Stone Creek etc. (18 October 2016)
- Schedule 11 Req 44 , approval of the detailed design of hydraulic structures and channel (18 Oct 2016)

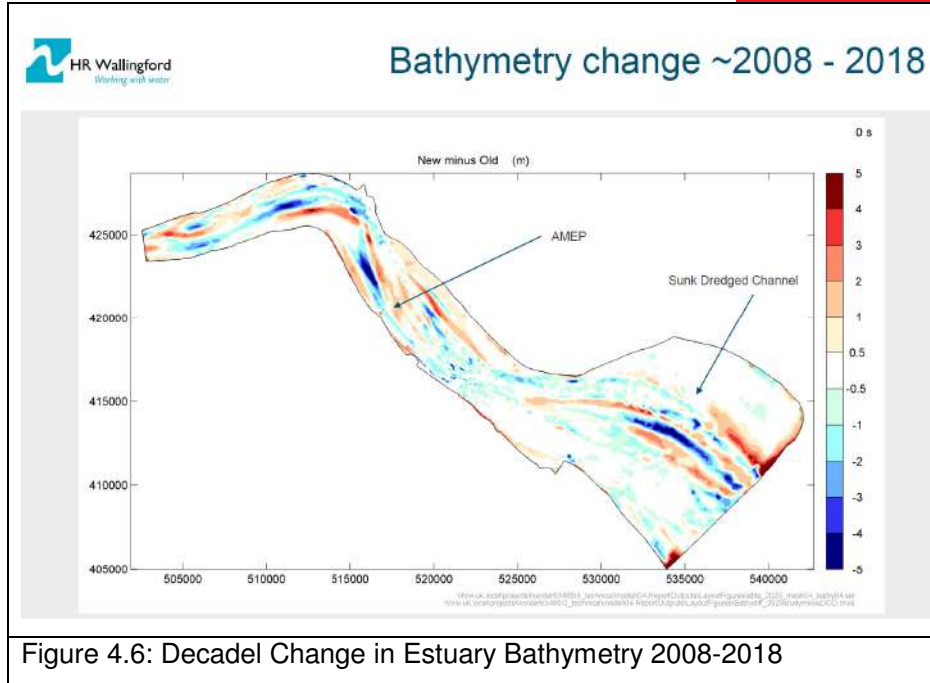
4.16 In addition, a Code of Construction Practice to discharge Requirements 22, 26, 27 and 28 of Schedule 11 of the DCO was submitted to the local planning authority for approval on 15 July 2020. The Applicant has subsequently addressed issues raised by Natural England in November and is awaiting approval.

4.17 A list of planning consents within and near the Compensation Site was included in Chapter 27 of the original ES and listed in Table 27.1. Since the DCO application the Applicant obtained planning permission for the creation of wet grassland and a wet roost adjacent to the compensation site. This development is however consistent with the DCO as described in EX28.3 of the ES. A review of the ERYC website shows that other planning consents in the years since the DCO application are limited to

development in keeping with the agricultural setting, namely agricultural buildings and minor domestic alterations.

The Marine Site

- 4.18 The Humber Estuary is one of the largest estuaries in the UK comprising extensive wetland and coastal habitats. It is covered by four relevant nature conservation designations: Special Area of Conservation (SAC); Special Protection Area (SPA); Site of Special Scientific Interest (SSSI) and it is also a Ramsar site.
- 4.19 The qualifying interests of the Humber Estuary SAC are set out in the site Citation dated 10 December 2009, the qualifying interests of the Humber Estuary SPA are set out in the site Citation dated 31 August 2007 whilst the criteria that are relevant to the designation of the Humber Estuary Ramsar Site are set out in the Site Information Sheet dated 31 August 2007. Finally, the Humber Estuary SSSI citation is dated 3 February 2004. None of these designations has therefore changed since the DCO application.
- 4.20 The estuary is nevertheless a dynamic landscape. For example, the Killingholme Marshes foreshore, which is to be reclaimed as part of the AMEP development, was known to be accreting at the time of the application (ES, EX11.9) and has in fact accreted further since the application with the conversion of a fringe of mudflat to saltmarsh along the flood defences. Recently obtained estuary bathymetry also shows a significant change in bed levels throughout the whole estuary since the application was submitted, refer to Figure 4.6 below.
- 4.21 Two major marine developments that were planned at the time of the DCO application have been implemented, namely: Green Port Hull at the Port of Hull and Grimsby Ro-Ro Terminal at the Port of Grimsby.



5.0 Likely Significant Effects and Proposed Scope of Updated ES

General

- 5.1 As explained in Chapter 2 of this Scoping Report, the material change application proposes changes to the marine development only and leaves the construction and operation of the associated terrestrial development unchanged. Also as explained in Chapter 4, there are no materially different receptors in the surrounding terrestrial areas. As a consequence, those environmental effects presented in the original ES that relate solely to terrestrial components such as (for example) traffic generation and noise propagation, will not change and the original assessment does not need to be reviewed. Relevantly also, developers submitting major planning applications that followed AMEP, would have been required to consider the impacts of their scheme cumulatively with AMEP and there should be no need for any hindsight assessment of cumulative effects on terrestrial receptors.
- 5.2 The assessment of effects on the marine environment may however change not only due to the physical changes proposed but also because the estuary itself has changed. The updated ES will therefore include an update of impacts on the marine environment, against an updated baseline where necessary. Any new or materially different impacts will be considered in combination with other projects.

Work No. 1 and Associated Development on the South Bank

- 5.3 The original ES for the AMEP development identified a series of environmental effects, by topic, which were predicted to arise as a result of the proposed AMEP development. Table 7 sets out, by environmental topic, whether there may be any new or materially different likely significant effects arising from the proposed amendments to the approved Quay design, footpath diversion and associated changes to the works and need to be addressed in an update to the original ES.

Table 7: Change in Environmental Effects as a Result of Proposed Changes to the Development

ES Chapter No.	ES Chapter Title	New or Different Environmental Effects
7	Geology, Hydrogeology and Ground Conditions	<p>Geology, Hydrogeology, Ground Conditions, Ground Gas There are no changes to the approved terrestrial works which would affect the geology, hydrogeology (ground water), ground conditions or gas assessments presented in the original ES.</p> <p>Contaminated Sediments The original ES included an assessment of contaminated sediments in the marine environment; whilst the area to be dredged is slightly altered by the proposed changes, it is within the footprint of the originally proposed quay layout and therefore within the area that has previously been characterised by sampling and analysis. Furthermore, any dredging needs to be preceded by sampling under the Deemed Marine Licence in Schedule 8 of the DCO, which would provide up to date information of the contaminant levels in the dredged pocket. Sediment dredging and disposal would then take place in an appropriate manner relevant to the level of contaminants that may be found to be present in the pre-dredge sampling, such that no significant effects would arise.</p> <p>The original ES baseline of marine sediment relied on sampling that was undertaken in 2011. Sampling was undertaken again in 2017. The 2017 results of the trace metals analysis showed levels in excess of CeFAS Action level 1 (AL1) for arsenic, chromium, nickel, lead, and zinc in the majority of samples, with one sample also showing an exceedance of AL1 for copper. However, none of the levels observed were approaching their respective AL2, and therefore do not preclude the material from disposal at sea. The hydrocarbon analyses showed elevated levels (above AL1) for the majority of determinants. In the case of THCs, some of the results were 10x their AL1. There is currently no AL2, and therefore decisions on the suitability of material for disposal at sea is determined on knowledge of the background levels in the surrounding area, and the Humber is known to generally have higher levels of hydrocarbons due to historic uses of the area.</p> <p>On 10 September 2020, the MMO approved a further sediment sampling plan and sampling will be undertaken in December 2020 with results reported in February 2021.</p> <p>Summary The updated sampling results will be reported in the ES and any significant change in the levels of contaminants will be further assessed. An update to the Contaminated Sediments section of the chapter is therefore scoped in to the updated ES.</p>
8	Hydrodynamic and Sedimentary Regime	<p>The Humber Estuary is a highly dynamic environment where bed levels can be subject to significant natural change over relatively short timescales.</p> <p>The amendments may result in new or different effects on the hydrodynamics of the river, which may in turn affect the sedimentary regime. Each of the topics set out in the original ES is discussed in turn below to identify where the proposed changes will likely require an updated assessment to be undertaken:</p> <p>Construction Phase</p> <p>Dispersion of sediment during capital dredging and reclamation The 288m western quay section is to be brought 61m closer to shore at the northern end of the quay. The small inset dock to the southern end is no longer required however, so the reduced dredging here partially offsets the increase resulting from the amended quay. The net effect, based on recent bathymetric</p>

	<p>data equates to approximately 30,000m³ of additional capital dredging, although this is relatively minor in the context of the development as a whole. Potential changes to dispersion of sediment during construction will not be sensitive to the relatively minor change in dredge quantities, and the required volumes will remain well within the limits consented by the DCO (Schedule 9 Para 11(2)), but some change may arise due to the natural change in the bed levels.</p> <p>Dispersion of sediment during dredged material disposal The AMEP Amended Quay layout will result in a small increase in the capital dredge volume, albeit that the total volume will remain well within the limits consented by the DCO (Schedule 9 Para 11(2)). Whilst the option to increase the quantity of clay to be disposed of at HU080 is relatively significant in percentage terms, the ES noted that the disposal of clay <i>'is highly unlikely to add to background SSC's'</i>, (ES paragraph 8.6.9). Dispersal of sediment during dredged material disposal would not be materially different due to these changes alone but it may be sensitive to the natural change of the bed levels.</p> <p>Dispersion of sediment during dredging operations at AMEP The AMEP Amended Quay layout will result in a minor increase in capital dredge volume, albeit the total volume will remain well within the limits consented by the DCO (Schedule 9 Para 11(2)). Dispersal of sediment during dredging would not be materially different due to this change alone but it may be sensitive to the natural change of the bed levels.</p> <p>Summary Because of the natural change to the bed levels in combination with the physical changes to the quay, these matters are scoped in to the updated ES.</p> <p>Operational Phase</p> <p>Hydrodynamic Impacts – Impacts on tidal levels The impacts on High Water levels are predicted to change as a result of the amended layout and the updated baseline, albeit the changes reported in the original ES were small and it is likely that the proposed changes will result in smaller impacts again. This matter is however scoped in to the updated ES assessment to enable the proposed design to be modelled and the impacts presented in full.</p> <p>Hydrodynamic Impacts – Impacts on flows Peak flood and ebb flows are predicted to change as a result of the amended layout and the updated baseline. A review of the impacts on flows is therefore scoped in to the updated ES.</p> <p>Impacts on Bed Shear Stress (due to changes in tidal flows) Changes to local hydrodynamics (flows) result in changes to patterns of bed shear stress (which in turn affect patterns of sedimentation and erosion). Given that potential changes on flows are scoped in, the resulting impacts on bed shear stress are also scoped in to the updated ES.</p> <p>Impacts on waves and overtopping Impacts on waves and overtopping could potentially be affected by the proposed changes, however the changes are minor in nature when considering this potential impact. An assessment of impact on waves by expert analysis (rather than by application of further wave modelling) is therefore scoped in to the updated ES.</p> <p>Impacts on sediments It is predicted that the proposed changes, along with the updated baseline, will affect predicted patterns of changes to potential erosion and deposition of fine muddy sediments. Impacts on sediments are therefore scoped in to the updated ES, including:</p> <ul style="list-style-type: none">• Impacts on sediment transport• Impacts on suspended fine sediment concentrations
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		<ul style="list-style-type: none"> Changes to patterns of erosion and deposition of sediments <p>Impacts on Existing and Future Maintenance Dredging Requirements The potential impacts on sediment transport and deposition may affect the sedimentation rates, and thus future maintenance dredging requirements, at AMEP and at adjacent berths. A review of these impacts is therefore scoped in to the updated ES.</p> <p>Morphological assessment The potential impacts on sediment transport and deposition may affect morphology, including intertidal levels and sedimentation at the nearby power station outfalls. Given the changes to the proposed scheme and baseline, and the likelihood of potential changes to impacts on sedimentation, an updated morphological assessment is scoped in to the updated ES.</p>
9	Water and Sediment Quality	<p>Construction Impacts</p> <p>Sediment Plume There will be no increase in overall capital dredging requirements but the natural change in bed levels and physical changes to the quay may give rise to different impacts. This is therefore scoped in to the updated ES.</p> <p>Resuspension of Contaminated Sediments During the construction phase of the proposed development, and specifically of the new quay, there is the potential for sediment disturbance and the release of contaminants. This will be reviewed in relation to the updated sampling results which will be discussed and reported as detailed in the updates to Chapter 7 above. If any significant change in the levels of contaminants is identified then the potential impacts associated with resuspension during construction will be further assessed. An update to this section of the Water Quality chapter is therefore scoped in to the updated ES.</p> <p>Changes in ambient water temperature There is a possibility that the proposed scheme will change flow patterns near the intake and outfall structures of the E.ON power station with implications for the ambient water temperature. This topic is therefore scoped in to the updated ES.</p> <p>Capital Dredging Dredging and disposal was assessed as being unlikely to have any significant impacts on water quality in the original ES, with impacts to specific WFD contaminants being minimal. Nonetheless, any dredging needs to be preceded by sampling to provide up to date information of the contaminant levels in the area. As discussed in relation to the Chapter 7 updates above, updated sampling is being undertaken to inform the updated ES. If the updated sampling results reported in Chapter 7 show any significant change in the levels of contaminants, this will be further assessed in relation to the potential for capital dredging of these sediments to have an effect on Water Quality/ WFD status. An update to this section of the chapter is therefore scoped in to the updated ES.</p> <p>Site run-off and storm drainage No changes are proposed to the arrangements for site drainage and storm drainage. The amendments to the proposed design will not therefore give rise to any new or different impacts and this topic is scoped out of the updated ES.</p> <p>Indirect impacts on water quality The ES previously reported no indirect impacts on sand and Bathing Water quality at Cleethorpes Beach, the proposed changes will have no new or additional impact in this regard. No significant impacts were identified in relation to indirect impacts on designated sites (SSSI, SAC, SPA and Ramsar) as a result of dissolved oxygen levels changing when dredged material is disposed of. The dredge disposal will still take place at regular intervals</p>

