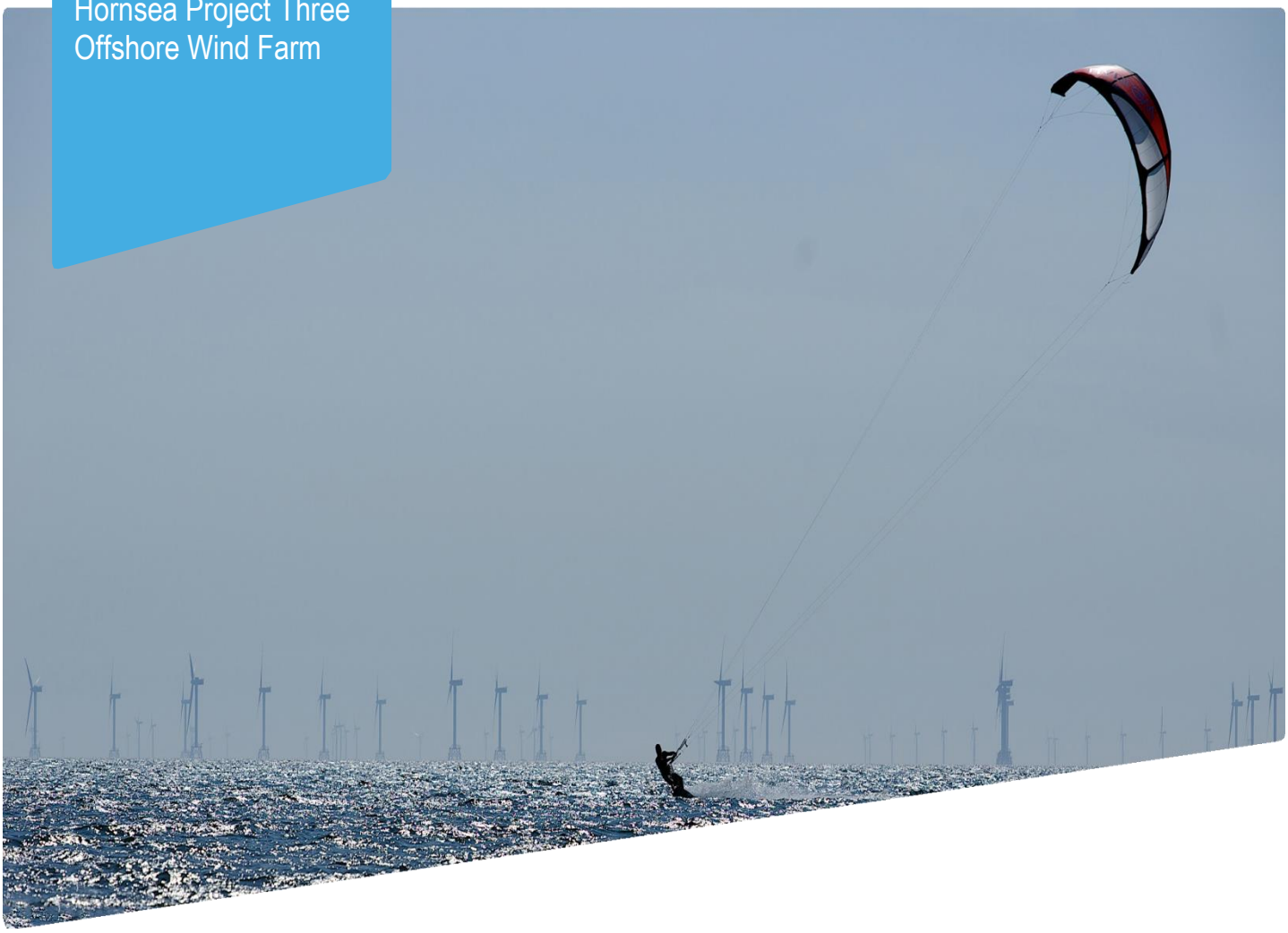
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Response to the Secretary of State's Consultation
Appendix 6: Outline Cable Specification and Installation Plan

Date: February 2020

Hornsea 3
Offshore Wind Farm

Ørsted

Response to the Secretary of State's Consultation

Appendix 6: Outline Cable Specification and Installation Plan

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.

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1. Outline Cable Specification and Installation Plan

1.1 The Applicant has considered the submissions made to date (both in writing and orally) from Natural England with regard to their concerns relating to Hornsea Three sandwave clearance (as part of site preparation), cable burial and cable protection matters within designated sites.

1.2 One of the key messages that the Applicant has taken from these submissions is the need to provide Natural England with as much clarity as possible as to how and when detailed information relating to the Hornsea Three cable installation process (inclusive of any site preparation and/or protection works) will come forward and how the specific activities are controlled within the Development Consent Order (DCO), so that they can have greater confidence in the Applicant's assumptions relating to site preparation, cable burial and deployment of cable protection measures.

1.3 The Applicant notes that the existing Deemed Marine Licences (dMLs) include a number of conditions that will trigger the need for the provision of this information to the MMO for approval prior to the commencement of works. The principal post consent plan where this information will be presented in detail will be the Cable Specification and Installation Plan (CSIP). To facilitate greater clarity with specific regard to sandwave clearance and also cable protection, the Applicant is proposing that the CSIP will include two sub-plans in the form of a Sandwave Clearance Plan and a Cable Protection Plan where these activities occur within existing designated sites (i.e. North Norfolk Sandbanks and Saturn Reef Special Areas of Conservation (SAC), the Wash and North Norfolk Coast SAC and the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ)).

