4 APPROACH TO THE ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Introduction

4.1.1 The purpose of EIA is to provide an independent assessment of a project's potential environmental impacts to enable authorities, and the public, to understand the potential impacts of the project before making decisions on whether consent for the development should be granted.

4.1.2 This section sets out the approach for the assessment of impacts which has been adopted within this ES. In summary, this section presents:

- A summary of the EIA process.
- A summary of the consultation undertaken in relation to the proposed scheme and how issues raised have been addressed through the EIA process.
- The results of the scoping exercise undertaken to define the issues to be addressed by the EIA process and the approach to be taken to the assessment of these issues;
- The approach adopted to define the baseline environment (specific details are provided for each environmental topic considered in the relevant chapter).
- The generic approach taken to assess potential impacts, including the evaluation of significance (where a different approach has been adopted for a specific topic, this is set out in the relevant chapter).
- The generic approach taken to the derivation of mitigation measures and the assessment of residual impacts.
- The approach taken to the assessment of potential YPP project-wide cumulative impacts and cumulative impacts with other non-YPP plans and projects.
- The approach taken to WFD compliance assessment.
- The approach taken to the HRA.

4.2 Environmental Impact Assessment guidance

4.2.1 The EIA has been undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) and has taken into account key policies, legislation, guidance and advice, including the following:

- Department for Communities and Local Government (DCLG) “Environmental Impact Assessment: A Guide to Good Practice and Procedures” (2006);
- Institute of Ecology and Environmental Management (IEEM) “Guidelines for Ecological Impact Assessment in the United Kingdom” (2006);
- Institute of Environmental Management & Assessment (IEMA) “Guidelines for Environmental Impact Assessment” (2004);
- Landscape Institute and the Institute of Environmental Management and Assessment (IEMA) “Guidelines for Landscape and Visual Impact Assessment” 3rd Edition (2013);
- The Conservation of Habitats and Species Regulations 2010;
- The National Planning Policy Framework (NPPF), 2012;
- The National Planning Policy Guidance (NPPG), 2014;
- PINS Advice Note 3: EIA consultation and notification (The `Planning Inspectorate, 2013);

- PINS Advice Note 7: Environmental Impact Assessment, Screening, Scoping and Preliminary Environmental Information (The Planning Inspectorate, 2013);
- The NPS for Ports (Department for Transport, 2012); and,
- The Wildlife and Countryside Act 1981.

4.2.2 It is noted that this list of guidance is not exhaustive and the relevant guidance adopted for the assessment of each environmental parameter is described in the relevant topic chapter.

4.3 The Environmental Impact Assessment process

4.3.1 EIA is an iterative tool for systematically examining and assessing the impacts and effects of the construction, operation and decommissioning phases of the proposed scheme on the environment. The formal reporting mechanism for an EIA is the ES. In accordance with Schedule 4, Part 1 of the EIA Regulations, the ES should include such information as is reasonably required to assess the likely significant environmental effects of the proposed scheme and which the applicant can reasonably be required to compile, including (information that must be provided, in line with Schedule 4, Part 2, is shown in **bold**):

- **A description of the development.**
- **An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects.**
- **The data required to identify and assess the main effects, which the development is likely to have on the environment.**
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.
- A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects of the development, resulting from:
    - The existence of the development;
    - The use of natural resources;
    - The emission of pollutants, the creation of nuisances and the elimination of waste.
- **A description of mitigation measures proposed to *"prevent, reduce and where possible, offset any significant adverse effects on the environment"*.**
- **A non-technical summary (NTS) of the information provided under this Part of the EIA Regulations.**
- An indication of any difficulties encountered by the applicant in compiling the required information.

4.3.2 The following stages were included in this EIA:

- Scoping – to determine the issues that the EIA should address.

- Consultation with stakeholders.
- Desk based data collection to establish the baseline environment.
- New data collection and surveys (where necessary) to supplement desk based information and to fill any data gaps.
- Impact identification and the evaluation of significance.
- The identification of mitigation measures (where required) to reduce the significance of, or avoid, any identified adverse impacts.
- The evaluation of impacts, post-mitigation, to determine the significance of residual impacts.
- The assessment of cumulative impacts with other past, present and reasonably foreseeable future developments and plans.
- Identification of appropriate monitoring requirements.