		<p>throughout the dredging period, allowing oxygen levels to recover as reported in the original ES, therefore no new or different effects will arise as a result of the proposed scheme. This topic is therefore scoped out of the updated ES.</p> <p>The impacts of any changes in water quality on aquatic ecology and birds are reviewed in Chapters 10 and 11.</p> <p>Operational Phase</p> <p>Water Quality The proposed scheme will not result in any operational changes that could affect drainage of foul water from sewage and trade effluent, accidental leaks and spills, or litter. These topics are therefore scoped out of the updated ES.</p> <p>Power plant intakes/thermal re-circulation The original ES identified that “<i>The physical structure of the new quay has the potential to impact on the mixing of existing outfalls from two gas fired power stations. Of particular concern is the possibility of changing the temperature at the intake</i>”. Since the time of the original ES, the Centrica Power Station has been demolished and the outfall is not operational. Furthermore the EA Permit was bespoke to the Centrica Plant, so any new use of the infrastructure that remains in place would need to be assessed at the time of any application for a new consent. As a consequence, mixing of the existing outfalls is scoped out of the updated ES.</p> <p>The physical changes proposed to the quay may cause materially different impacts on the E.ON outfall which remains operational. This element is therefore proposed to be scoped in to the updated ES. Regard will also be had to whether the local increase in ambient water temperature will have any significant impact upon the WFD waterbodies located near to AMEP (although none were reported in the original ES).</p> <p>Maintenance dredging As set out in relation to Chapter 8 above, the potential impacts on sediment transport and deposition may affect the sedimentation rates, and thus future maintenance dredging requirements. A review of the potential impacts of maintenance dredging on water and sediment quality is therefore scoped in to the updated ES.</p>
10	Aquatic Ecology	<p>Construction Impacts - Dredging</p> <p>Habitat change from substrate removal Immediate habitat changes were reported in document EX 11.23 of the ES. The quantum of habitat directly lost due to the works will change as a result of the change to the quay. This is therefore scoped in to the updated ES.</p> <p>Habitat and benthic communities disturbance from the sediment plume The total volume of capital dredging will remain well within the limit consented by the DCO (Schedule 9 Para 11(2)), but in combination with the natural change in bed levels and the physical change to the quay the deposition pattern of sediments within the estuary may change. This is therefore scoped in to the updated ES.</p> <p>Disturbance to fish from construction activity noise and vibration due to dredging There will only be a minor increase in overall capital dredging, which will not materially affect the dredging requirements. As such this will not lead to any material change in the magnitude of this impact and so the significance of effect will not change. This is therefore scoped out of the updated ES.</p> <p>Indirect changes to habitats from project-induced changes in hydrodynamic and morphodynamic regimes The AMEP Amended Quay layout will result in a minor change in the total capital dredge volume. The additional disposal and the natural changes to the</p>

	<p>estuary may combine to cause different effects to those originally predicted. Dispersal of sediment during dredging operations is therefore scoped in to the updated ES and, accordingly, any associated indirect impacts on habitats from capital dredging can also be scoped in.</p> <p>Disturbance to fish and fish eggs/larvae from habitat loss and disturbance There will be a small increase in the dredging activity overall and a significant potential increase in disposal. The quantum of habitat directly lost to the works will change. As such potential changes to fish and fish eggs/larvae from habitat loss and disturbance are scoped in to the updated ES.</p> <p>Construction Impacts - Dredge Disposal</p> <p>Loss of subtidal habitat and benthic communities from dredge spoil disposal The overall capital dredge volume of clay to be disposed of in the estuary is increased by the change. This topic is therefore scoped in to the updated ES to the extent that it is relevant to HU0820.</p> <p>Habitat and benthic communities disturbance from the sediment plume Whilst the proposed changes alter the dredge disposal requirements, when taken into consideration with the updated baseline there is a potential change to the pattern of excess sediment introduced in the water column from dredge disposal. The effects on habitat and benthic communities from the plume are therefore scoped in to the updated ES.</p> <p>Indirect changes to habitats from project-induced changes in hydrodynamic and morphodynamic regimes There will be no change to the disposal sites used for the proposed works, however the overall disposal requirement will increase significantly. The hydrodynamic and morphodynamic regimes at the disposal locations could therefore be affected. This topic is therefore scoped in to the updated ES.</p> <p>Disturbance to fish and fish eggs/larvae from habitat loss and disturbance The ES identified a 10% increase in the annual number of vessel movements. The proposed change to the deposit location of 1.1M Tonnes of clay from the berthing pocket will give rise to additional vessel movements on the river during construction.</p> <p>As such potential impacts to fish from these increased vessel movements is scoped in to the updated ES.</p> <p>Construction Impacts – Quay Construction</p> <p>Loss of habitat (intertidal and subtidal) and benthic communities from land take required for the quay Medium and long-term habitat changes were reported in EX11.24 of the ES. The quantum of habitat indirectly lost due to the works may change as a result of the changes to the quay. This is therefore scoped in to the updated ES.</p> <p>Creation of new hard substrata habitat Overall the proposed changes present change in the overall footprint of the new hard substrata, which may materially change the conclusions of the original assessment. This is therefore scoped in to the updated ES.</p> <p>Habitat disturbance from water quality changes in the vicinity of outfalls As discussed in relation to Chapter 9, the change proposed to the quay may cause materially different impacts on the E.ON outfall which remains operational, and regard will be had to whether the local increase in ambient water temperature will have any significant impact upon the WFD waterbodies located near to AMEP (although none were reported in the original ES). It is</p>
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		<p>therefore proposed to scope in potential changes to habitat disturbance arising from water quality changes at the proposed E.ON outfall.</p> <p>Indirect changes to habitats from project-induced changes in hydrodynamic and morphodynamic regime As discussed in Chapter 8, the proposed design changes to the quay may affect the hydrodynamic regime from that previously assessed. If the ES concludes that the hydrodynamic and morphodynamic effects do result in a noticeable change then indirect changes to habitats will be scoped in to the updated ES. If there is no noticeable change to the hydrodynamic and morphodynamic regimes then indirect changes to habitats will be scoped out of the ES.</p> <p>Disturbance to fish from habitat loss and construction activity noise and vibration The proposed change does not result in any new or additional sources of noise or vibration beyond those previously assessed, nor does it result in any effects on areas which would not otherwise have been subject to disturbance. As such there can be no material change in the magnitude of the effect from that previously assessed. Impacts on fish are therefore scoped out of the updated ES.</p> <p>Disturbance to marine mammals from construction activity noise and vibration The proposed change does not result in any new or additional sources of noise or vibration beyond those previously assessed, nor does it result in any effects on areas which would not otherwise have been subject to disturbance. As such there can be no material change in the magnitude of the effect from that previously assessed. Impacts on marine mammals are therefore scoped out of the updated ES.</p> <p>Disturbance to marine mammals from reduced prey availability There is no pathway for a change in magnitude from the proposed revised design on fish and as such there will be no material change to the impacts on prey availability from that originally assessed. This is therefore scoped out of the updated ES.</p> <p>Changes to aquatic environment in adjacent water bodies Changes in the hydrodynamic regime may affect adjacent waterbodies. An updated assessment of potential changes to the aquatic environment in adjacent water bodies is therefore scoped in to the updated ES.</p> <p><u>Construction Impacts – Run-off</u> Impacts to all aquatic ecologic receptors as a result of construction run-off are scoped out because the proposed design change does not include any changes to site drainage and run off, thus there is no potential for a material change in the magnitude of impact from the proposed design change.</p> <p><u>Operational Impacts</u></p> <p>Disturbance to fish due to the operational noise of an increased number of vessels The proposed design change will not result in a change to the envelope for the number of vessels during operation and as such there will be no potential for a change in magnitude. Impacts on fish during operation are therefore scoped out of the updated ES.</p>
11	Terrestrial Ecology and Birds	<p>Ornithological Impacts As discussed in relation to Chapters 8 and 10 above, the proposed changes may affect the hydrodynamic and morphodynamic regimes which in turn may result on indirect changes to habitats. Where this has potential to affect designated estuary habitat, there could potentially be subsequent impacts on SPA qualifying bird species and assemblage. Therefore, if the ES concludes</p>

		<p>that the hydrodynamic and morphodynamic effects do result in a noticeable change then ornithological impacts – in relation to potential indirect impacts on designated estuary habitat which supports SPA qualifying bird species and the waterbird assemblage only – will be scoped in to the updated ES. If there is no noticeable change to the hydrodynamic and morphodynamic regimes then an assessment of these impacts will be scoped out.</p> <p>The impact of the quay may be affected by natural change in bird distribution within the SPA since the original ES. The extent of natural change will be assessed in the light of recent bird data.</p> <p>Terrestrial Habitats and Species No changes are proposed to the terrestrial works which would have any direct impact on terrestrial habitats and species assessed in the original ES. These receptors are scoped out from the updated ES.</p> <p>Noise Whilst the proposed amendments result in a different alignment of the quay wall, installation operations will be the same so the change will not result in any new or different noise impacts on ecology and nature conservation interests in terms of noise or vibration. ES Chapter 11 identifies that the worst impacts would arise from construction of the quay wall, as set out a worst case scenario of impact piling of the front wall of the quay, based on the largest piling hammer and the fact that noise would propagate unobstructed into the estuary. As piling conditions were imposed through the DCO to mitigate the impacts of construction noise and the amended quay will be constructed in accordance with these conditions, no new or different impacts are predicted. Effects from noise are therefore scoped out from the updated ES.</p>
12	Commercial Fisheries	<p>The ES reported impacts on commercial fisheries to be of minor to negligible significance (ES Table 12.2), primarily due to low fishing effort in the area. This situation has not changed since the original ES was published.</p> <p>The amendments to the proposed design will not give rise to any new or different impacts on commercial fisheries. Any potential effects relating to indirect impacts on nursery habitat and fish stocks, and changes in the hydrodynamic regime, are discussed and scoped out in relation to any potential aquatic ecology impacts arising from the proposed amendments relative to Chapter 10 (Aquatic Ecology). This topic is therefore scoped out from the updated ES.</p>
13	Drainage and Flood Risk	<p>No changes are proposed to the arrangements for the disposal of surface water and foul water from the development site. The amendments to the proposed design will not therefore give rise to any new or different impacts on drainage.</p> <p>In terms of flood risk, modelling was previously undertaken of the quay design to assess the potential impacts of the quay on the risk of overtopping or breaching of adjacent defences. As the quay level remains unchanged, it is reasonable to conclude that there will be no new or different effects on flood risk as a result of the revised design.</p> <p>This chapter is therefore scoped out from the updated ES.</p>
14	Navigation	<p>The ES identified a 10% increase in the annual number of vessel movements during construction.</p> <p>The proposed change to the deposit location of 1.1M Tonnes of clay from the berthing pocket will give rise to additional vessel movements on the river during construction although not necessarily an intensification of use because the works would be undertaken by the same vessels over a longer period.</p> <p>Whilst the proposed amendments to the Quay design will not extend the footprint of the Quay any further into the navigation channel than the approved</p>

		design, the impacts associated with increased vessel movements and the change in the quay line will be scoped in to the updated ES.
15	Traffic and Transport Assessment	<p>The amendments to the proposed design will not give rise to any new or different effects on vehicle flows. The estimates for construction traffic and operational traffic remain the same regardless of the proposed changes.</p> <p>The proposed diversion to the footpath results in a change to the length of the approved route. This aspect of this chapter will therefore be scoped in to the updated ES.</p>
16	Noise and Vibration	<p>Whilst the proposed amendments result in different alignment of the quay wall, its installation will not result in any new or different noise impacts or vibration during construction. Construction noise impacts were assessed on a worst-case scenario of all marine and terrestrial works being undertaken simultaneously; vibration impacts were assessed on a worst-case scenario. Appropriate mitigation was identified in the ES and secured through the DCO and the amended quay will be constructed in accordance with this mitigation.</p> <p>The proposed amendments will not affect road traffic therefore there will be no new or different impacts associated with road traffic noise. No new or different impacts associated with noise during operation will arise as a result of the proposed amendments. This topic is therefore scoped out of the updated ES.</p>
17	Air Quality	The amendments to the proposed design will not give rise to any new or different impacts on air quality as construction and operational activities will be identical. An assessment of impacts on air quality is therefore scoped out of the updated ES.
18	Historic Environment	<p>The ES lists a number of potential marine heritage receptors (identified from Magnetometer Survey) including those in the vicinity of the AMEP quay (refer to Appendix 3). The amended quay design will not change the impacts on possible heritage assets.</p> <p>Whilst the amendments to the proposed design alter the quay alignment and thereby the location of intrusive works which may affect buried archaeological material (e.g. pile installation), the works are covered by a Written Scheme of Investigation (WSI) requiring investigations and mitigation measures in order to appropriately assess and conserve any archaeological material that is discovered. As construction of the quay will take place under the WSI, the proposed amendments will not give rise to any new or different effects on the historic environment in this regard.</p> <p>The original ES also identified potential impacts from morphological changes caused by the quay, whereby either erosion or accretion of sediment could have direct or indirect impacts on buried archaeological material. Whether the new design results in any changes in this regard or not (to be confirmed via updated assessment for Chapter 8), any impacts would also be addressed through specific mitigation in the WSI such that the overall effects on the historic environment would not change.</p> <p>Impacts on the historic environment are therefore scoped out of the updated ES.</p>
19	Light	<p>Lighting Levels were reported in Chapter 19 of the original ES and it was concluded that the proposed light levels and area of light spill were acceptable. No changes are proposed to the lighting levels or area of spill and, in any event, the precise arrangements for external lighting are reserved matters requiring the submission of written details and their subsequent approval in accordance with Schedule 11, paragraph 24 of the DCO.</p> <p>The amendments to the proposed design will not therefore give rise to any new or different impacts relating to light. This topic is therefore scoped out of the updated ES.</p>