1.4 At Deadline 4, the Applicant submitted a revised draft DCO (REP4-003) which commits to the following (see Schedule 11, Part 2, Condition 13(1)(h) and Schedule 12, Part 2, Condition 14(1)(h)):

(h) a cable specification and installation plan, to include—

(i) technical specification of offshore cables below MHWS, including a desk-based assessment of attenuation of electro-magnetic field strengths, shielding and cable burial depth in accordance with industry good practice;

(ii) a sandwave clearance plan for all designated sites affected, including details of the volumes of material to be dredged, timing of works, locations for disposal and monitoring proposals;

(iii) a detailed cable laying plan for the Order limits, incorporating a burial risk assessment encompassing the identification of any cable protection that exceeds 5% of navigable depth referenced to Chart Datum and, in the event that any area of cable protection exceeding 5% of navigable depth is identified, details of any steps (to be determined following consultation with the MCA) to be taken to ensure existing and future safe navigation is not compromised or similar such assessment to ascertain suitable burial depths and cable laying techniques, including cable protection;

(iv) a cable protection plan for all designated sites where cable protection is required, including details of the volumes, material, locations and seabed footprints for cable protection measures, where required, consideration of alternative methods of protection and monitoring proposals;

(v) proposals for the volume and areas of cable protection to be used for each cable crossing; and

(vi) proposals for monitoring offshore cables including cable protection during the operational lifetime of the authorised project which includes a risk based approach to the management of unburied or shallow buried cables, and, where necessary, details of micrositing through any European Site.

1.5 This document serves as an Outline Cable Specification and Installation Plan, and presents detail on:

- The structure of the CSIP;
- Cable burial and protection decision making process;
- Outline content of the Sandwave Clearance Plan for designated sites; and
- Outline content of the Cable Protection Plan for designated sites.

2. Structure of the CSIP

2.1 It is proposed that the CSIP would be developed in line with standard industry approach to the CSIP documentation and therefore, adopt the following structure (noting the inclusion of the sandwave clearance and cable protection plans):

1) Introduction;
2) Project Context;
3) Scope and Objectives of the CSIP;
4) Scope of the CSIP;
5) Statements of Compliance;
6) Updates and Amendments to the CSIP;
7) Technical Specifications of Cables;
8) EMF Attenuation Study;
9) Cable Burial Risk Assessment (CBRA);
10) Sandwave Clearance Plan;
11) Cable Laying Plan and Installation Methodology; and
12) Cable Protection Plan.
13) Principles for Identification of Sandwave Clearance Disposal Locations within marine protected areas (see Annex A).
14) Change Tracker (see Annex B)

3. Cable Burial and Protection Decision Making Process

3.1 The Applicant has made clear throughout its submissions and responses to interested parties that use of cable protection is considered a last resort to ensuring asset integrity, and that burial of cable will always be the preferred protection solution, as this provides the best protection for cables (see section 3 of the Cable Protection in Designated Sites clarification note; REP1-138).

3.2 The Applicant acknowledges that it will be important, particularly within the areas where the cables intersect with designated sites, for there to be ongoing dialogue between the Project and the relevant Statutory Nature Conservation Bodies (SNCBs) as the CSIP is developed. It is proposed that an Ecological Clerk of Works (ECoW) will be responsible for ensuring this coordinated approach to the development of the plan. The ECoW will be the main point of contact for SNCBs throughout the pre-construction, construction and post-construction phases of the project. The ECoW will form an interface between the Hornsea Three engineering and consents teams, as well as briefing contractors to ensure compliance with the DCO and any further measures agreed through this plan. Wherever appropriate, representatives from the Hornsea Three engineering team will be present during consultation meetings with the MMO and Natural England.

3.3 To aid Natural England at this stage the Applicant has sought to map out the typical stages of the development of the CSIP and identify how and where it may be sensible for engagement between both parties to occur, and this is reflected within Figure 3.1. As indicated in Figure 3.1 below, further detail on SNCB consultation relating to sandwave clearance activities and cable protection installation are outlined in Figure 4.1, Figure 5.1 and Figure 5.2, although the two key stages of pre-construction consultation with SNCBs as outlined in Figure 3.1 are as follows:

- **Consultation to inform contractor tendering:** To be undertaken prior to contractor appointment and once a complete CBRA has been produced. This will enable SNCBs to provide feedback to be incorporated into the contractor ITT documents, if appropriate. As indicated in Figure 3.1, full site specific survey data may not be available at this point, but this would allow SNCBs to provide input into the tendering process, emphasising the high level of attention to be placed on cable installation within designated sites and providing guidance on the principles for environmental protection for inclusion in tender documentation.
- **Pre-installation Consultation:** This phase of consultation would be undertaken following contractor appointment and detailed design. Consultation would be led by the project ECoW, with key contacts from Ørsted engineering and consents and installation contractors (e.g. environmental compliance officer, if appropriate) also in attendance. The purpose of this consultation would be to inform contractor planning of installation campaigns and ensure all environmental considerations are properly communicated to contractors.

3.4 Sections 4 and 5 provide further detail on consultations to be undertaken and information provided during these consultations, in relation to sandwave clearance and cable protection. It would be expected that these would form part of the consultation outlined in Figure 3.1, to ensure a holistic and coherent strategy. The Applicant would welcome discussion with the MMO and SNCBs on the most efficient and effective consultation strategy.

