Defence Equipment and Support

Submarine Dismantling Project - Strategic Environmental Assessment

Final Scoping Report

March 2011

Defence Equipment & Support

MINISTRY OF DEFENCE

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Submarine Dismantling Project

Strategic Environmental Assessment

Final Scoping Report

March 2011

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1. Introduction

1.1 Context

Project ISOLUS (Interim Storage Of Laid-Up Submarines) was established in 2000 to develop and implement a timely solution for the dismantling and ultimate disposal of the UK's 27 defueled nuclear submarines at the end of their life. The project, which extends over a 60 year period, encompasses the provision of facilities, personnel and processes to dismantle the defueled nuclear submarines (of past and currently in-service classes).

In May 2009, project ISOLUS was formally renamed the Submarine Dismantling Project (SDP) to more accurately reflect the scope of work.

Recognising the importance that public confidence would play in the development of any solution, Ministerial commitments were made that public consultation would be undertaken before any major decisions are taken. Two Public Consultations on the project have been held to date, carried out by independent researchers at the Centre for the Study of Environmental Change at Lancaster University (see www.mod.uk/submarinedismantling for further information).

The third Public Consultation will be conducted in due course on the proposed options for the SDP. The Strategic Environmental Assessment (SEA) Environmental Report will be available for this consultation and will inform the project as a whole, with assessments being undertaken of the key indicative stages of the project (see (**Figure 1.1**). These stages will include:

- the development and operation of the initial submarine dismantling facilities required to undertake the radiological work;
- the development and operation of an interim ILW storage solution;
- the technical options for processing the reactor compartments;
- the processing-related operations, including the transport and management of the submarines and resulting wastes including ILW, Low Level Waste (LLW), hazardous wastes and inert materials; and
- the eventual decommissioning of all facilities, when no longer required.

Figure 1.1 Key Indicative Stages and Activities of the SDP

I	Design and Develop the initial Submarine Dismantling Capability, and
II	Design and Develop the Interim ILW Storage Capability (sequence may be interchangeable).
III	Dock Submarines and Process the Reactor Compartments (RCs).
IV	Dismantle the Front and Rear Sections of the Submarines; Process all Wastes except ILW.
V	Move the Reactor Compartment, Reactor Pressure Vessel or packaged ILW to the Interim Storage Facility/ies.
VI	Dismantle RC/Reactor Pressure Vessel (RPV) (if required); transfer packaged ILW to the GDF.
VII	Decommission the SDP Facilities.

1.2 Purpose of this Report

This Final Scoping Report is the third formal output of the SEA process for the Submarine Dismantling Project, and updates the Stage 'A1' generic scoping report, which was released for five weeks of consultation on June 17th 2010 and the Stage 'A2' updated scoping report which contained additional information concerning candidate sites. The purpose of this final report is:

- to set out our proposed approach for undertaking the SEA assessment consistent with the relevant statutory requirements[1] following receipt of consultees views gained though the two rounds of scoping consultation. .

This final report includes the accepted amendments suggested by the scoping consultees. It also includes relevant and revised contextual information on the 'existing' Licensed or Authorised Nuclear sites which have been assessed (through a separate siting process) as being potential candidates for initial dismantling of the Reactor Compartment.

This final report sets out the proposed scope and level of detail of the information to be included in the SEA assessment and the subsequent Environmental Report following the second round of scoping consultation.

The SEA scoping bodies comprise the Statutory Consultees referred to in the SEA Regulations and include representatives from England, Scotland, Wales and Northern Ireland. MOD has also consulted

[1] Directive 2001/42/EC on the assessment of certain plans and programmes on the Environment, enacted through the Environmental Assessment of Plans and Programmes Regulations 2004.

other relevant Government Departments and agencies, including (but not limited to) DEFRA, DECC, DCLG and the UK Nuclear Decommissioning Authority.