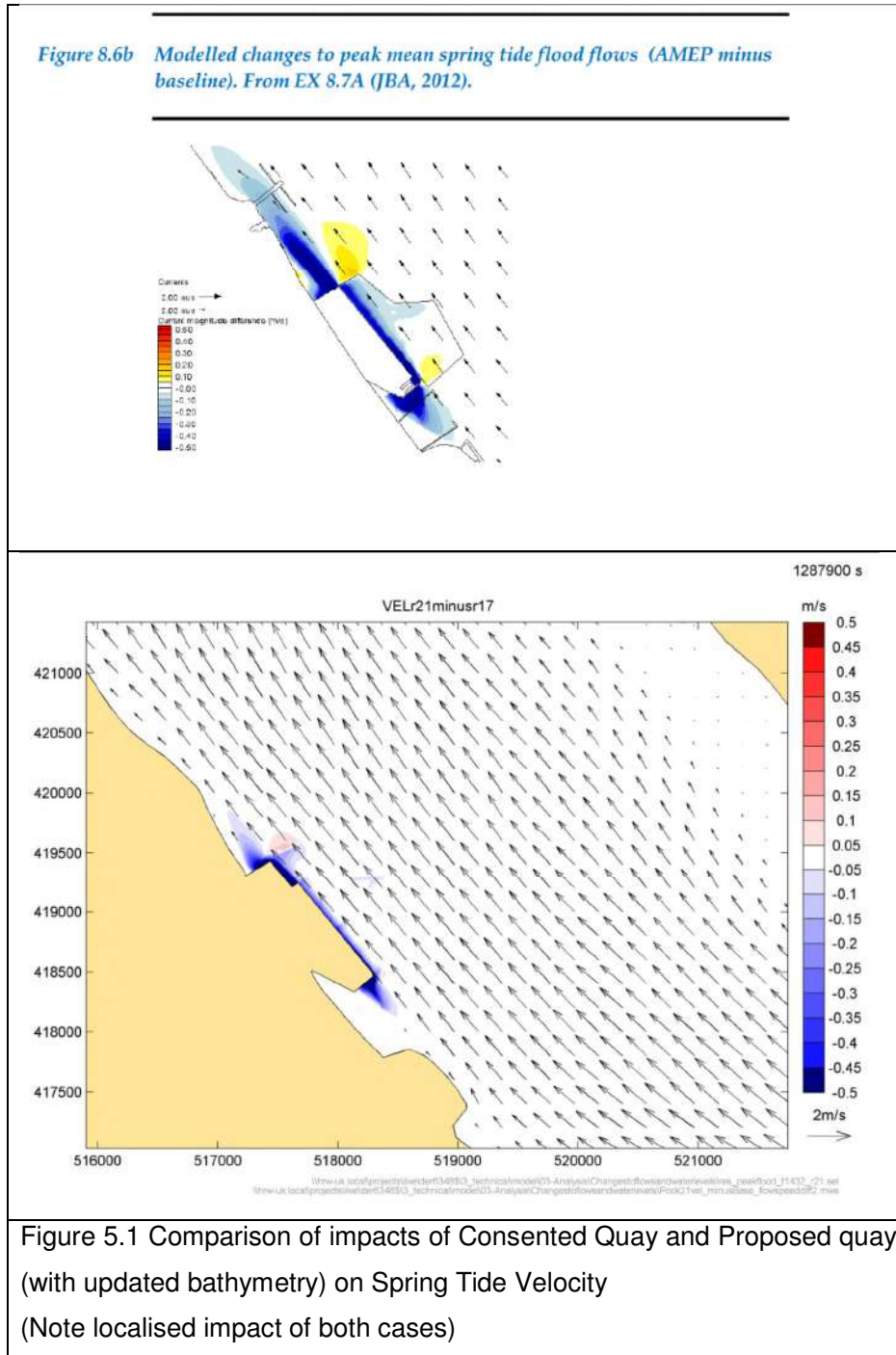
20	Landscape and Visual	The amendments to the proposed design are not material in the context of the assessment of impacts of the quay on the profile of the riverbank, and will not therefore result in any new or different landscape or visual effects. This topic is therefore scoped out of the updated ES.
21	Socio-Economic	The amendments to the proposed design will not give rise to any new or different socio-economic impacts. There will be no changes whatsoever to the positive economic activity and benefits previously reported in the original ES during either construction or operation. This topic is therefore scoped out of the updated ES.
22	Aviation	Impacts from AMEP on aviation principally arise from tall structures. The amendments to the proposed design will not give rise to any new or different impacts relating to aviation. This topic is therefore scoped out of the updated ES.
23	Waste	The amendments to the proposed quay design will not result in any material changes to amount of materials to be used and thus waste generated, however an increase in the marine disposal of dredged arisings is being sought. This topic is therefore scoped in to the updated ES.
24	Health	The amendments to the proposed design will not give rise to any new or different health impacts. This topic is therefore scoped out of the updated ES.
Cumulative Effects		<p>In determining whether to grant the DCO for AMEP consideration was given to cumulative effects. Receptors which suffer from negative impacts as a result of the combination of more than one impact were identified.</p> <p>Consideration has therefore been given to updating the cumulative assessment where the proposed material changes alter the impacts on a receptor, and where this receptor is one that may suffer as a result of the combination of this impact with others identified in the original ES. Given the topics identified above where a material change in the reported effects may occur, the following receptors are scoped in to the cumulative assessment in the updated ES:</p> <ul style="list-style-type: none"> - Sub-tidal areas, maintained dredged areas (SDC, ports), Gas pipelines near Halton Middle – due to changes in the hydrodynamic and sedimentary regime arising from the material changes in the scheme, in combination with other projects. - Water and sediment quality - arising from the material changes in the scheme, in combination with other projects - E.ON outfall – due to changes in water quality arising from the material changes in the scheme, in combination with other projects - Habitats, benthic communities and fish directly or indirectly affected as a result of a material change in the capital dredging requirements, in combination with other projects; - Habitats, benthic communities and fish directly or indirectly affected as a result of a material change in the quantity of dredged arising disposal, in combination with other projects; - Habitats (intertidal and subtidal) and benthic communities directly affected by the creation of new hard substrata habitat due to the material changes in the quay design, in combination with other projects; - Habitats indirectly affected by water quality changes associate with changes at the E.ON outfall, in combination with other projects; - Habitats indirectly affected by changes in the hydrodynamic and sedimentary regime arising from the material changes in the quay design, in combination with other projects

	<ul style="list-style-type: none"> - The aquatic environment adjacent water bodies, due to changes in the hydrodynamic and sedimentary regime arising from the material changes in the quay design, in combination with other projects - Ornithological receptors affected by indirect impacts on designated habitats due to changes in the hydrodynamic and sedimentary regime arising from the material changes in the quay design, in combination with other projects - Navigational impacts arising from increased vessel movements associated with the overall increased dredging requirement, in combination with other projects; - Impacts on pedestrians as a result of the proposed amended footpath alignment, in combination with other projects.
In-combination effects	<p>In determining whether to grant the DCO for AMEP consideration was also given to the in-combination effects of the Project, that being the development of AMEP in combination with the Compensation Site to the north of the Humber and other Projects within the planning system but not constructed or only partially completed. The original ES considered in-combination impacts and this assessment will be reviewed, excluding those projects that have now lapsed, within the updated ES chapters.</p>

Cherry Cobb Sands Compensation Site

5.4 As explained in Chapter 4 above, the Compensation Site has not changed in any material way since the DCO application in December 2011 and no changes are proposed to the construction and operation of the Site compared to those explained in the ES (refer to EX 28.3). Further, the impact of the consented quay on the north bank of the estuary is demonstrably insignificant, (ES, EX 8.7A – Modelling of Final Quay Design (Supplement to ES Annex 8.1)). The change in the quay alignment is too insignificant within the estuary as whole to give rise to any new or materially different effects. This is illustrated in Figure 5.1 below, which shows the very local changes to current consequent to the original and proposed quays.

5.5 In the absence of any change to the proposals or to the site itself or its surroundings, then no update is proposed to Chapters 25-43 of the original ES or any associated documents listed in Schedule 11 paragraph 1 of the DCO.



Changes in the requirements for EIA introduced by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

5.6 The Applicant has reviewed the changes in the requirements for EIA between the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 as contained in Regulation 5 and Schedule 4 of the 2017 Regulations. In the context of the proposed development, the Applicant considers that the key changes can be summarised as follows:

- The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and
- A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned.

Climate Change

5.7 Schedule 4 of the above Regulations require the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change to be assessed. In this regard, it is important to note that the objective of the project is to support the renewable energy sector and the associated drive to reduce energy generation from fossil fuels. It could, therefore, be considered that the inherent nature of the project will contribute to minimising the effect of climate change. Nevertheless, more specifically, the impact of the project relates to the carbon dioxide emissions associated with the operation of the proposed development. The vulnerability of the project to climate change relates to flood risk, be it through sea level rise (SLR), increased rainfall or increased wave activity.

5.8 The likely significant impacts of the project on climate change, most notably the nature and magnitude of carbon dioxide emissions associated with the

operation of the development, are already detailed in Table 17.13 of the original ES. Furthermore, Appendix 6.2 of the ES assessed the carbon footprint of the operational development and concluded that the impacts were the least of any alternative solution.

5.9 With regard to flood risk and SLR, the ES considered the impact of climate change, refer for example to ES Appendix 13.1, paragraphs 3.3.2, 3.4.1, 3.5.3, 3.6.1, 3.7.1, 3.9.1, 6.4.1, 6.13.1. The residual impacts reported in Chapter 13 (Flood Risk and Drainage) of the original ES were as follows:

- Flood risk due to breach or overtopping of tidal defences (to be mitigated by implementation of a robust Flood Warning and Evacuation Plan);
- Flood risk due to failure of the proposed NELDB pumping station (residual impacts are likely to be Minor Adverse and will be mitigated by the use of multiple pumps, alarms, etc.);
- Flood risk due to failure of the proposed foul pumping stations (residual impacts are likely to be Minor Adverse and will be mitigated by the use of standby pumps, alarms and flow storage facilities); and
- The accidental release of polluting substances into the sea and inland watercourses (control measures will be implemented to mitigate the impacts of pollution incidents).

5.10 The original assessment took into account SLR predictions set out in PPS25: *Development and Flood Risk*, and the relevant recommendations are abstracted in Figure 5.2 below. Between 2000-2115 SLR equated to 1.165m.

Table B.1 Recommended contingency allowances for net sea level rise

Administrative Region	Net Sea Level Rise (mm/yr) Relative to 1990			
	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
East of England, East Midlands, London, SE England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South West	3.5	8.0	11.5	14.5
NW England, NE England (north of Flamborough Head)	2.5	7.0	10.0	13.0

Notes:

1. For deriving sea levels up to 2025, the 4mm/yr, 3mm/yr and 2.5mm/yr rates (covering the three groups of administrative Regions respectively), should be applied back to the 1990 base sea level year. From 2026 to 2055, the increase in sea level in this period is derived by adding the number of years on from 2025 (to 2055), multiplied by the respective rate shown in the table. Subsequent time periods 2056-2085 and 2086-2115 are treated similarly.
2. Refer to Defra FCDPAG3 *Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, October 2006, for details of the derivation of this table. In particular, Annex A1 of this Note shows examples of how to calculate sea level rise.
3. Vertical movement of the land is incorporated in the table and does not need to be calculated separately.

Figure 5.2: Sea Level Rise Predictions in the Original ES

5.11 Current EA guidance (last updated 22 July 2020) is set out in Table 5.2 below, abstracted from <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-3>

Table 3: sea level allowances by river basin district for each epoch in mm per year (based on a 1981 to 2000 baseline) – the total sea level rise for each epoch is in brackets

Area of England	Allowance	2000 to 2035 (mm)	2036 to 2065 (mm)	2066 to 2095 (mm)	2096 to 2125 (mm)	Cumulative rise 2000 to 2125 (metres)
Anglian	Higher central	5.8 (203)	8.7 (261)	11.6 (348)	13 (390)	1.20
Anglian	Upper end	7 (245)	11.3 (339)	15.8 (474)	18.1 (543)	1.60
South east	Higher central	5.7 (200)	8.7 (261)	11.6 (348)	13.1 (393)	1.20
South east	Upper end	6.9 (242)	11.3 (339)	15.8 (474)	18.2 (546)	1.60
South west	Higher central	5.8 (203)	8.8 (264)	11.7 (351)	13.1 (393)	1.21
South west	Upper end	7 (245)	11.4 (342)	16 (480)	18.4 (552)	1.62
Northumbria	Higher central	4.6 (161)	7.5 (225)	10.1 (303)	11.2 (336)	1.03
Northumbria	Upper end	5.8 (203)	10 (300)	14.3 (429)	16.5 (495)	1.43
Humber	Higher central	5.5 (193)	8.4 (252)	11.1 (333)	12.4 (372)	1.15
Humber	Upper end	6.7 (235)	11 (330)	15.3 (459)	17.6 (528)	1.55
North west	Higher central	4.5 (158)	7.3 (219)	10 (300)	11.2 (336)	1.01
North west	Upper end	5.7 (200)	9.9 (297)	14.2 (426)	16.3 (489)	1.41

Figure 5.3: Sea Level Rise Predictions 2020

- 5.12 It is evident that the current Higher central prediction for SLR is similar to the 2010 predictions.
- 5.13 With regard to rainfall intensity, the effects of climate change on surface water drainage is addressed in the surface water drainage strategy for the site which was approved by NLC, pursuant to Schedule 11 Requirement 13, on 5 August 2020, following consultation with the Environment Agency (EA). The strategy included climate change allowances agree with the EA.
- 5.14 PPS 25 also recommended that wave height should be increase by 10% to allow for the effects of climate change and this was taken into account in the

overtopping assessment (ES Appendix 13.1, Appendix H). The current guidance remains the same.