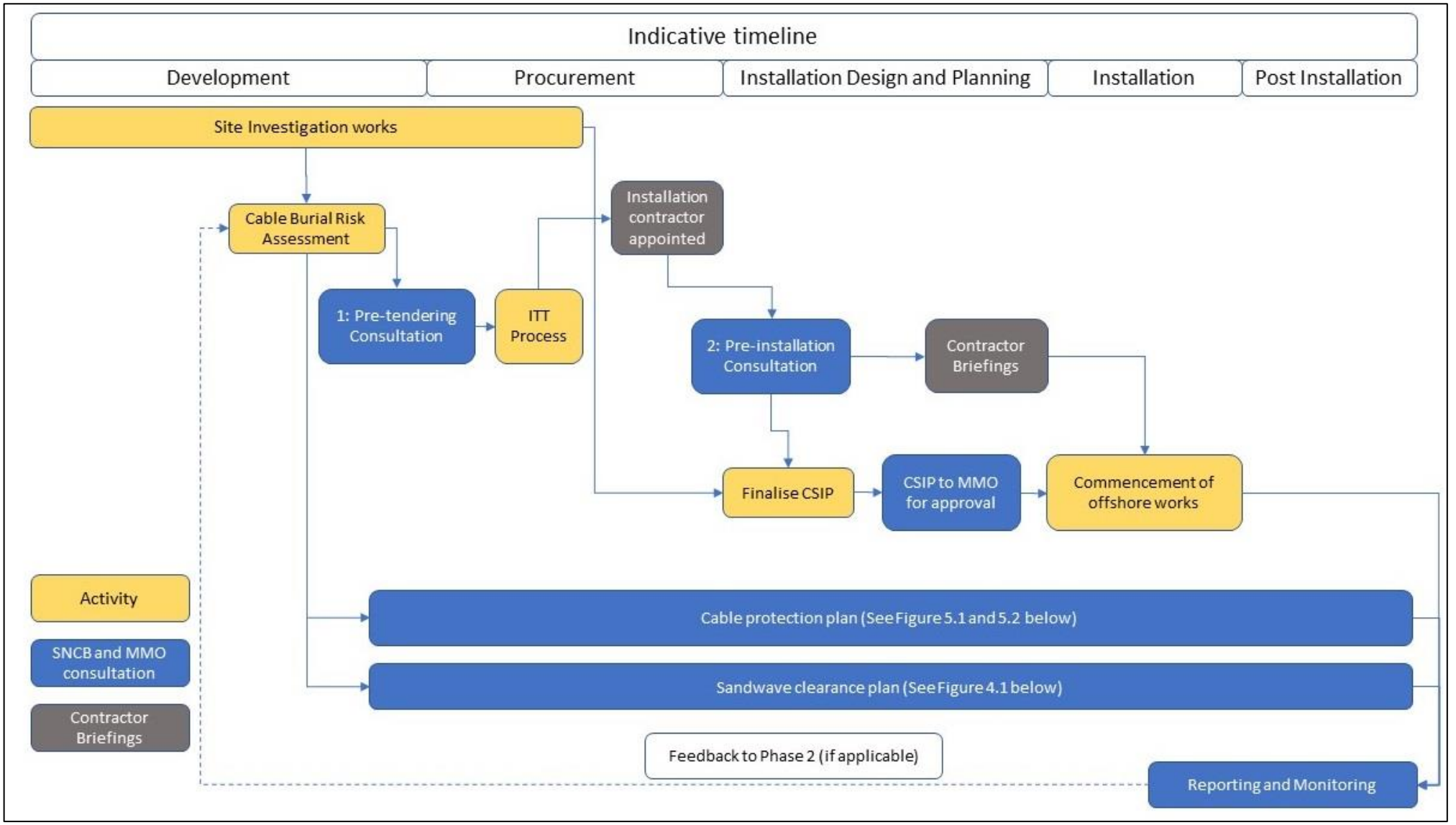

Figure 3.1: Draft consultation process on Cable Specification and Installation Plan and indicative timelines.

4. Outline Sandwave Clearance Plan

Overview

4.1 This document will be a live document which will relate to sandwave clearance activities within designated sites. This document has been drafted following comments within the Natural England and JNCC Relevant Representation (RR-097) that a robust project plan should be provided, defining clear project parameters for Hornsea Three sandwave clearance activities within the North Norfolk Sandbanks and Saturn Reef SAC. The purpose of this document will ultimately be to demonstrate compliance with the consent with regard to the extent, nature and location of any sandwave clearance activity within designated sites, but will also:

- Facilitate proactive and advance communication between Hornsea Three and the SNCBs with regard to sandwave clearance activities and associated monitoring within designated sites throughout all stages of cable installation; and
- To ensure that any sandwave clearance activities and associated disposal within designated sites are reported to SNCBs in an auditable and timely manner, within limits set out in the DCO, Environmental Statement and the Report to Inform Appropriate Assessment (RIAA; APP-051).

4.2 This will ensure SNCBs have a full and real time understanding of cable installation activities particularly within designated sites, allowing them to manage activities within the sites and gain a better understanding of the effects of these activities on designated features. Accordingly, clear distinction will be made within the Sandwave Clearance Plan for clearance activity planned with each individual designated site. This could then be used by the relevant SNCB to provide evidence-based advice on future operations within the relevant designated site.

Outline Document Structure

4.3 It is proposed that the Sandwave Clearance Plan will contain information on:

- The maximum design scenario presented within the Environmental Statement, RIAA and the DCO;
- The location, timing and methodology of any proposed sandwave clearance works (and associated disposal activity);
- The context of the proposed clearance works in relation to the relevant designation features, including:
    - NNSSR SAC: Annex I sandbanks;
    - NNSSR SAC: Annex I reefs;
    - WNNC: Annex I sandbanks and relevant sub-features (Subtidal Sand, Subtidal Mixed Sediments and Subtidal Coarse Sediments); and
    - WNNC: Annex I reefs.
- Roles and responsibilities and key contacts (noting the prominent role of the ECoW); and
- Communication procedures and timescales.