4.3.3 The approach adopted in the EIA process for the proposed scheme for each of these stages is summarised in the following sections. It should be noted that these stages are not necessarily consecutive and may overlap. For example, iterative design changes may be made in light of emerging findings of the EIA process to prevent or reduce the significance of a potential impact. This would then require re-assessment of the potential impact, potentially informed by further survey work to adequately describe the baseline environment.

Screening

4.3.4 A screening opinion was not sought for the proposed scheme. It was assessed that the proposed scheme would constitute development of a type mentioned in Category 10(g) of Schedule 2 to the Regulations. Given this the applicant has chosen to voluntarily submit an ES for the scheme in accordance with the relevant EIA Regulations.

Scoping

4.3.5 To inform this ES YPL completed the initial stages of the pre-application process for the proposed scheme, which involved the following steps:

- Production and submission of an Environmental Scoping Report (Royal HaskoningDHV, 2013) to PINS during December 2013 (**Appendix 4.1**).
- Receipt of a Scoping Opinion from PINS for the proposed scheme during January 2014 (**Appendix 4.2**).

4.3.6 The Environmental Scoping Report was based on a scoping study undertaken to identify the potential environmental issues associated with the proposed scheme and to determine the scope of work required for the EIA and preparation of the ES. The study consisted of the following tasks:

- a site visit;
- collation of existing environmental information;
- identification of potentially significant environmental impacts;
- consultation with statutory consultees; and,
- reporting of findings in an Environmental Scoping Report (see **Appendix 4.1**).

Preliminary Environmental Report (PER)

4.3.7 Following receipt of the Scoping Opinion, the Harbour Facilities Preliminary Environmental Report (PER) (Royal HaskoningDHV, 2014) was produced in accordance with PINS Advice Note 7 and was the subject of consultation under Section 42 of the Planning Act, 2008 in September/October 2014. The information presented in the PER constituted 'preliminary environmental information' which is defined in The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, as amended, as:

> *"Information referred to in Part 1 of Schedule 4 (information for inclusion in environmental statements) which –*
>
> *a) Has been compiled by the applicant;*
>
> *b) Is reasonably required to assess the environmental effects of the development."*

4.3.8 The preliminary assessment presented within the PER was based on the design information available at the time of writing. A number of studies and surveys were proposed within the Environmental Scoping Report to inform the EIA. At the time of writing the PER, some of these studies had been completed and a number were ongoing; therefore, all results were not available for full impact assessment. However, where results were available, they were reported within the PER.

4.3.9 Consultation responses regarding the PER were received during October 2014 and have all been considered in the preparation of this ES. A summary of the consultation responses is provided within the Consultation Report (Document 6.1).

4.3.10 Within the Scoping Opinion and the comments received under Section 42 of the Planning Act 2008. Public Health England commented that there is a potential health impact associated with the electric and magnetic fields (EMF) around substations and the connecting cables or lines.

4.3.11 The production of EMF applies to all current using equipment and corresponding parts of the installation, however, all aspects of the proposed scheme (where EMF has potential to be generated e.g. the proposed electricity cabling along the overhead bridges of the overland conveyor) are being / will be designed and manufactured / installed in accordance with established standards and codes of practice to ensure all aspects of their safety. In addition to the above, the earthing, bonding and shielding of the electrical installation in accordance with BS7671, BS EN 50522 and BS 7430 all serve to prevent the creation of harmful electrical fields which may adversely affect either members of the public or users / operators of the proposed harbour facilities. Based on the above, it is considered that the electrical system design, both at High Voltage and Low Voltage would not present any risk of harm from EMF, either to members of the public of YPL employees. Potential impacts associated with EMF have therefore not been considered further within this ES.