- 5.15 Based on the above, it is considered that the effects of climate change have been appropriately considered in the original ES and further assessment is therefore scoped out. Furthermore, the proposed material change will not impact upon the findings of the original assessment.

Major Accidents / Disasters

- 5.16 Any major accidents / disasters which could be caused or experienced by the proposed development are considered to be limited to impacts on navigation in the River Humber and navigation impacts at Humberside Airport. The original ES included an assessment (Chapter 14) on Commercial and Recreational Navigation and a Navigation and Vessel Traffic Risk Assessment (Annex 14.2). Whilst the Risk Assessment will be updated outwith the EIA process to reflect on site proposals, the material changes proposed are not expected to alter the findings of the previous assessment which concluded that any associated local risk can be managed as part of a Safety Management System in accordance with the Port Marine Safety Code. As far as the impact on Humberside Airport is concerned, this was proposed to be mitigated with the provision of aviation warning light mitigation measures. Therefore, it is considered that any major accidents / hazards have already been appropriately assessed in the ES and it is not envisaged that the material changes sought by the proposed development will change any potential impact on Humberside Airport.
- 5.17 It is, therefore, considered that any additional requirements introduced by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 have already been appropriately addressed in the original ES. As the proposed material changes do not significantly alter any of the impacts already assessed, no additional assessment is proposed in the ES to be prepared with the material change application.

Summary

- 5.18 At this stage in the project it is likely that the proposed changes *may* give rise to significant effects which should be considered through an updated ES. The proposed methodology for assessing those impacts which are identified as being scoped in to the updated ES are discussed in more detail in the following section of this Report.

6.0 Proposed Assessment Methodology for the updated ES

6.1 The potential for new or materially different effects to occur as a result of the proposed changes to the AMEP scheme, as identified in Section 5.0 above, should include updates specifically to the following chapters:

- Geology, Hydrogeology and Ground Conditions
- Hydrodynamics and Sedimentary Regime
- Water and Sediment Quality
- Aquatic Ecology
- Terrestrial Ecology and Birds
- Commercial and Recreational Navigation
- Traffic and Transport Assessment (footpath diversion only)
- Waste
- Cumulative Effects

6.2 Whilst the updated ES will follow the methodologies set out in the original ES, this section sets out where any updated assessment methodologies or baseline assessments are likely to be required, for each of the topics that are scoped in.

Geology, Hydrology and Ground Conditions

Assessment Methodology

6.3 The Marine Management Organisation (MMO) is responsible for licensing of all dredging and disposal works below mean high water springs (MHWS). A works licence is also required from the Harbourmaster Humber. To establish the current suitability of the dredged material a Sampling Plan has been agreed with the MMO and samples will be tested at an accredited laboratory. Results will be compared to previous test results and to CeFAS Action Levels.

Hydrodynamics and sedimentary regime

Assessment Methodology

- 6.4 A modelling assessment of changes to sea levels, tidal flows, fine and coarse sediment transport arising from the proposed amended quay layout will be undertaken in keeping with the original ES.
- 6.5 The assessment of the AMEP Amended Quay layout will use the TELEMAC modelling system and updated model bathymetry, to assess impacts to flows, water levels, cohesive and non-cohesive sediments. A comprehensive update to the model bathymetry will be undertaken, using recent bathymetry survey and LiDAR survey data (2017-2019) covering the whole model domain and made available on the Defra Portal <https://environment.data.gov.uk/DefraDataDownload>.
- 6.6 An investigation of the impacts of the amended scheme on hydrodynamic processes within the Humber Estuary will be carried out using the same computer modelling techniques as presented in the original ES. Two and three dimensional (2D and 3D) hydrodynamic numerical models will be constructed, calibrated and validated in order to simulate baseline flows within the estuary. The model grid extends from Spurn Head to Trent Falls.
- 6.7 The same but updated TELEMAC modelling system will be used for the mud transport modelling and for the tidal flows. For sand transport, which is dominated by bedload transport, the two-dimensional depth-averaged version of the TELEMAC hydrodynamic model (TELEMAC-2D) will be used. For mud transport, the three-dimensional version of the TELEMAC code will be used (TELEMAC-3D). The cohesiveness of mud, which is transported in suspension, means that additional processes are required in the model such as flocculation which leads to variable settling velocity of the suspended mud in both time and space. This leads to more complexity in the vertical profile of suspended concentration which cannot be modelled simply by assuming a Rouse profile (such as for sand transport) and hence a 3D model is required to model mud transport accurately.

- 6.8 In terms of baseline, it is noted that UKCP18 guidance on relative sea level rise has been published since the original ES, including revised sea level rise projections for different Representative Concentration Pathways (RCPs) and replacing UKCP09. This will provide an updated baseline for the assessment of changes to water levels.
- 6.9 Updated information is also available to inform the baseline for the estuary morphology assessment; further recent grab sample surveys have been undertaken in the location of the proposed AMEP which showed bed surface median grain sizes ranging from <0.01mm to 0.2mm (compared to median values reported in the original ES as being equally distributed in the range 0.01mm to 0.3mm).
- 6.10 An expert analysis based on a desk study assessment of changes to waves will be undertaken (rather than by application of further wave modelling as presented in the original ES), as the proposed changes are minor in nature when considering this potential impact.
- 6.11 The sensitive receptors assessed in the original ES have been reviewed and these largely remain the same as the original ES, therefore the scope of the updated assessment will include the same receptors, as follows:
- Intertidal mudflat
 - Saltmarsh habitats
 - Vessels navigating in the vicinity of AMEP
 - Nearby Port facilities:
 - Humber Sea Terminal
 - Humber Work Boats
 - South Killingholme Oil Jetty
 - Immingham Gas Jetty
 - Humber International Terminal
 - Immingham Bulk Terminal
 - Immingham Docks
 - Centrica power station intakes and outfalls (noting that the Centrica power station outfall is no longer in use and the station has been demolished, although the physical outfall is still present), and
 - E.ON power station intakes and outfalls.

- 6.12 The results will be presented in the same manner as the Hydrodynamic and Sedimentary Regime chapter (Chapter 8) of the original AMEP ES. That is, as the chapter assesses changes to processes rather than impacts on receptors it is not appropriate to assign significance levels. The approach adopted will be to describe and, where possible, quantify any predicted changes. The implications of the predicted changes will be assessed in terms of the significance of the potential impacts on various environmental parameters in the relevant updated ES chapters.

Water and sediment quality

Assessment Methodology

- 6.13 There is a potential effect on sediment plume impacts and resuspension of contaminated sediment as a result of the changes to the capital dredge requirements. The sediment plume modelling undertaken for the original ES will be updated, if necessary. For contaminated sediments, a review of the updated sampling results (which will be discussed and reported as detailed in the updates to Chapter 7 above) will be undertaken. If any significant change in the levels of contaminants is identified then the potential impacts associated with resuspension during construction will be assessed further.
- 6.14 If the updated sampling does indicate that there are significant change in the levels of contaminants present in the areas to be dredged, this will be further assessed in relation to the potential for capital dredging of these sediments to have an effect on Water Quality/ WFD status. This will be a qualitative review in relation to the most current WFD objectives for the River Humber.
- 6.15 During both construction and operation, flow patterns near the intake and outfall structures of the E.ON power station could change, with resulting changes to water temperature.
- 6.16 The changes to flows will be modelled in Chapter 8 in accordance with the methodology set out above. The original ES was accompanied by reports assessing the impact of the proposed quay layout (reclamation) on recirculation and mixing at

the outfalls; these reports will be updated, if necessary, to enable an assessment of the potential changes in impacts arising from the proposed scheme.

- 6.17 In terms of the potential impacts of future maintenance dredging requirements on water and sediment quality, an update will be made to the assessment presented in the original ES Water Quality Chapter. Again, the updated modelling proposed for Chapter 8 will form the basis of this assessment.

Aquatic Ecology

Assessment Methodology

- 6.18 In relation to the potential direct and indirect effects on habitats, benthic communities, and fish that could occur as a result of the changes to capital dredging and disposal requirements, an updated assessment will be undertaken. Similarly, any potential effect on habitat as a result of changes to water quality (specifically around the E.ON outfall) will be assessed. This will be an update to the assessment presented in the original ES, undertaken via a qualitative review of the impacts to ascertain whether or not there is any increase in the predicted magnitude of effect.
- 6.19 Where direct effects are predicted in relation to the loss of habitat and benthic communities associated with the increased reclamation area, the quantum of habitat loss will be assessed and compared to the consented scheme. A review will then be undertaken to assess whether or not there is any increase in the predicted magnitude of effect.
- 6.20 In the event that the ES concludes that the hydrodynamic and morphodynamic effects of the proposed scheme do result in a noticeable change, then an assessment will be undertaken of the potential indirect impacts to habitats from project-induced changes (amended quay layout). This will be an update to the assessment presented in the original ES, undertaken via a qualitative review of the updated modelling to ascertain whether or not there is any increase in the predicted magnitude of effect.
- 6.21 Potential changes to adjacent waterbodies was also scoped in due to the likelihood of changes in the hydrodynamic regime. The findings of the potential impacts on the hydrodynamic and sedimentary regime (the Chapter 8 update) will be qualitatively

reviewed, to determine whether there is likely to be any change to the tidal flows or sedimentary transport pathways beyond those previously assessed, to materially alter the conclusions drawn in the original ES for the impacts on adjacent waterbodies.

Terrestrial Ecology and Birds

Assessment Methodology

- 6.22 As discussed in relation to Chapters 8 and 10 above, the proposed changes may affect the hydrodynamic and morphodynamic regimes which in turn may result on indirect changes to habitats. In the event that the ES concludes that the hydrodynamic and morphodynamic effects of the proposed scheme do result in a noticeable change, then an assessment will be undertaken of the potential indirect impacts to SPA bird species as a result of habitat impacts arising from project-induced changes (amended quay layout). This will update the assessment presented in the original ES to ascertain whether or not there is any increase in the predicted magnitudes of effect.
- 6.23 The impact of the quay may also be affected by natural change in bird distribution within the SPA. The impact of any change will therefore be assessed in the light of recent bird data.

Commercial and Recreational Navigation

Assessment Methodology

- 6.24 The proposed change in the deposit site for 1.1M tonnes of dredge arisings from the berthing pocket to Site No. HU0820 in the Humber Estuary will generate additional vessel traffic during construction. The original ES assessed dredging vessels to account for around 4,000 vessel movements with the number peaking at 700 per month. The additional vessel movements would not impact on the peak number of movements, only the total.

- 6.25 The assessment will review current Automated Identification System (AIS) data and review the risks associated with a prolonged period of vessel movements. The assessment will also consider any new risks associated with vessel arrival and departure, as well as berthing at the amended sections of the quay.

Traffic and Transportation (Footpath Diversion)

Assessment Methodology

- 6.26 The impacts on pedestrians associated with the proposed amendments to the footpath alignment will be described and discussed, alongside the results of consultation with Network Rail and North Lincolnshire Council's Principal Access and Commons Officer.

Waste

Assessment Methodology

- 6.27 There is no specific guidance on EIA methodology for assessing the implication of waste management in the UK. The assessment will include an identification of the options for beneficial use of the additional clay arisings that may be deposited in the Humber Estuary,

Cumulative Impacts

Assessment Methodology

- 6.28 Apart from the relatively minor change to the diversion of footpath FP50, the changes proposed, and therefore the impacts, are related to the marine environment. A desktop review will be undertaken to identify other current marine projects in the vicinity of the Project which have been granted permission (whether in outline or full) but not completed, or for which an application for consent has been submitted but not determined, and those consents that have lapsed since the original ES. Consultation with relevant local authorities will be undertaken prior to submitting the application to verify those projects that required consideration within the assessment of cumulative effects.

- 6.29 The updated assessment of cumulative effects will be limited to receptors which are predicted to be affected following the updated impact assessment relating to the amended scheme, i.e. for the chapters that are to be scoped in to the ES.
- 6.30 The same methodology for assessment of the impacts will be used as set out in the “*Supplementary Environmental Information Cumulative & In-combination Effects Supplementary Report EX 44.1*”, which expands upon and supersedes the assessment of cumulative and in-combination effects identified and assessed in the original ES for the proposed AMEP.

Appendix 1.0 Proposed Drawings



- Key & Notes**
- Notes**
- Do not scale from this drawing. If in doubt - Ask.
 - All dimensions are in metres (m) unless noted otherwise.
 - All levels are in metres (m) above Ordnance Datum (mAOD) unless noted otherwise.
- Limit of deviation for siting of building up to 45m high.
 - Limit of deviation for siting of building up to 25m high.
 - Limit of deviation for siting of building up to 15m high.
 - 48 Space Car Park
 - Stone Surfacing
 - Landscaping
 - Rock Revetment
 - Existing Lighting Column (21-30m High)
 - Proposed Lighting Column (50m High)
 - Existing Cooling Water Intake
 - Existing Cooling Water Outfall
 - Existing Building
 - Proposed Building
 - Electric Substation
 - HMRC Office
 - Berthing Pocket
 - Waste Recycling & Transfer Facility
 - Able Approach Channel & Turning Area (-5.00m CD)
 - Proposed Pumping Station

Note
 The Harbour Authority has submitted a non material change application separately to re-site Mitigation Area A to Halton Marshes. This plan includes Mitigation Area A in its consented position.