Consultation

4.4 Consultation on the clearance proposals will centre around:

- Presentation of final ground model based on site specific pre-construction geophysical and geotechnical data obtained from the pre-construction site investigation works;
- Details of locations where sandwave clearance is required to install cable below reference seabed level;
- Expected volumes of sediment to be dredged and disposed;
- Proposed locations for disposal, in line with the Principles for Identification of Sandwave Clearance Disposal Locations within marine protected areas (see Annex A);
- Mechanisms for communication to contractors emphasising the need to act with care and minimise seabed impacts within designated sites. To include toolbox talks, provision of accurate shapefiles for key habitats (e.g. reefs);
- Discussion of contractor briefings, which may include agreed thresholds with reference to maximum design scenarios and DCO commitments;
- Monitoring proposals for sandwave clearance, including consideration of recovery of cleared sandwaves and disposal areas if within designated sites.

4.5 The consultation process with SNCBs and contractors, with indicative timelines, is shown in Figure 4.1 (Note: consultation events would be aligned with those set out in Figure 3.1 to ensure a holistic and coherent approach across the project). All consultation with SNCBs and contractors will be led by the Hornsea Three ECoW, with engineering input as required.

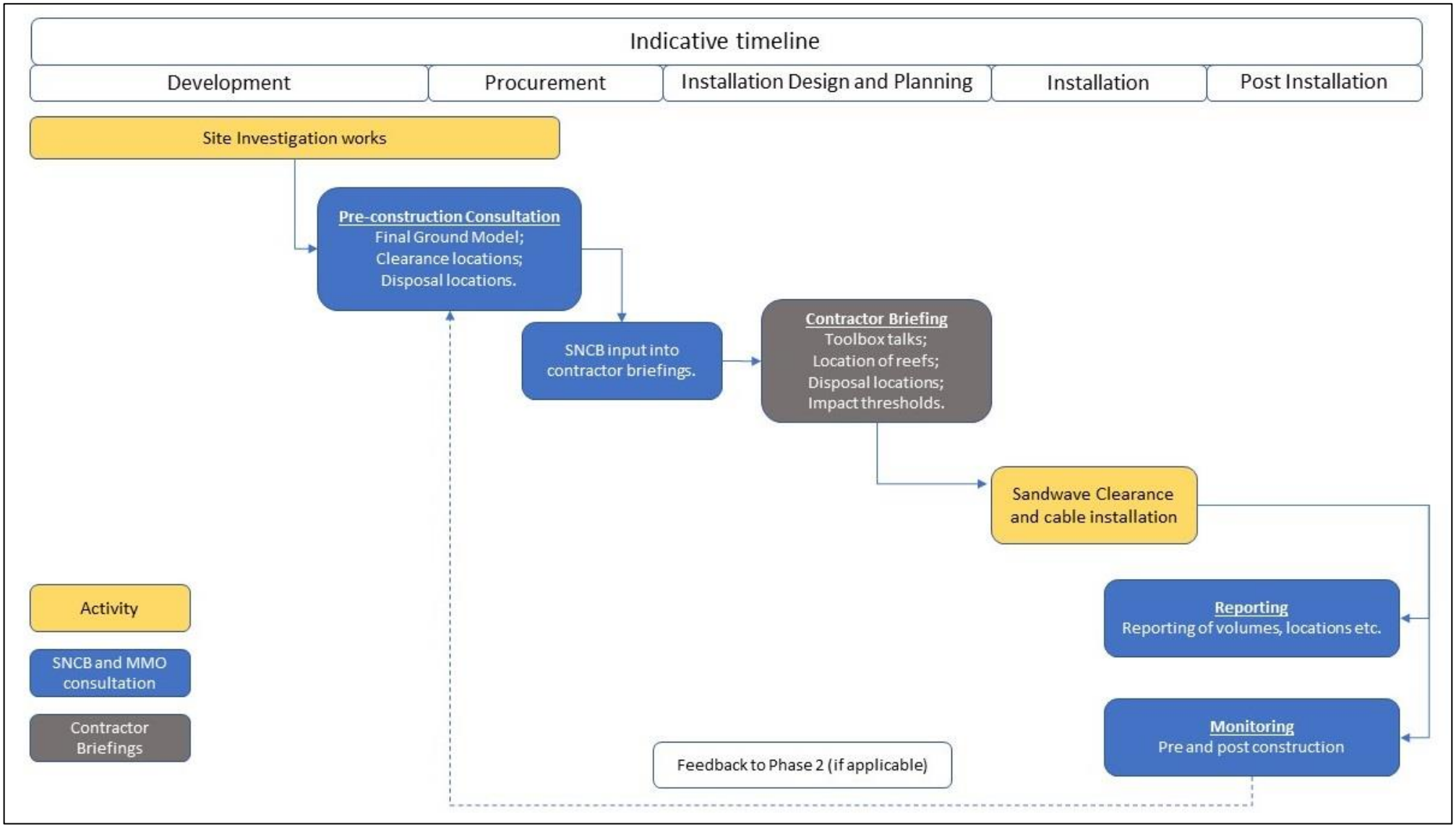

Figure 4.1: Outline Sandwave Clearance Plan consultation with indicative timelines.

Reporting and compliance

4.6 Details of actual sandwave clearance activities to be reported as soon as possible following clearance and disposal activities undertaken within designated sites, referring back to the limits stated in the maximum design scenario and DCO and will include confirmation on the:

- Volume of material dredged;
- Footprint of dredging;
- Locations of dredge disposal, including a plan showing these locations.

4.7 The maximum design scenarios for the footprint of sandwave clearance activities and the volume of sandwave clearance material to be disposed of within each designated site, as assessed in the Environmental Statement, the RIAA and the MCZ Assessment (APP-104; Appendix 5 to Applicant's Response), are presented in Table 4.1.

Table 4.1: Maximum design scenario for the volumes of sandwave clearance material to be disposed of within each designated site.