1.3 The Requirements for SEA

SEA became a statutory requirement following the adoption of European Union Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. This was transposed into UK legislation on the 20 July 2004 as *Statutory Instrument No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004*. The objective of the SEA Directive is:

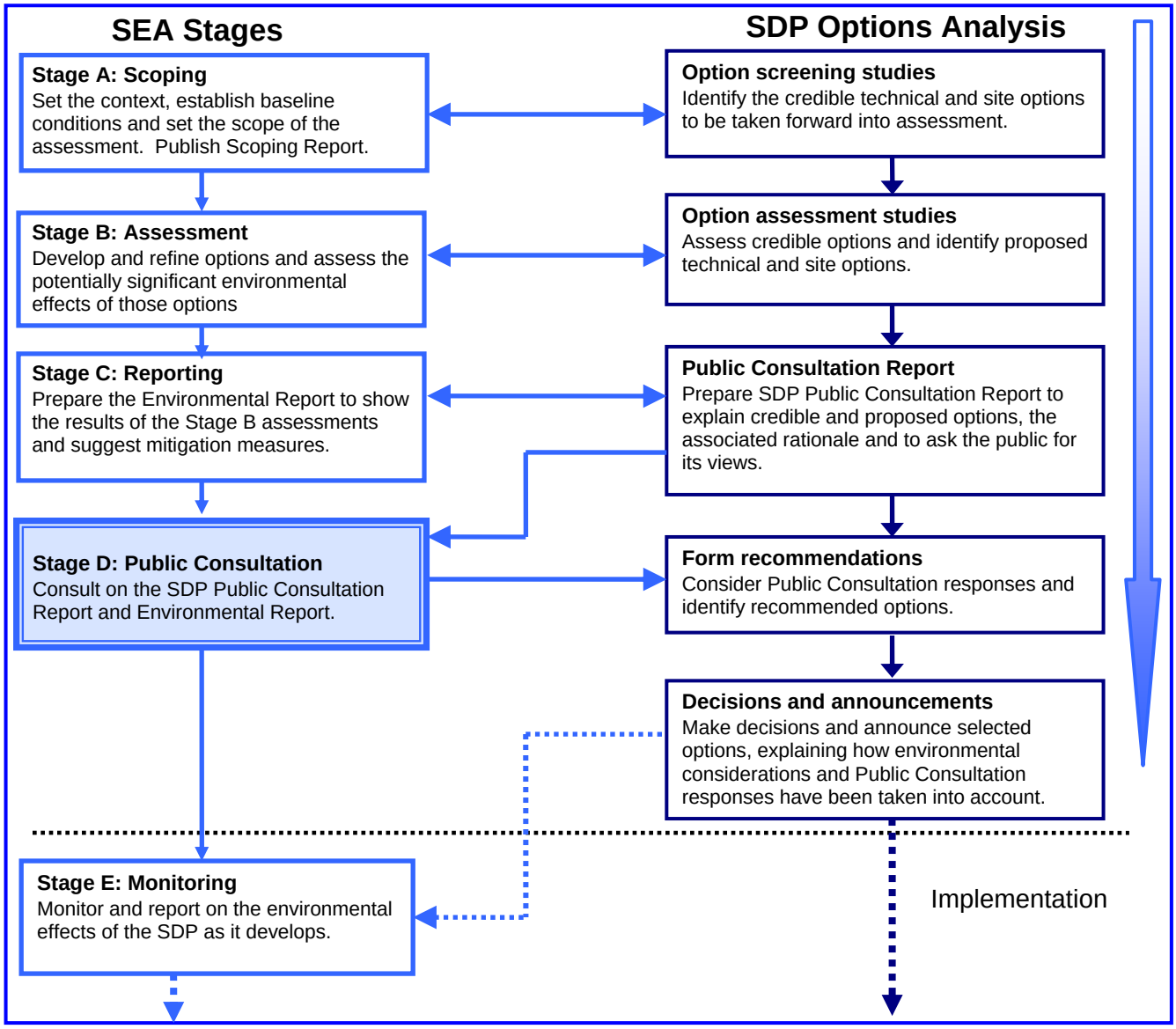
'*To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to contributing to sustainable development*'.