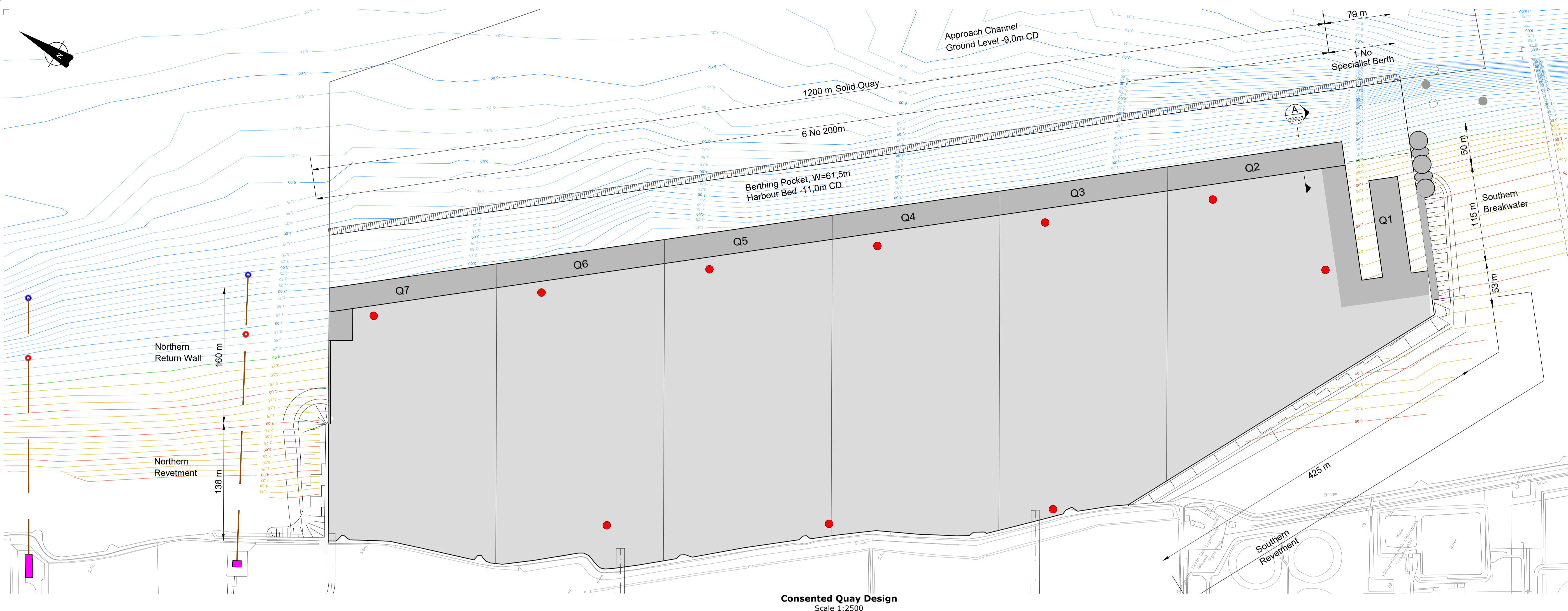
Rev.	Date	Issued for Approval	Comments	Drawn	Checked	Appr.
A	04/12/2020			DIA	RC	RE



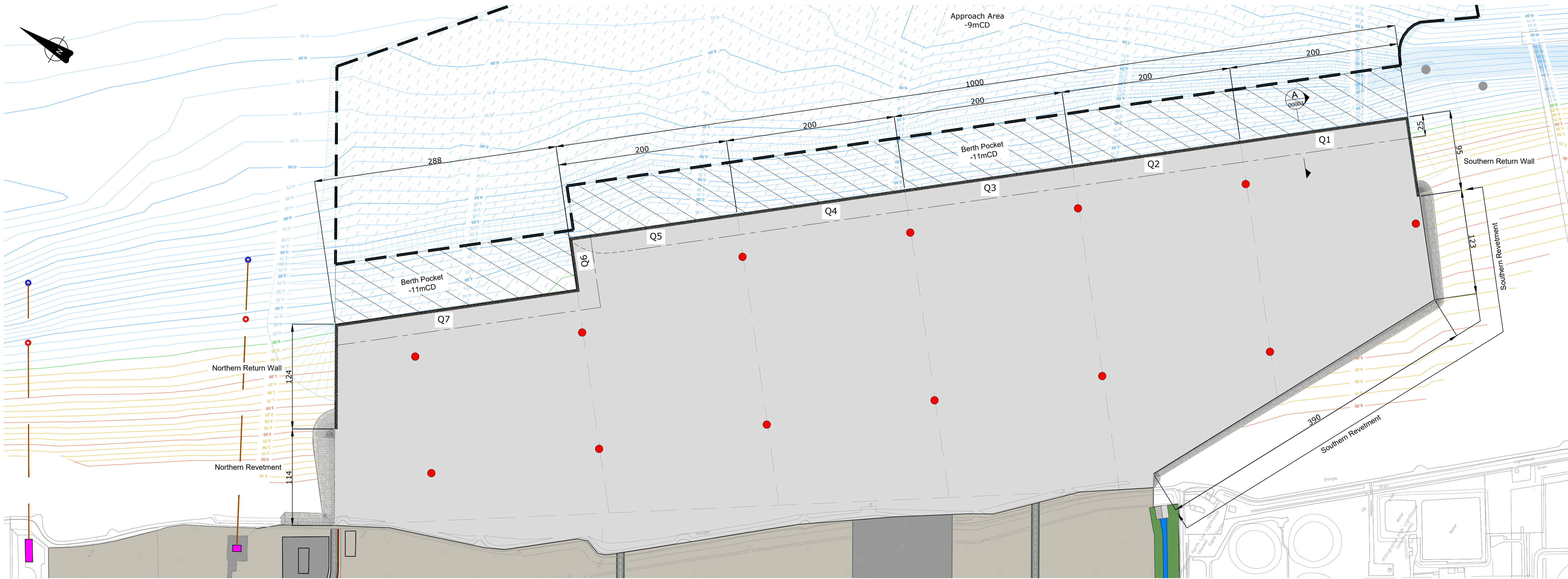
Project:	ABLE Marine Energy Park
Client:	ABLE UK Limited
Drawing Title:	Indicative Masterplan Changes

FOR APPROVAL			
Scale:	1:5000@A1	Drawn By:	D Almeida
Checkd By:	R Crum	Approved By:	R Crum
Date:	03/12/2020	Date:	04/12/2020
Drawing No:	AME-036-00001	Revision:	A





Consented Quay Design
Scale 1:2500



Proposed Quay Design
Scale 1:2500

- Key & Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Ordnance Datum (mAOD) unless noted otherwise.
- Indicative Lighting Columns (50m)
 - Exist. Cooling Water Intake
 - Exist. Cooling Water Outfall

Rev.	Date	Issued for Approval	Comments	Drawn	Checked	Appr.
A	04/12/2020			DJA	RC	RE

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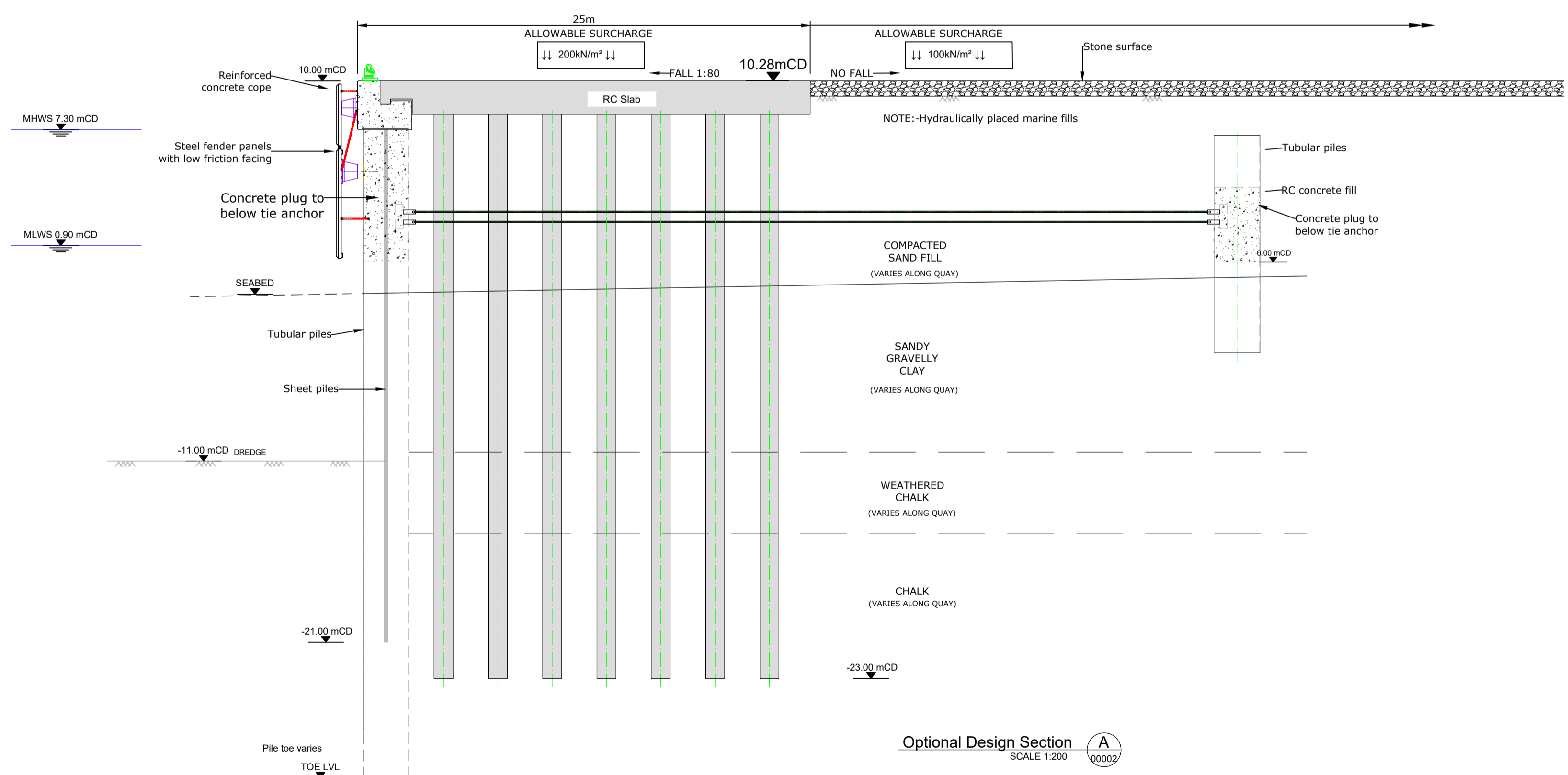
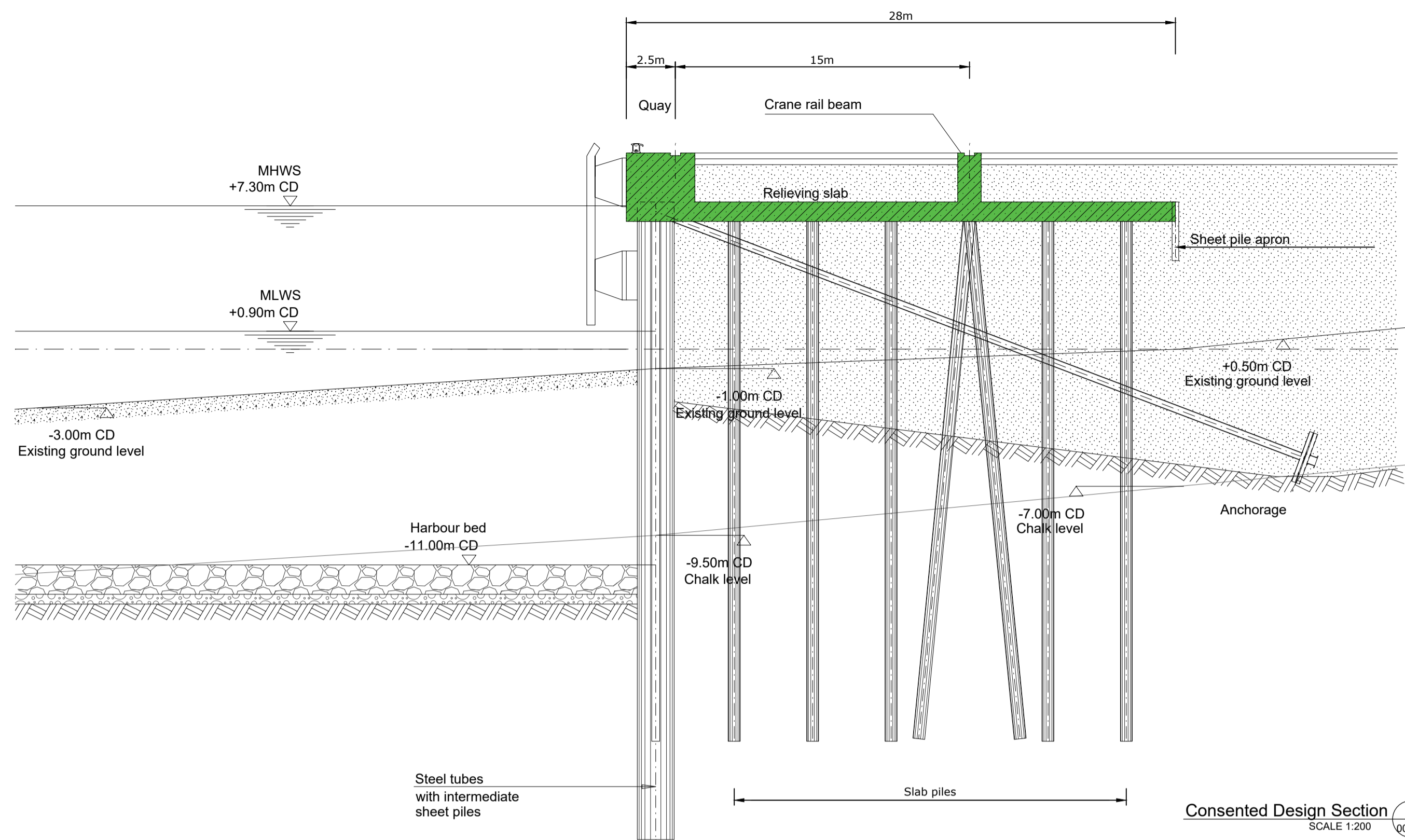
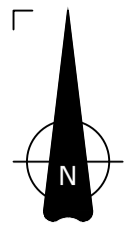
Project: ABLE Marine Energy Park
Client: ABLE UK Limited
Drawing Title: Quay General Arrangement Changes

FOR APPROVAL

Scale:	Drawn By:	Checked By:	Approved By:
1:2500@A1	D Almeida	R Crum	R Crum

Date: 03/12/2020 04/12/2020 04/12/2020
Drawing No: AME-036-00002 Revision: A





Note:
The Applicant seeks consent for either the consented or the optional design to be constructed

- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Ordnance Datum (mAOD) unless noted otherwise.