	North Norfolk Sandbanks and Saturn Reef SAC	Wash and North Norfolk Coast SAC	Cromer Shoal Chalk Beds MCZ
Sandwave clearance footprint (m^2)	2,880,000	999,000	90,000
Volume of material to be disposed (m^3)	619,700	48,000	1,000

Monitoring and future management

4.8 Post construction monitoring within each designated site will be reported to the relevant SNCB, with reports and data provided to SNCB in a format which best allows them to understand the effects on the designated features. This is in line with the Conservation Objectives of the North Norfolk Sandbanks and Saturn Reef SAC, i.e. Table 1 of the Supplementary Advice on Conservation Objectives (SACO): Annex I Sandbanks slightly covered by seawater all the time states: *JNCC advise a restore objective which is based on expert judgment; specifically, our understanding of the feature's sensitivity to pressures which can be exerted by ongoing activities i.e. oil and gas sector activities and cabling. Our confidence in this objective would be improved with longer term monitoring and access to better information on the activities taking place within the site.*

4.9 The proposals within this plan would help the relevant SNCB to better understand the effect of sandwave clearance activities within the relevant designated site. This could be used by the SNCB to provide evidence based advice on future operations within the designated site based on site specific information, including likely timescales for recovery following dredge/disposal, preferred locations for disposal etc.

5. Outline Cable Protection Plan

Overview

5.1 This document will be a live document which will relate to installation of cable protection measures within designated sites. The purpose of this document will ultimately be to demonstrate compliance with the consent with regard to the extent, nature and location of any cable protection activity, within designated sites but will also:

- Facilitate proactive and advance communication between Hornsea Three and the Statutory Nature Conservation Bodies (SNCBs) with regard to cable burial and the use of cable protection measures with particular reference to designated sites, throughout all stages of cable installation and post installation;
- Allow for decisions relating to cable protection measures to be clearly communicated to SNCBs early in the process to facilitate timely and efficient approval of other post consent plans (e.g. cable specification and installation plan and construction method statement) with the MMO; and
- To ensure that the any cable protection placed within designated sites is reported to SNCBs in an auditable manner, within limits set out in the DCO, Environmental Statement and the RIAA.

5.2 This will ensure SNCBs have a better understanding of cable protection requirements particularly within designated sites, allowing them to manage activities within the sites and gain a better understanding of the effects of these activities on designated features. Accordingly, clear distinction will be made within the Cable Protection Plan for clearance activity planned with each individual designated site. This could then be used by the relevant SNCB to provide evidence-based advice on future operations within the relevant designated site.

5.3 It is intended that the Cable Protection Plan will be a live document as it relates to cable protection measures associated with crossings (which will be specified pre-construction) and remedial protection which may be required following cable installation (discussed further below). The version submitted at the point of approval will cover, as far as reasonably practicable, the likely need for any remedial cable protection (e.g. indicated by the areas where burial may be challenging) and the measures taken to minimise the risk of insufficient cable burial in these areas. It should be noted, however, that it will not be possible to identify all areas where remedial burial will be required and therefore this component will need to be revisited during construction where any refinements to the approved plan are required.

Outline Document Structure

5.4 It is proposed that the Cable Protection Plan will contain information on:

- The maximum design scenario presented within the DCO, Environmental Statement and the RIAA.
- The location, volume and footprint of any cable protection measures within designated sites;
- The context of the proposed cable protection measures in relation to the relevant designation features, including:
    - NNSSR SAC: Annex I sandbanks;

- NNSSR SAC: Annex I reefs;
- WNNC: Annex I sandbanks and relevant sub-features (Subtidal Sand, Subtidal Mixed Sediments and Subtidal Coarse Sediments).
- WNNC: Annex I reefs.

- Roles and responsibilities and key contacts (noting the prominent role of the ECoW); and
- Communication procedures and timescales.

5.5 It is proposed that the Cable Protection Plan will distinguish between any protection required for the crossing of existing assets (e.g., cables and or pipelines), and remedial cable protection requirements.

5.6 The consultation process with SNCBs and contractors, with indicative timelines, is shown in Figure 5.1 for crossings and Figure 5.2 for remedial protection (Note: consultation events would be aligned with those set out in Figure 3.1 to ensure a holistic and coherent approach across the project). All consultation with SNCBs and contractors will be led by the Hornsea Three ECoW, with engineering input as required.

Consultation

Pre-construction consultation – Design of crossings

5.7 Consultation relating to the need for cable protection associated with the crossing of existing assets will focus on providing clarity on matters including (see Figure 5.1):

- Asset to be crossed and operator;
- Proximity to assets;
- Location of rock protection and features affected;
- Type of protection – type and grain sizes;
- Volume of rock protection;
- Area of seabed affected by crossing (with reference back to DCO commitments); and
- Mechanisms for communication with contractors emphasising the need to act with care and minimise seabed impacts within designated sites as much as practical. To include toolbox talks, provision of accurate shapefiles for key habitats (e.g. reefs) and agreed thresholds for when work stops are required, with reference to maximum design scenarios and DCO commitments;
- Monitoring proposals (focusing on effects on sediment transport and colonisation of protection material) where cable protection is placed within designated sites.

Pre-cable installation consultation – Remedial Cable Protection

5.8 Consultation relating to the need for cable protection associated with any remedial cable protection will focus on the following areas (see Figure 5.2 and Figure 3.1):

- Presentation of final ground model based on site specific pre-construction geophysical and geotechnical data within SAC to inform likely risk of any remedial cable protection;
- Discussion of the cable laying plan and installation methodology;
- Identify risks which may result in insufficient burial and mitigation taken to minimise the requirement for use of cable protection;
- Proposals for remedial burial operations, if required; and
- Mechanisms for communication to contractors as outlined above for crossings.