Consultation

4.3.12 During the preparation of this ES, a wider informal consultation exercise has taken place (i.e. in addition to the formal pre-application consultation undertaken on the Environmental Scoping Report and PER). Topic specific consultation focused on the Harbour has been undertaken, and has included (but not been limited to):

- meetings with Natural England held on 3 October 2013, 14/28 March 2014, 20 June 2014 and 18 September 2014;
- a meeting with the Environment Agency on 7 April 2014 regarding environmental permitting;
- a stakeholder workshop on 10 April 2014 (attended by Natural England, Environment Agency, the MMO and the Royal Society for the Protection of Birds (RSPB)), that provided an update on the proposed scheme design and the proposed approach to the assessment of the influence of the scheme on receptors;
- a meeting on 24 October 2014 with the MMO, Natural England and the Environment Agency to discuss the comments raised in the Section 42 responses on the PER;
- a meeting on 5 February 2015 with Natural England, the MMO, Cefas and the Environment Agency to discuss the deliverability of the habitat enhancement proposals in Bran Sands lagoon; and,
- various emails and telephone conversations with regulators and stakeholders regarding the approach to and methodologies for baseline surveys and assessments (e.g. noise, air quality, traffic, marine sediment quality, marine ecology).

4.3.13 The nature and outcome of topic specific consultation is discussed in the relevant sections of this ES. Full details of all consultation undertaken throughout the wider application process are included in the Consultation Report (Document 6.1).

Description of the baseline environment

4.3.14 A wide range of information has been gathered and activities undertaken to define the baseline environment for the Harbour facilities and likely receptors, including but not limited to the following:

- desk-based review of existing published data;
- data provided by consultees; and,
- field survey and site investigation information.

4.3.15 The term 'baseline environment' is used to describe the nature, scale, condition, and other relevant information to provide a detailed description of a given environmental receptor that falls within the scope of the ES. Within this ES, the description of the baseline environment consists of the following aspects:

- the spatial location and extent of the environmental features or receptors;
- a description of the environmental features or receptors and their character;
- the context of the environmental features or receptors in terms of rarity, function, and population at the local, regional and national level;
- the sensitivity of the environmental features or receptors in relation to physical, chemical or biological changes; and,
- the value of the environmental features or receptors (e.g. designated status).

4.3.16 Receptor 'sensitivity' and 'value' are considered further below.

Receptor sensitivity

All receptors will exhibit a greater or lesser degree of sensitivity to the changes brought about by the proposed development, and defining receptor 'sensitivity' as part of the definition of the baseline

environment helps to ensure that the subsequent assessment is transparent and robust. The sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected, and is defined by the following factors:

- Adaptability – the degree to which a receptor can avoid, adapt to or recover from an effect.
- Tolerance – the ability of a receptor to accommodate temporary or permanent change.
- Recoverability – the temporal scale over and extent to which a receptor will recover following an effect.

4.3.17 In order to define the sensitivity of a receptor, the guidelines presented in **Table 4-1** have been adopted in this ES and the conclusions reached regarding the sensitivity of receptors has been presented in the baseline sections of each relevant environmental topic.

4.3.18 It should be noted that the sensitivity criterion is a composite one; combining value (a measure of the receptors importance, rarity and worth) with sensitivity. In some instances, the inherent value of a receptor is recognised by means of designation (see below), and the 'value' element of the composite criterion recognises and gives weight in the assessment to that designation. However, irrespective of the recognised value, all receptors will exhibit a greater or lesser degree of sensitivity to the potential changes brought about by the proposed scheme. It should be noted that the assessment of sensitivity is a matter of judgement applied by professional experts based on the receptors within the relevant study area.

Receptor value

4.3.19 The value of the feature or receptor is a function of a range of factors (e.g. biodiversity value, social/community value, and economic value). The value or potential value of a receptor or feature can be determined within a defined geographical context, for example, the following hierarchy to describe value is recommended by the Institute of Ecology and Environmental Management (IEEM) (2006) with respect to ecological receptors:

- International;
- UK;
- National (i.e. England / Northern Ireland / Scotland / Wales);
- Regional;
- County (or Metropolitan - e.g. in London);
- District (or Unitary Authority, City, or Borough);
- Local or Parish; and,
- Within zone of influence only (which might be the development site or a larger area).

Impact identification and assessment

4.3.20 The EIA has been undertaken within a framework that allows for a transparent approach to the assessment and the resulting conclusions presented within this ES. This section sets out the assigned definitions that are used in the assessment process for a number of topics considered in the ES. In addition, a description of the approach taken to the specific impact assessment for each environmental topic is provided (in each relevant chapter) so that it is clear to the reader how impacts have been defined, particularly where such an approach differs to that described within this section.