Legend

Optional relieving slab

Rev.	Date	Comments	Des.	EC.	App.
A	04/12/2020	Issued for Approval	DJA	RC	RE

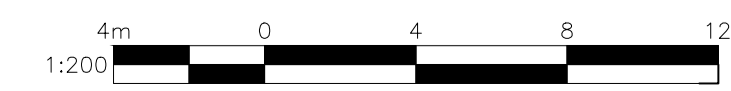


Project: ABLE Marine Energy Park
 Client: ABLE UK Limited
 Drawing Title: Section A for Quay Typical Section

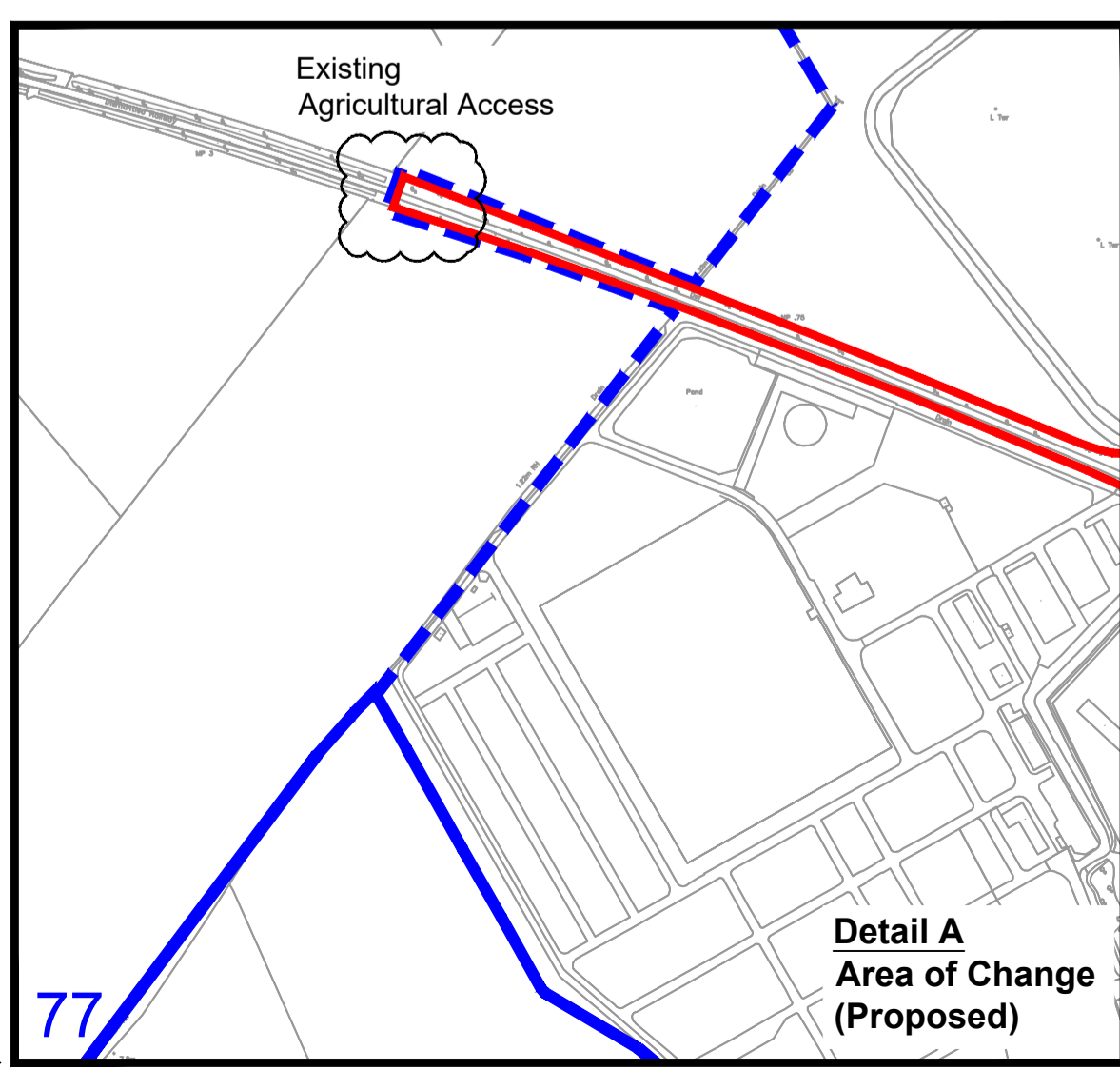
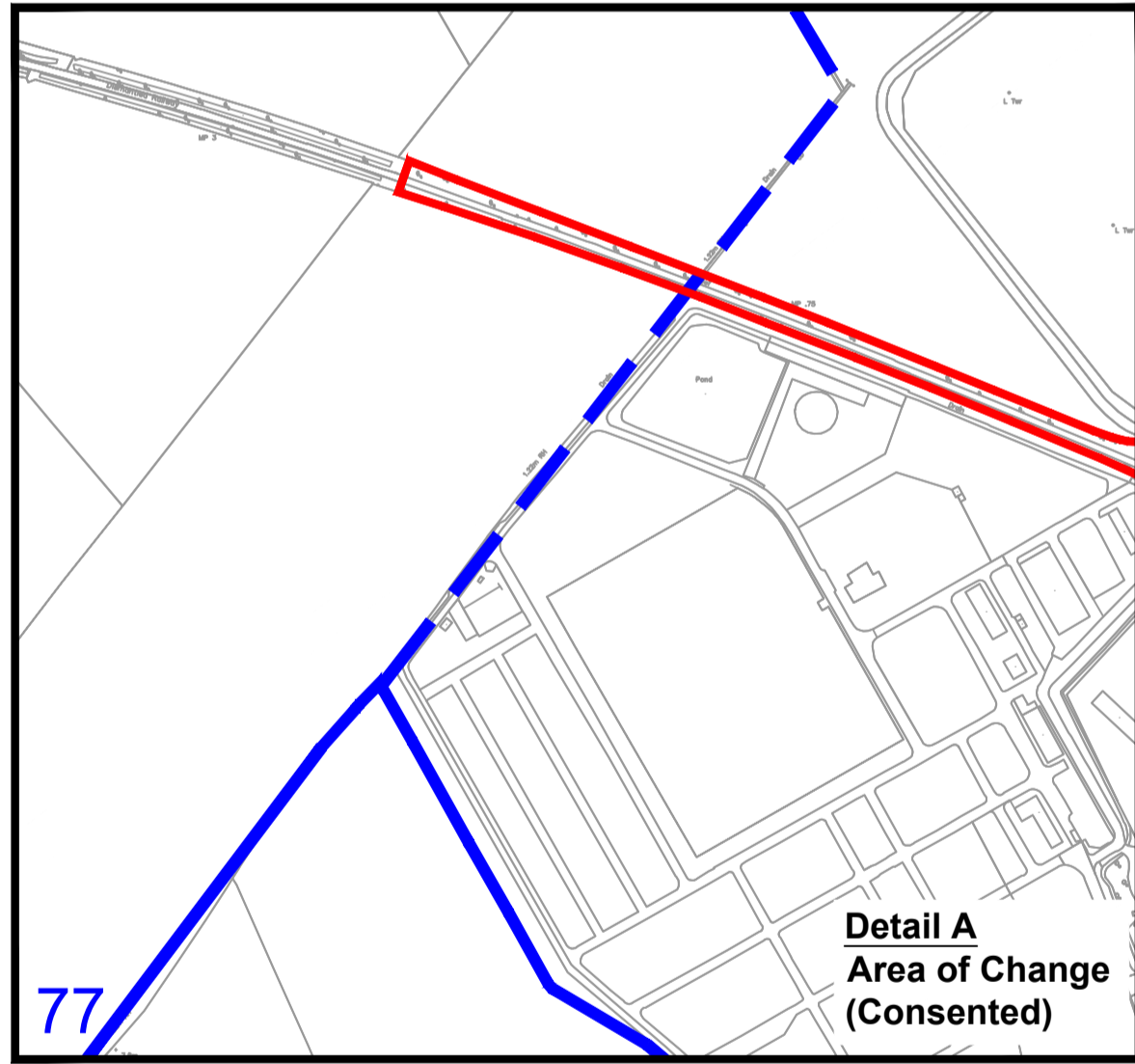
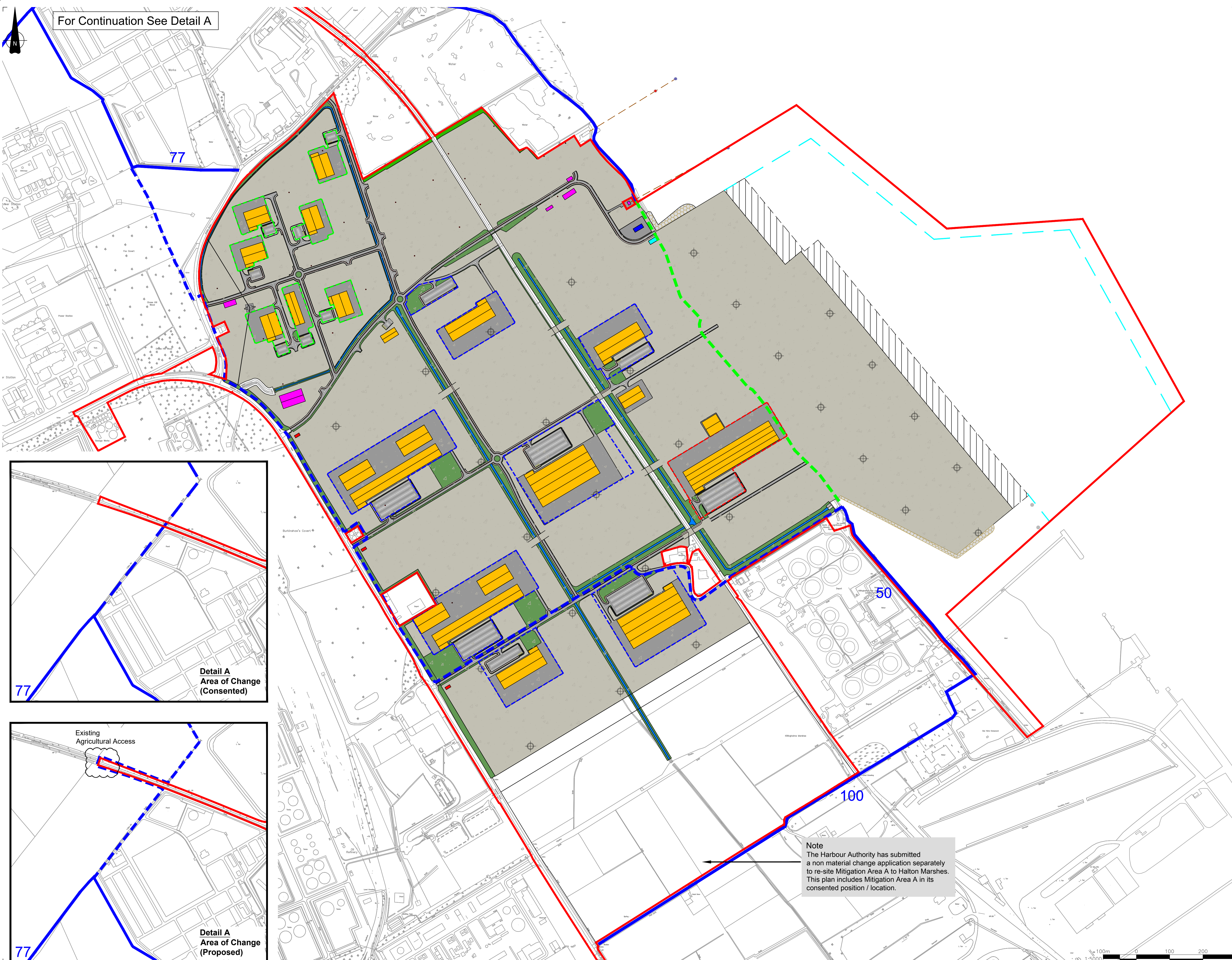
FOR APPROVAL

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Date: 03/12/2020 04/12/2020 04/12/2020
 Drawing No: AME-036-00003 Revision: A



For Continuation See Detail A



Note
The Harbour Authority has submitted a non material change application separately to re-site Mitigation Area A to Halton Marshes. This plan includes Mitigation Area A in its consented position / location.