Post construction (prior to the operation and maintenance phase) – Remedial Cable Protection

5.9 Should burial (and remedial burial) fail following the initial installation phase (and following any remedial burial), consultation on the specific cable protection measures to be used within designated sites will be required during the construction phase (see Figure 5.2). This consultation will comprise:

- Presentation of measures taken to ensure burial and demonstrate that all other options have been exhausted;
- Specific locations and volumes of cable protection material required;
- Possible alternatives to rock protection;
- Clarification with regard to any changes required to the existing Cable Protection Plan and how the specific requirements relate to the DCO limits and worst case assumptions within the Environmental Statement and RIAA; and
- Any updates to the monitoring proposals (focusing on effects on sediment transport and colonisation of protection material) where cable protection is placed within designated sites.

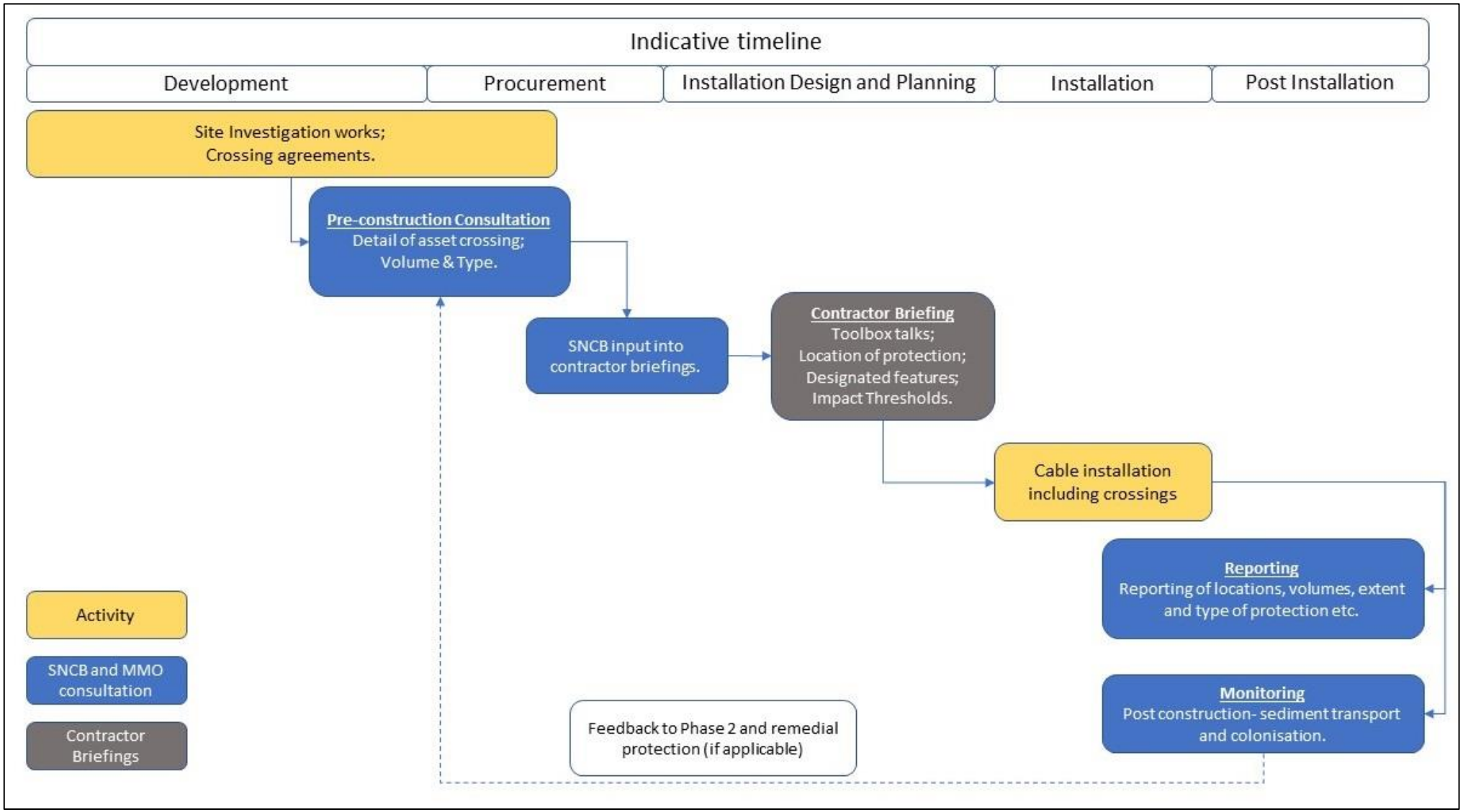

Figure 5.1: Outline consultation plan on cable crossings with indicative timelines.