Table 4-1 Generic guidelines used in the determination of receptor sensitivity and value

Sensitivity / value	Description
Very high	Receptor has very limited or no capacity to accommodate physical or chemical changes or influences. Receptor possesses fundamental characteristics which contribute significantly to the distinctiveness, rarity and character of the resource, is of very high importance and rarity that is international in scale (e.g. designated sites such as SACs, SPAs, Ramsar Sites, World Heritage Sites, Geological Conservation Review Sites, and Habitats Directive Annex II species), and has very limited potential for substitution / replacement.
High	Receptor has a limited capacity to accommodate physical or chemical changes or influences. Receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the resource, is of high importance and rarity that is national in scale (e.g. designated sites such as SSSIs, NNRs, UK Biodiversity Action Plan (BAP) habitats and species, Areas of Outstanding Natural Beauty, Heritage Coasts, Scheduled Monuments, Grade I and II* Listed Buildings, Conservation Areas, etc.), and has limited potential for substitution / replacement.
Medium	Receptor has a limited capacity to accommodate physical or chemical changes or influences. Receptor possesses key characteristics which contribute to the distinctiveness and character of the resource, is of medium importance and rarity that is regional in scale (e.g. designated sites such as County Wildlife Sites (CWSs), Regionally Important Geological Sites, Grade II Listed Buildings, Local BAP, etc.), and has limited potential for substitution / replacement.
Low	Receptor has a moderate capacity to accommodate physical or chemical changes or influences. Receptor possess characteristics which are locally distinctive only, are of low to medium importance and rarity that is local in scale (e.g. designated sites such as Local Nature Reserves), and potentially can be substituted / replaced.
Very low	Receptor is generally tolerant of and can accommodate physical or chemical changes or influences. Receptor characteristics do not make a significant contribution to local character or distinctiveness, and are of very low importance and rarity, are not designated, and are easily substituted / replaced.

4.3.21 EIA provides an assessment of the impacts on sensitive receptors as a result of the effects of a development upon the environment. The terms 'effects' and 'impacts' have, in the past, been used interchangeably, but they are in fact different and one drives the other. Effects are physical changes in the environment that are set in motion as a consequence of a particular development or activity. Effects do not impact all receptors, as some receptors are not always sensitive to them.

4.3.22 Effects are measurable physical changes in the prevailing environment (e.g. volume, time and area) arising from construction and operation activities. Effects can be classified as primary (e.g. the physical presence of a built element of the development) or secondary (e.g. increase in erosion due to a change in the rate of discharge of surface water).

4.3.23 Impacts consider the possible changes in potentially sensitive receptors as a result of an effect. Impacts can be classified as direct or indirect, permanent or time-limited and beneficial or adverse.

4.3.24 The relationship between effects and impacts is not always straightforward. For example, a secondary effect may result in both a direct and indirect impact on a single receptor. Given this the EIA framework used herein is based on the 'source-pathway-receptor' conceptual model process used to provide a systematic and auditable approach to understanding the potential for effects to arise, the spatial extents

of the effect-receptor interactions, impact pathways, and potential impact significance. The conceptual 'source-pathway-receptor' model is effective in the identification of potential effects and the means by which these can manifest themselves on the receiving environment and its sensitive receptors.

4.3.25 The term 'source' describes the origin of potential effects (e.g. construction activities) and the term 'pathway' describes the means (e.g. through air, water, or ground) by which the effect reaches the receiving sensitive 'receptor' (e.g. terrestrial habitats, archaeology and human receptors). If the source, pathway or receptor is absent, no linkage exists and thus there will be no potential for an impact to manifest.

4.3.26 For each effect, the assessment identifies receptors within the study area that are sensitive to that effect and implements a systematic approach to understand the impact pathways and the level of impacts on given receptors. The process considers the following:

- the magnitude of the effect;
- the sensitivity of a receptor to the effect;
- the probability that an effect-receptor interaction will occur;
- the determination and (where possible) qualification of the level of impact on a receptor, considering the probability that the effect-receptor interaction will occur, the spatial and temporal extents of the interaction and the significance of the resulting impact; and,
- the level of certainty at all stages.