- Key & Notes
- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Ordnance Datum (mAOD) unless noted otherwise.
- Development consent Order Boundary
— Existing Footpaths
— Footpath to be Diverted
- - - Proposed Footpath No. 50/77/100 Diversions
- Notes**
For footpath sections, see drawing AME - 02011

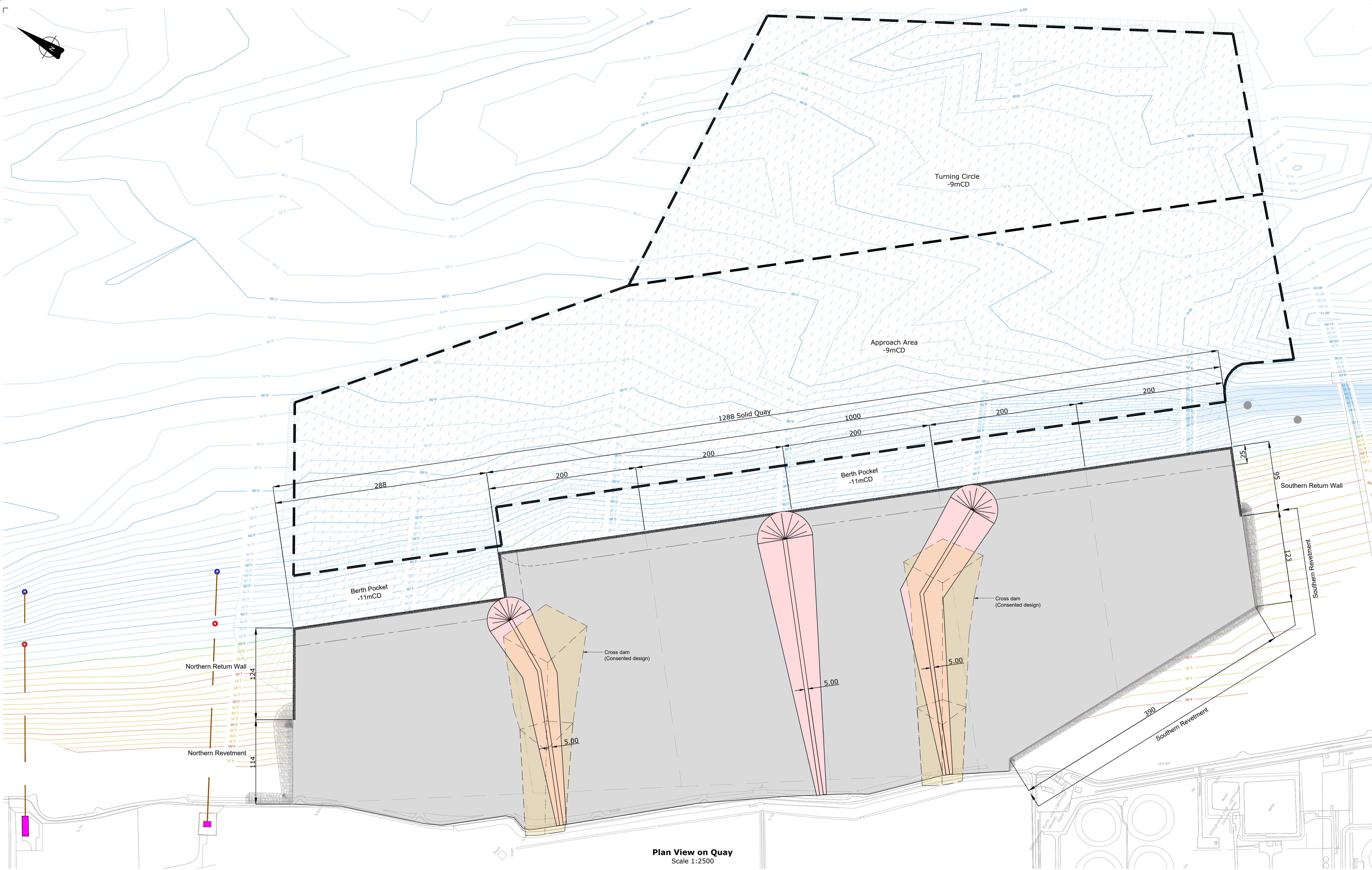
Rev.	Date	Comments	Des.	Chk.	App.
A	04/12/2020	Issued for Approval	DJA	RC	RE

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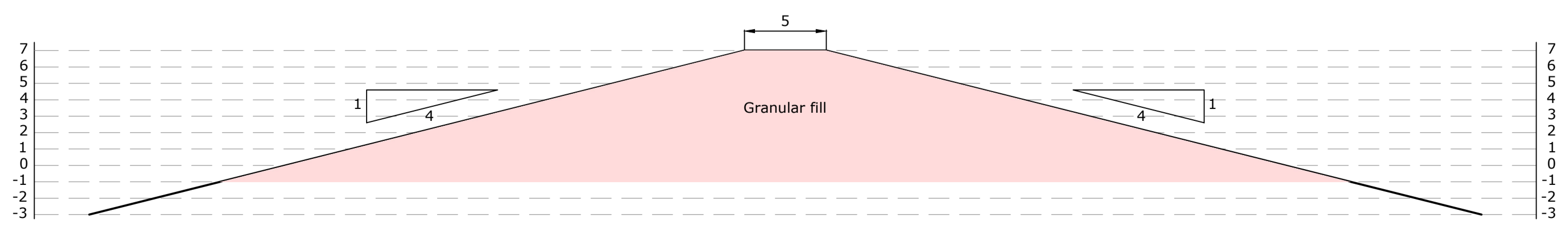
Project: ABLE Marine Energy Park
Client: ABLE UK Limited
Drawing: Changes to Footpath No.50 Diversion Section Locations

FOR APPROVAL

Scale:	Drawn By:	Checked By:	Approved By:
1:5000@A1	D Almeida	R Crum	R Crum
Date:	04/12/2020	04/12/2020	04/12/2020
Drawing No:	AME-036-00004	Revision:	A



Plan View on Quay
Scale 1:2500



Typical Section on Proposed Cross Dams
Scale 1:250

- Key & Notes**
- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Ordnance Datum (mAOD) unless noted otherwise.
- Exist. Cooling Water Intake
● Exist. Cooling Water Outfall
- Areas of Change**
- Cross Dam Consented Design (Indicative Details / Location)
 Proposed Design Cross Dam (Indicative Details / Location)

Rev.	Date	Issued for Approval	Drawn	By	Appr.
A	04/12/2020	Issued for Approval	DJA	RC	RC

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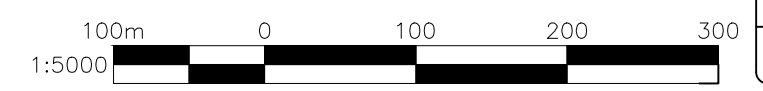
Project: **ABLE Marine Energy Park**

Client: **ABLE UK Limited**

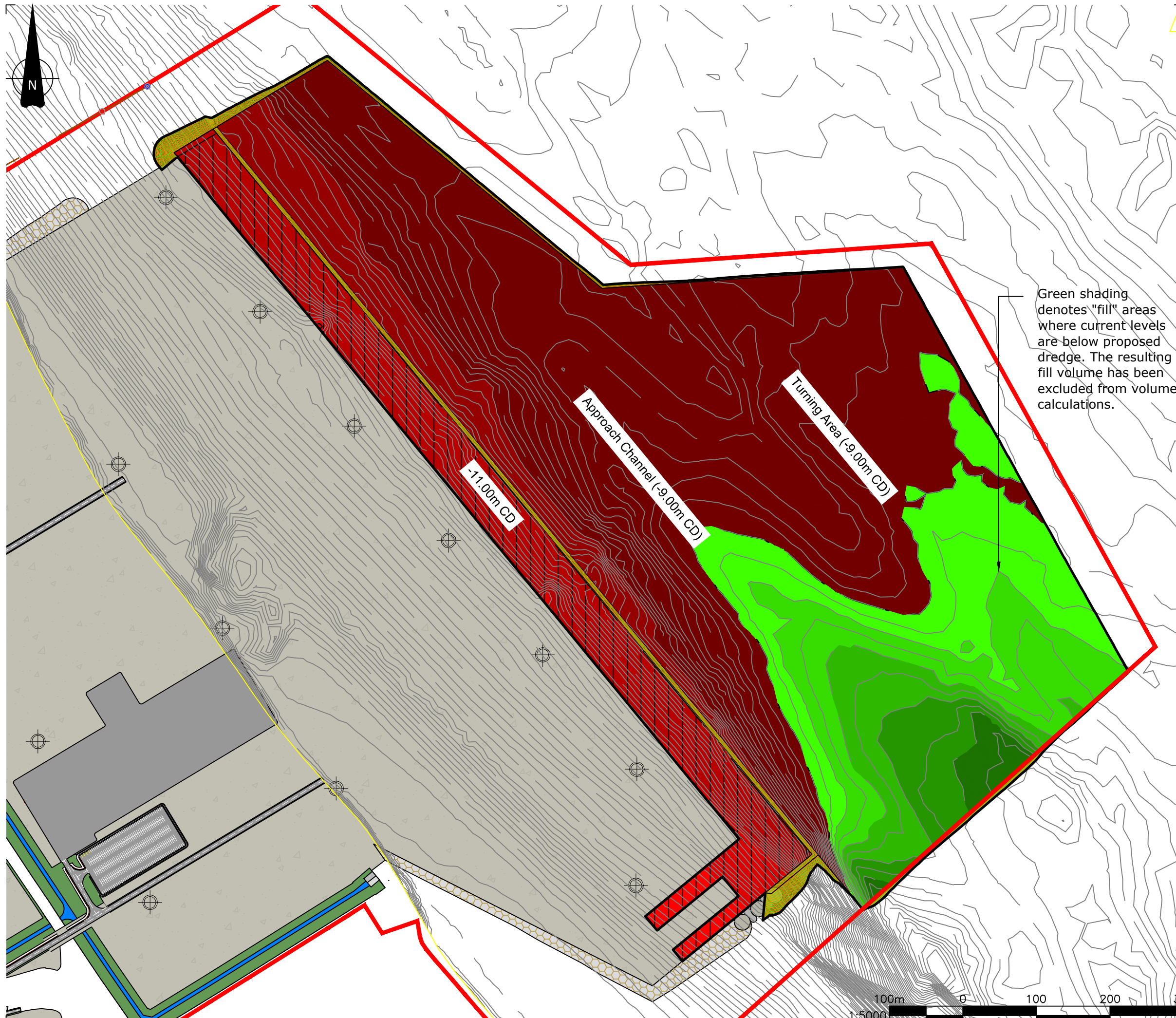
Drawing Title: **Cross Dam Indicative Details Changes**

FOR APPROVAL

Scale:	Drawn By:	Checked By:	Approved By:
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Date:	24/12/2020	04/12/2020	04/12/2020
Drawing No:	AME-036-00005	Revision:	A



Appendix 2.0 Updated Bathymetry Drawings



Green shading denotes "fill" areas where current levels are below proposed dredge. The resulting fill volume has been excluded from volume calculations.

Key & Notes

- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Chart Datum (mCD) unless noted otherwise.
0.0mAOD = 3.9mCD.
 4. Bathymetry survey and LiDAR survey data (2017-2019) covering the whole model area obtained from the Defra Portal
<https://environment.data.gov.uk/DefraDataDownload>.

Approximate volume of cut:

Total	1,367,566m³
Quay dredge boxes	763,340m ³
Approach	535,378m ³
Turning area	68,848m ³

Over-dredge approx. vol based on cut areas (shown red on plan)

Quay dredge boxes (0.5m)	51,000m ³
Approach (0.3m)	76,000m ³
Turning area (0.3m)	40,500m ³

D	07/12/2020	Rounding Error Corrected	JMH	RC	RC
C	07/12/2020	Overdredge Allowance Added	JMH	RC	RC
B	04/12/2020	Approach Volume Corrected	JMH	RC	RC
A	03/12/2020	For Information	JMH	RC	RC
Rev.	Date	Comments	Drn	Chk	App