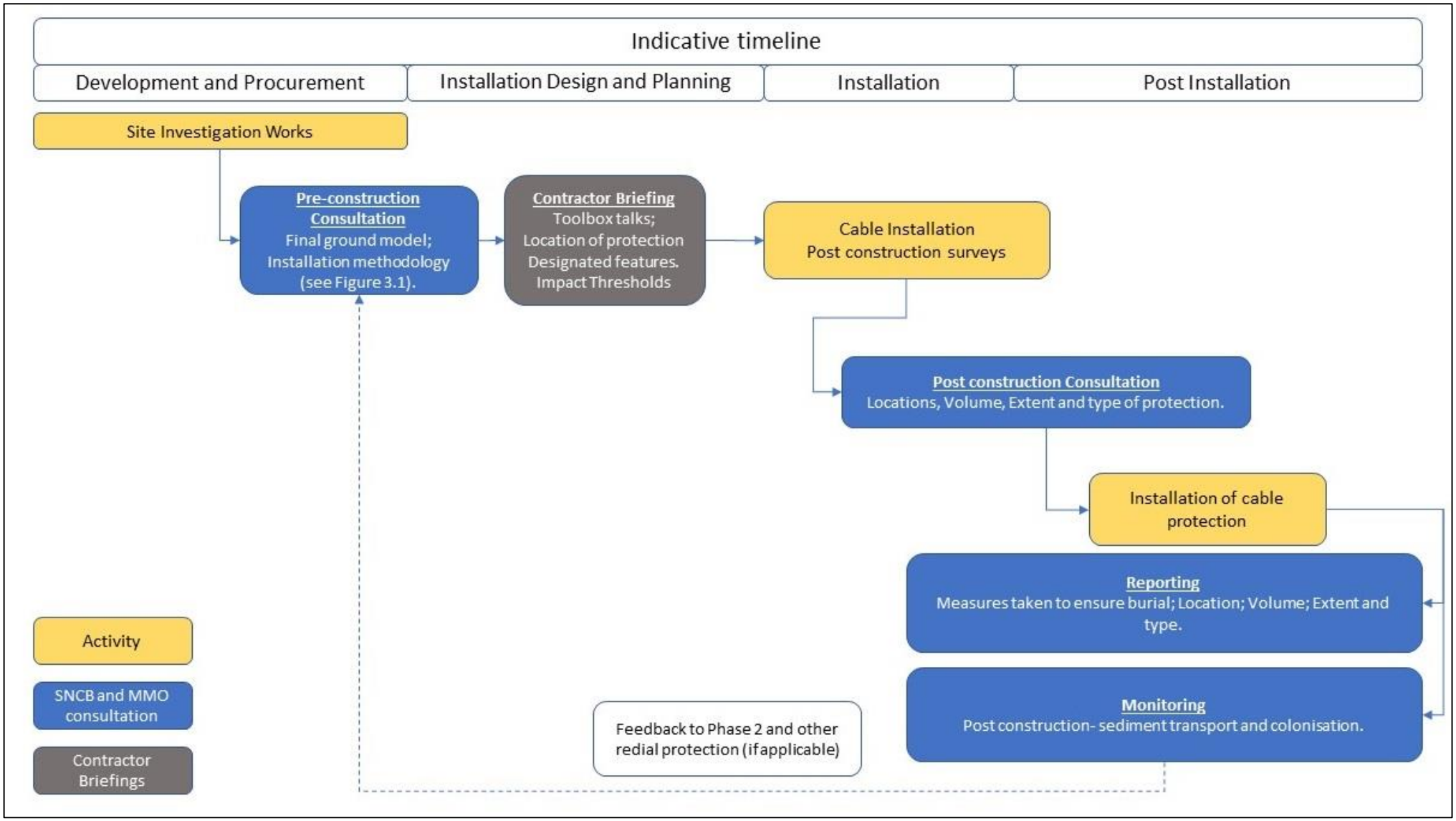

Figure 5.2: Outline consultation plan for cable burial and remedial cable protection with indicative timelines.

Operation and Maintenance Phase – Remedial Cable Protection

5.10 Should cable protection be required during the operation and maintenance phase (e.g. where cables become exposed in areas within a protected site not having existing rock protection in the years following completion of construction), this would be subject to separate marine licence application(s)). Any requirement for cable protection will be confirmed by engineering studies, with all cables buried to an appropriate depth (subject to a cable burial risk assessment). As outlined in section 3 above, cable protection is considered to be the last resort and will only be used where burial has been shown to not be possible.

Reporting and compliance

5.11 Details of all cable protection installed to be reported to the MMO and SNCBs following deployment of cable protection within designated sites, referring back to the limits stated in the maximum design scenario and DCO:

- Location of cable protection, including features affected;
- Volume and extent (horizontal and vertical) of cable protection;
- Type of protection – type and sizes;
- Area of seabed affected by rock protection (with reference back to DCO commitments).

5.12 'As built' plans displaying the location of the cable as laid with specific details of the location of buried cables and cable protection will be submitted post-construction.

5.13 The maximum design scenarios for the volume of remedial cable protection and cable/pipeline crossing material which may be installed within each designated site, as assessed in the Environmental Statement, the RIAA and the MCZ Assessment (Appendix 5 to Applicant's Response), are presented in Table 5.1.

Table 5.1: Maximum design scenarios for the volumes of remedial cable protection and cable/pipeline crossing material which may be installed within each designated site. (Cable protection volume includes replenishment of cable protection which was laid during the construction phase, up to a maximum of 25% of the maximum volume assumed.)

	North Norfolk Sandbanks and Saturn Reef SAC	Wash and North Norfolk Coast SAC	Cromer Shoal Chalk Beds MCZ
Cable protection footprint (m^2)	118,440	27,720	2,940
Cable protection volume (m^3)	211,500	49,500	5,250
Crossing footprint (m^2)	300,000	0	0
Crossing volume (m^3)	315,000	0	0

Monitoring and future management

5.14 Monitoring proposals (including full details of proposed methods and timescales) where cable protection material is applied (either for crossing or remedial) within designated sites will include:

- Effects on sediment transport; and
- Colonisation of cable protection.

5.15 Post construction monitoring within each designated site to be reported to the relevant SNCB, with reports and data provided to the MMO and relevant SNCB in a format which best allows them to understand the effects on the designated features. This is in line with the Conservation Objectives of the North Norfolk Sandbanks and Saturn Reef SAC, i.e. Table 1 of the Supplementary Advice on Conservation Objectives (SACO): Annex I Sandbanks slightly covered by seawater all the time states: *JNCC advise a restore objective which is based on expert judgment; specifically, our understanding of the feature's sensitivity to pressures which can be exerted by ongoing activities i.e. oil and gas sector activities and cabling. Our confidence in this objective would be improved with longer term monitoring and access to better information on the activities taking place within the site.*