The magnitude of effect

4.3.27 The magnitude of an effect is typically defined by four factors:

- Extent – the area over which an effect occurs.
- Duration – the time for which the effect occurs.
- Frequency – how often the effect occurs.
- Severity – the degree of change relative to existing environmental conditions.

4.3.28 In order to help define impact magnitude, the criteria presented in **Table 4-2** have been adopted for the purposes of this EIA. While this table provides guidelines of a generic nature, it should be noted that more specific guidelines in relation to impact magnitude have been adopted for the topics assessed, where considered necessary.

Table 4-2 Generic guidelines used in the determination of magnitude of effect

Magnitude	Description
Very High	Loss of resource and/or integrity of the resource; severe damage to key characteristics, features or elements (Adverse). Permanent / irreplaceable change, which is certain to occur. Large scale improvement of resource or attribute quality; extensive restoration or enhancement (Beneficial).
High	Loss of resource, but not affecting integrity of the resource; partial loss of or damage to key characteristics, features or elements (Adverse). Permanent / irreplaceable change, which is likely to occur. Improvement to, or addition of, key characteristics, features or elements of the resource; improvement of attribute quality (Beneficial).

Magnitude	Description
Medium	Minor loss of, or alteration to, one (maybe more) key characteristics, features or elements; measurable change in attributes, quality or vulnerability (Adverse). Long-term though reversible change, which is likely to occur. Minor improvement to, or addition of, one (maybe more) key characteristics, features or elements of the resource; minor improvement to attribute quality (Beneficial).
Low	Very minor loss of, or alteration to, one (maybe more) key characteristics, features or elements; noticeable change in attributes, quality or vulnerability (Adverse). Short- to medium-term though reversible change, which could possibly occur. Very minor improvement to, or addition of, one (maybe more) key characteristic, feature or element; very minor improvement to attribute quality (Beneficial).
Very Low	Temporary or intermittent very minor loss of, or alteration to, one (maybe more) characteristic, feature or element; possible change in attributes, quality or vulnerability (Adverse). Short-term, intermittent and reversible change, which is unlikely to occur. Possible very minor improvement to, or addition of, one (maybe more) characteristic, feature or element; possible improvement to attribute quality (Beneficial).

The determination and qualification of impact significance

4.3.29 The significance of an impact is determined by combining the predicted magnitude of the effect with the sensitivity of the receptor; for example, as defined in **Table 4-3**. Impact statements carry a degree of subjectivity, as they are based on expert judgement regarding the effect-receptor interaction that occurs and on the data that is available. As such, impact statements should be qualified appropriately.

4.3.30 The probability of an effect occurring (i.e. an effect-receptor interaction) should also be considered in the assessment process; capturing the probability that the effect will occur and also the probability that the receptor will be present. For example, the magnitude of the effect and the sensitivity of the receptor may have been established, and it may be highly probable that the effect will occur; however, the probability that the receptor will be present at the same time should also be considered.

Table 4-3 Impact assessment matrix

Receptor Sensitivity (inclusive of value)	Magnitude of Effect				
	Very High	High	Medium	Low	Very Low
Very High	Major	Major	Moderate	Moderate	Minor
High	Major	Moderate	Moderate	Minor	Negligible
Medium	Moderate	Moderate	Minor	Minor	Negligible
Low	Minor	Minor	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible	Negligible

4.3.31 In the context of the EIA Regulations, 'significant impacts' are taken to be those of moderate or major significance (as defined above); albeit that appropriate mitigation, where available, should be sought for all impacts.

4.3.32 It should be reiterated that, although this section sets out the overall approach adopted for this EIA (using, for example, magnitude and sensitivity to determine the level of impact), individual sections may take their own approach where industry standard methodologies are appropriate or another approach has been agreed with the relevant regulator. Where a different approach is taken, this is explained in the methodology section of the chapter in question.

Mitigation

4.3.33 Mitigation measures have been proposed, where they are available and practical, in those cases where adverse impacts have been identified. It is important to note that mitigation measures applied should be proportionate to the scale of the impact predicted. Appropriate mitigation measures have been discussed and agreed, where possible, with the relevant regulatory authorities and stakeholders.