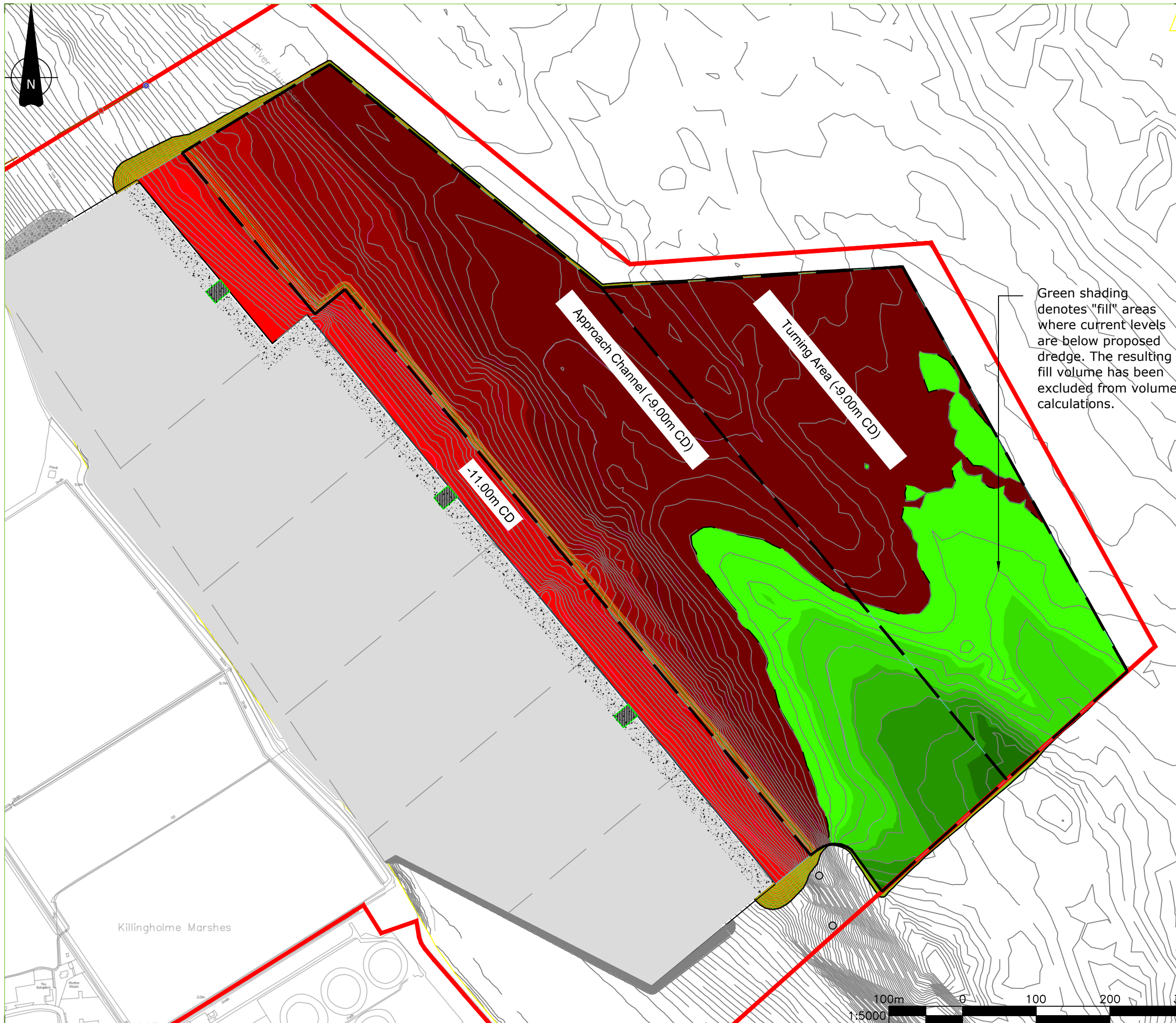


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Project:	ABLE Marine Energy Park
Client:	ABLE UK Limited
Drawing Title:	Dredge Volumes 2011 DCO

FOR INFORMATION

Scale:	1:5,000 @A3	Drawn By:	J Horsman	Checked By:	R Cram	Approved By:	R Cram
Date:	03/12/2020	Date:	03/12/2020	Date:	03/12/2020		
Drawing No:	AME-006-00119	Revision:	D				



Green shading denotes "fill" areas where current levels are below proposed dredge. The resulting fill volume has been excluded from volume calculations.

Key & Notes

- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
 3. All levels are in metres (m) above Chart Datum (mCD) unless noted otherwise.
0.0mAOD = 3.9mCD.
 4. Bathymetry survey and LiDAR survey data (2017-2019) covering the whole model area obtained from the Defra Portal
<https://environment.data.gov.uk/DefraDataDownload>.

Approximate volume of cut:

Total	1,395,908m³
Quay dredge boxes	706,940m ³
Approach	620,120
Turning area	68,848m ³

Over-dredge approx. vol based on cut areas (shown red on plan)

Quay dredge boxes (0.5m)	56,000m ³
Approach (0.3m)	76,500m ³
Turning area (0.3m)	40,500m ³

C	07/12/2020	Overdredge Allowance Added	JMH	RC	RC
B	04/12/2020	Turning Area Volume Corrected	JMH	RC	RC
A	01/12/2020	For Information	JMH	RC	RC
Rev.	Date	Comments	Drn	Chk	App



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Project:	ABLE Marine Energy Park
Client:	ABLE UK Limited
Drawing Title:	Dredge Volumes 2020 Revision

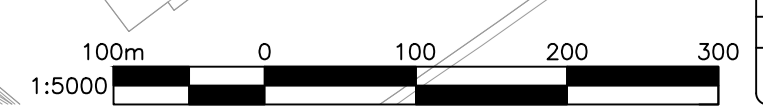
FOR INFORMATION

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Date:	01/12/2020		03/12/2020		03/12/2020		
Drawing No:	AME-006-00120	Revision:	C				

Appendix 3.0 Land Development Plans

- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.

- DCO Boundary
- Roads
- Paved Car Storage
- Unpaved Car Storage
- Undeveloped Agricultural Use

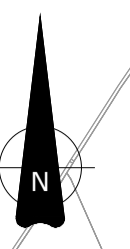


Rev.	Date	Information Issue	Comments	EDA	AC	RC	App.
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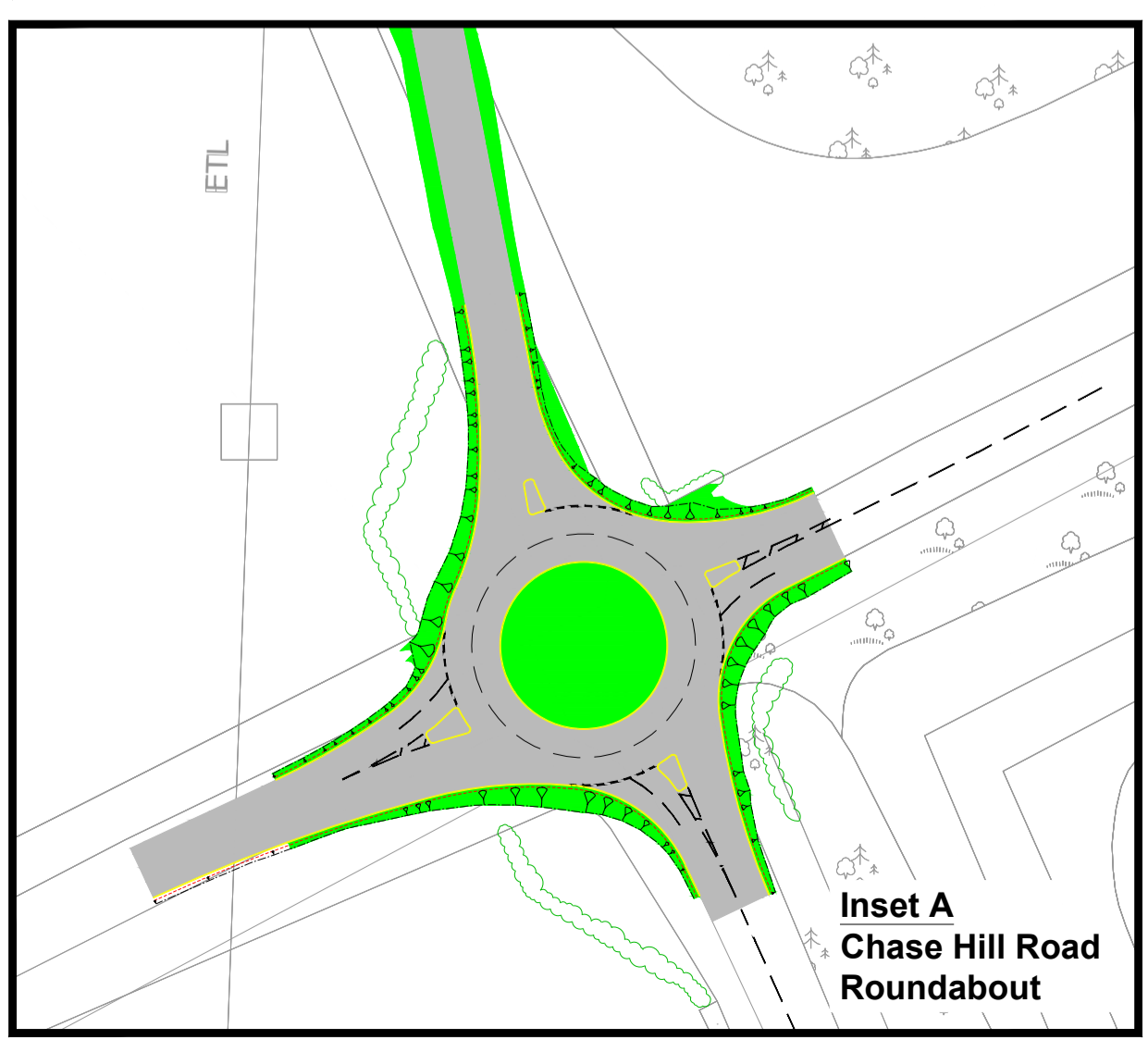
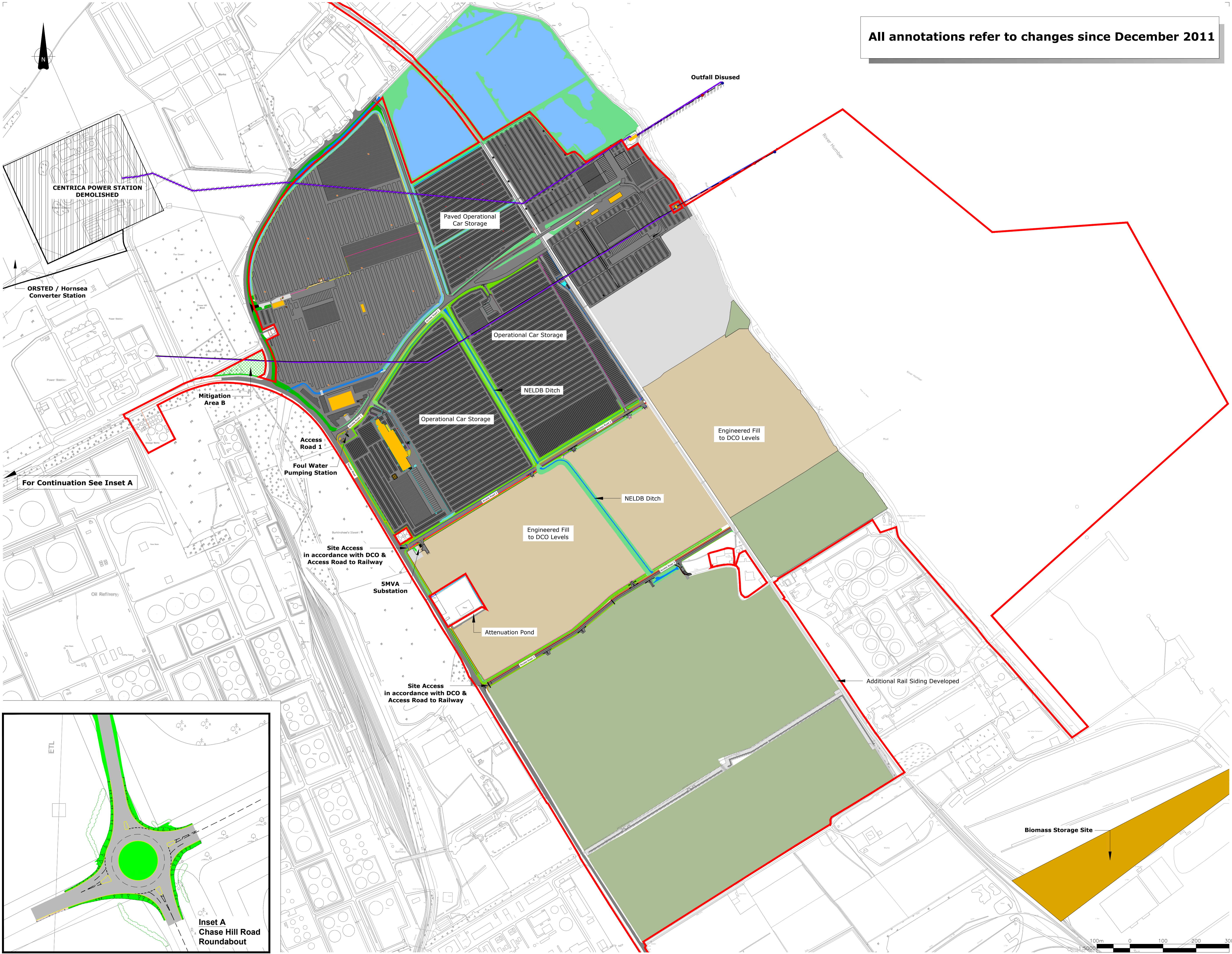
Project:	ABLE Marine Energy Park
Client:	ABLE UK Limited
Drawing Title:	AMEP Site Land Development December 2011

FOR INFORMATION			
Scale:	1:5,000 @A1	Drawn By:	D Almeida
Date:	25/01/2021	Checked By:	R Crum
Drawing No:	AME-002-00116	Approved By:	R Crum
		Revision:	A



All annotations refer to changes since December 2011

- Key & Notes**
- Notes**
1. Do not scale from this drawing. If in doubt - Ask.
 2. All dimensions are in metres (m) unless noted otherwise.
- DCO Boundary
 - Roads
 - Paved Car Storage
 - Unpaved Car Storage
 - Engineered Fill to DCO Levels
 - Undeveloped Agricultural Use



Rev.	Date	Information Issue	Comments	EA	RC	RC
A	23/01/2021	Information Issue		EA	RC	RC

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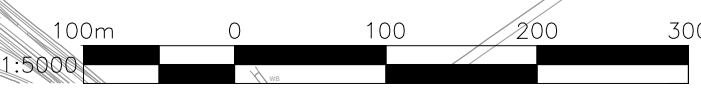
Project: **ABLE Marine Energy Park**

Client: **ABLE UK Limited**

Drawing Title: **AMEP Site Land Development January 2021**

FOR INFORMATION

Scale:	Drawn By:	Checked By:	Approved By:
1:5,000 @A1	D Almeida	R Crum	R Crum
Date:	25/01/2021	23/01/2021	23/01/2021
Drawing No:	AME-002-00117	Revision:	A



Appendix 4.0 Marine Heritage Receptors



Site Location within marine heritage receptors

Figure 1