5.16 A recent JNCC study on the effect of rock protection (primarily from oil and gas decommissioning) on the Annex I sandbanks feature of the SAC also states: *Monitoring surveys post rock dump in sensitive areas have the potential to give valuable insights in to the integrity of the existing environment post decommissioning. Current close out reports from Oil and Gas decommissioning programmes occur within four months of the completion of offshore work including debris clearance and post-decommissioning surveys. Information included within close-out reports includes results of post-decommissioning environmental sampling including any immediate consequences of the decommissioning activity. A strategy for long term monitoring is required as part of the decommissioning plan. This strategy can be modified as a result of data obtained, for example, where evidence shows no detectable changes (DECC 2011b). Tailoring future environmental monitoring surveys, for instance using cameras to assess the seabed, may provide a more accurate insight to any changes in Annex I features (extent, height and biodiversity), in this case sandbanks which are slightly covered by seawater all the time.*

5.17 The proposals within this plan would therefore help the relevant SNCB to better understand both the extent and precise locations of rock protection within the designated sites associated with Hornsea Three and the effect of rock protection on designated features (including effects on sediment transport and ecological effects). This could be used by the relevant SNCB to provide evidence-based advice on future operations and to have greater confidence in future condition assessments of the designated site.

Annex A: Draft Principles for Identification of Sandwave Clearance Disposal Locations within marine protected areas

Note: These draft Principles have been developed in consultation with MMO and Natural England for the selection of sandwave clearance disposal locations (post consent) within marine protected areas, with separate principles developed for the offshore disposal (i.e. North Norfolk Coast and Saturn Reef SAC) and the nearshore disposal (i.e. Wash and North Norfolk Coast SAC and Cromer Shoal Chalk Beds MCZ) areas. At this stage, these are DRAFT and the Applicant is continuing to engage with the MMO and Natural England following submission of the Applicant's Response, with a view to agreeing these with all parties by the end of the 28 day consultation period.

North Norfolk Sandbanks and Saturn Reef SAC:

- Material dredged from NNSSR SAC will be disposed of at disposal locations within the same designated site, which will be located as close as possible to the location from which it was dredged, ideally within the same sandwave field. Disposal within the temporary working areas adjacent to the offshore cable corridor would facilitate this. Where this is not possible (e.g. due to presence of asset crossings in the area), disposal locations will be identified as close as possible to other sandwaves in the locality (and within the relevant designated site) to ensure sediment is retained within the wider sandbank system.
- Disposal locations will avoid areas of Annex I reef habitats, including the area to be managed as Annex I reef within the NNSSR SAC, by avoiding disposal within 500 m of identified reef unless otherwise agreed by MMO and Natural England. The avoidance distance is based on standard JNCC advice for offshore Annex I reefs, where there is greater uncertainty about the extents of these habitats in further offshore waters.
- These buffers may be refined, subject to agreement with Natural England and JNCC, if sediment can be dispersed over a wider area, resulting in reduced depth of deposited sediment on the seabed.
- Disposal locations will avoid areas where asset crossings are present (i.e. to avoid overburdening of existing infrastructure) with a buffer of 250 m.
- Disposal locations will avoid areas where large disposal mounds could represent a risk to navigation (e.g. in shallow water where there is a high level of traffic), or where such risk exists the Applicant will take appropriate steps to minimise these (e.g. disposal of a thin layer of sediment over a wider area), as agreed with the MMO and in accordance with the other principles above;
- It is important that the sands from the dredged sandwaves have a similar composition to the sands within the disposal area. To ensure compatibility between the dredge and disposal locations, the following process is recommended:
    - Determine the location of the Sand features from the existing geophysical survey data (i.e. thickness and/or base of sand unit);
    - For each zone and/or protected site characterise the global properties of the sands (including particle size distributions both spatially and at different depths beneath the seabed) from the available particle size distribution data;

- This should be conducted in parallel with the seabed lithology classification from the available geophysical interpretation;
- Using the geotechnical and geophysical data within close proximity to the proposed disposal locations ensure that that the composition from both the sandwaves and disposal area are similar.

Wash and North Norfolk Coast SAC and Cromer Shoal Chalk Beds MCZ

- Material dredged from WNNC SAC or CSCB MCZ will be disposed of at disposal locations within the same designated site, which will be located as close as possible to the location from which it was dredged, ideally within the same sandwave field. Disposal within the temporary working areas adjacent to the offshore cable corridor would facilitate this. Where this is not possible (e.g. due to presence of asset crossings in the area), disposal locations will be identified as close as possible to other sandwaves in the locality (and within the relevant designated site) to ensure sediment is retained within the wider sandbank system.
- Disposal locations will avoid areas of Annex I reef habitats within WNNC SAC and Subtidal Chalk feature of the CSCB MCZ plus a 50 m buffer. No evidence of Annex I reefs have been identified in characterisation surveys, however, this would be confirmed by pre-construction geophysical and seabed imagery surveys.
- Between 50 m and 500 m of Annex I reef encountered within the offshore cable corridor, sediment will be disposed of using a fall pipe/down pipe to ensure material is disposed of close to the seabed.
- Disposal locations will avoid areas where large disposal mounds could represent a risk to navigation (e.g. in shallow water where there is a high level of traffic), or where such risk exists the Applicant will take appropriate steps to minimise these (e.g. disposal of a thin layer of sediment over a wider area), as agreed with the MMO and in accordance with the other principles above;
- Existing assets are not relevant to these designated sites.
- It is important that the sands from the dredged sandwaves have a similar composition to the sands within the disposal area. To ensure compatibility between the dredge and disposal locations, the following process is recommended:
  - Determine the location of the Sand features from the existing geophysical survey data (i.e. thickness and/or base of sand unit);
  - For each zone and/or protected site characterise the global properties of the sands (including particle size distributions both spatially and at different depths beneath the seabed) from the available particle size distribution data;
  - This should be conducted in parallel with the seabed lithology classification from the available geophysical interpretation;
  - Using the geotechnical and geophysical data within close proximity to the proposed disposal locations ensure that that the composition from both the sandwaves and disposal area are similar.

Annex B: Change Tracker

Version Number	Date	Section No	Updates