4.3.34 'Mitigation through design' is an important factor in ensuring that the environmental impacts of a proposed scheme are minimised. Through the development of the project and the scheme proposals, and the iteration of the engineering and environmental impact studies, mitigation has been built into the design of the proposed scheme. This mitigation is described in Section 3 and the impact assessment has been undertaken based on the mitigated (through design) scheme. Where significant impacts potentially remain, further issue-specific mitigation measures are defined.

4.3.35 Whilst mitigation for minor or negligible impacts may not be specifically defined as a matter of course, industry standard or 'embedded' mitigation often applies in these cases (and is set out herein). It is also recognised that minor and negligible impacts could become significant when considered cumulatively with other pressures on a receptor and, in this event, mitigation may be required.

Monitoring

4.3.36 Appropriate mitigation measures have been identified and recommended in this ES where the EIA process has identified an adverse impact and mitigation is available (see above). In some cases, in order to ensure that the mitigation measures are successful or where there is significant uncertainty with respect to important receptors, monitoring requirements have been identified and are presented within the relevant topic chapters of this ES.

Residual impacts

4.3.37 Where further mitigation measures are identified, the significance of the residual environmental impact (i.e. the post-mitigation impact) is assessed.

Assumptions and limitations

4.3.38 The EIA Regulations and relevant guidance require an ES to provide an indication of any difficulties (technical deficiencies or lack of know-how) encountered during the assessment process. Any such assumptions or limitations are identified within the relevant topic chapter if appropriate.

4.3.39 The assessment undertaken here also establishes and takes into account uncertainty in the EIA process, such as uncertainty regarding our understanding of the baseline or in the accuracy of techniques used to predict the magnitude of effects and the vulnerability of receptors. Typically there are three levels of uncertainty, namely:

- Low uncertainty: interactions are well understood and documented. Predictions and maps are based on interpretations supported by a large volume of data. Information/data has very comprehensive spatial coverage/resolution. This is the default position that this ES has adopted.
- Medium uncertainty: interactions are understood and some documented evidence exists. Predictions may not be validated and/or calibrated. Mapped outputs are supported by a moderate degree of evidence. Information/data has relatively moderate spatial coverage/resolution.
- High uncertainty: interactions are poorly understood and not documented. Predictions and maps are based on expert interpretation using little or no quantitative data. Information/data has poor spatial coverage/resolution.

4.4 Cumulative Impact Assessment

Impact inter-relationships

4.4.1 Council Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) states (in Annex III) that an ES should include "A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors".

4.4.2 This ES has given due consideration to the potential for different residual impacts to have a combined impact on key sensitive receptors. The objective is to identify where the accumulation of impacts on a single receptor, and the relationship between those impacts, potentially gives rise to a need for additional mitigation. Inter-relationships have been assessed within the relevant sections of the topic chapters of the ES.

Cumulative impacts

4.4.3 In line with IEMA's Guidelines for EIA (2004), cumulative impacts are defined as:

> *"…the impacts on the environment which result from incremental impacts of the action when added to other **past**, **present** and **reasonably foreseeable future actions** …"*

4.4.4 There is no legislation that outlines how cumulative impact assessments (CIAs) should be undertaken. However the EIA and Habitats Directives and their associated regulations require the consideration of direct impacts and any indirect, secondary and cumulative effects of a project. Government guidance states that: *"cumulative effects could refer to the combined effects of different development activities within the vicinity"* (Department for Communities and Local Government, 2006, Paragraph 121).

4.4.5 The EIA Regulations do not define 'cumulative' but guidance on cumulative effects assessment is provided in a number of good practice documents (e.g. the European Commission, 1999). This guidance is not prescriptive, but rather suggests various approaches which may be used, depending on their suitability to the project (for example the use of matrices, expert opinion, consultation, spatial analysis and carrying capacity analysis).

4.4.6 A tiered approach has been adopted for the Harbour facilities CIA, based upon the following definitions:

- **Site-specific (or within-development) cumulative** impacts - different effects associated with the Harbour facilities have the potential to interact and, together, influence common receptors (e.g. noise and visual effects on ecology). Where applicable, these inter-relationships are considered in the Harbour facilities ES (in **Section 23**) and Habitats Regulations Assessment (HRA).
- **Project-wide cumulative impacts** which arise from the combined effects (additive or interactive) of the Harbour facilities with the other components of the YPP. These are considered in **Part 2** of this CIA.
- **Wider cumulative impacts** which are the combined impacts (additive or interactive) that may occur between the Harbour facilities, the YPP (where appropriate) and any other relevant 'non YPP' development(s). These are considered in **Part 3** of the CIA.

4.4.7 With respect to 'past' projects, a useful ground rule in CIA is that the environmental impacts of schemes that have been completed should be included within the environmental baseline; as such, these impacts will be taken into account in the EIA process and, generally, can be excluded from the scope of CIA. However, the environmental impacts of recently completed projects may not be fully manifested and, therefore, the potential impacts of such projects should be taken into account in the CIA.

4.4.8 Project-wide and wider cumulative assessment has been documented within the Harbour facilities CIA (Document 6.6).

WFD Compliance Assessment

4.4.9 The way in which WFD impacts are assessed is quite different to the approach conventionally used within the EIA process. The standard EIA approach assesses whether an impact is minor, moderate or major, and whether it is beneficial or adverse. This is not compatible with the requirements of the WFD, which requires an assessment of whether a scheme (or element of a scheme) is compliant or non-compliant with the environmental objectives set out in the WFD.

4.4.10 Following the recommendations made by the Environment Agency's National Environment Assessment Service (Environment Agency 2010), which has become recognised as national standard practice the approach adopted to the WFD compliance assessment was to determine whether the scheme has:

- potential to cause deterioration in surface water body status by adversely affecting biological, hydromorphological and/or physico-chemical quality elements.
- potential to cause deterioration in groundwater body status by adversely affecting quantitative and chemical quality elements.
- potential to prevent achieving WFD status objectives by impacting upon proposed mitigation measures already identified for water bodies in the area.

- potential to incorporate mitigation measures included in the appropriate River Basin Management Plan(s).

4.4.11 This guidance has been supplemented by the use of the Clearing the Waters: A user guide for marine dredging activities produced by the Environment Agency (2012) in order to undertake WFD compliance assessments on projects requiring dredging and disposal. Where the assessment suggests that deterioration in water body status is likely to occur as a result of the scheme, measures to mitigate the likely impacts and therefore avoid deterioration in status are recommended.

4.4.12 A WFD compliance assessment is included as **Appendix 4.3**.

4.5 Habitats Regulations Assessment

4.5.1 The HRA process follows a four staged approach, as summarised below:

2. **Screening**: The process of identifying potentially relevant European and Ramsar sites, and whether the likely impacts of a project upon the qualifying features of the site, either alone or in-combination with other plans and projects, are likely to be significant. If predicted impacts are not likely or significant then the process ceases at this point.

Appropriate Assessment (AA): The consideration of the potential impacts on the integrity of the site(s), either alone or in-combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine adverse effect on the integrity of the site. If these mitigation options cannot avoid adverse effects then development consent can only be given if the tests set out in stages 3 and 4 can be passed.
Assessment of Alternative Solutions (AAS): Examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on the site(s).
Imperative reasons of over-riding public interest (IROPI): Where no alternative solution exists and where an adverse effect on site integrity remains, the next stage of the process is to assess whether the development is necessary for IROPI and, if so, the identification of compensatory measures needed to maintain site integrity or the overall coherence of the designated site network.

4.5.2 The HRA that has been prepared on behalf of YPL and that considers the Harbour facilities (alone) and the YPP in order to define where interactions could occur between different scheme elements is included as Document 6.3 of the DCO application. The HRA has been undertaken in accordance with Advice note 10: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2013). Where such interactions are defined, these scheme elements, alone with other relevant plans and projects, are considered in an in combination assessment. The HRA provides information to enable 'screening' with respect to the Harbour facilities potential (alone and in combination) to have a Likely Significant Effect (LSE) on European sites and Ramsar sites. It then provides the information required to enable a conclusion to be drawn with regard to the effect of the Harbour facilities (alone and in combination) on European (and international) site integrity.

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