Throughout the course of the development of a plan or programme, the aim of the SEA is to identify the associated environmental effects of implementing the plan or programme and to propose measures to avoid, manage or mitigate any significant adverse effects and to enhance any beneficial effects. The main requirements and stages of the SEA are:

- determining the scope of the assessment and agreeing the proposed approach to assessment with Scoping Consultees (Stage A);
- assessing the likely direct, indirect and cumulative effects of the proposed SDP strategic options (Stage B);
- recording those effects in an SEA Environmental Report (Stage C);
- undertaking a consultation exercise on the SEA Environmental Report and the SDP proposals (Stage D);
- integrating the SEA findings into the decisions on how to proceed with SDP (Stage D);
- informing the public about that decision and the extent to which the SEA and consultation findings have been taken into account (Stage D); and
- undertaking periodic monitoring of the associated impacts of the selected options (Stage E).

These stages (and the resulting outputs) are set out in **Figure 1.2**.

Figure 1.2 Overview of the SEA Process within the context of the SDP



Note: These stages are based on guidance in '*A Practical Guide to the Strategic Environmental Assessment Directive',* ODPM (2005) and '*The Environmental and Sustainability Appraisal Tool Handbook for the MOD Estate (Volume Two: SEA)', MOD (2009).*

Although the strict applicability of the SEA Regulations to the SDP remains unclear, the MOD will undertake an environmental assessment incorporating the requirements of the SEA Directive on the SDP proposals, as this is considered to be good practice. This precautionary position will help ensure that potential environmental implications of the proposals are assessed up-front and hence available to

inform the decision making process. The approach will follow both MOD[2] and wider government[3] guidance.

The following activities have been undertaken to complete Stage A and produce this Scoping Report update (in line with the ODPM and MOD guidance):

- **Identifying relevant plans and programmes:** A review has been undertaken of international, European, national, regional and relevant sub-regional plans and programmes, to establish how the SDP could be affected by outside factors, and to help identify any relevant environmental protection objectives which need to be taken into account during the SDP's preparation.
- **Collecting baseline information:** A review has been undertaken of current and predicted baseline environmental conditions following a 'business as usual' scenario, again conducted from international to sub-regional level, as appropriate. This will provide an evidence base for current environmental problems, prediction of effects and proposals for monitoring. It also helps inform the development of the SEA objectives.
- **Identifying environmental problems:** The baseline has been used to identify key environmental issues to help show where the SEA should be focussed.
- **Developing SEA objectives:** Objectives (and associated assessment questions) have been developed to provide a means by which the environmental performance of the SDP options can meaningfully be assessed.

The final element is to complete consultation with appropriate bodies to ensure that the SEA covers the likely significant environmental effects of the SDP consistent with Regulation 12 of the SEA Regulations which concerns the appropriateness, scope and level of detail of the information that must be included in the Environmental Report. The first stage of this process (the generic, Stage 'A1' report) was completed in July 2010. The second stage of this process (the updated Stage 'A2' report) was completed in January 2011.

Following the conclusion of the two rounds of consultation, this Scoping Report presents a record of the scope and level of detail of this information to be used in the Environmental Report. It sets out the confirmed scope and approach to the assessment including the relevant site-specific contextual information to inform the subsequent assessment.

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[2] The Environmental and Sustainability Appraisal Tool Handbook (Chapter Two: SEA) MOD, 2006. http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/DefenceEstateandEnvironmentPublications/DefenceEstates/SustainabiltyAndEnvironmentalAppraisalToolHandbook.htm

[3] A Practical Guide to the Strategic Environmental Assessment Directive. ODPM (now the Department for Communities and Local Government), 2006. http://www.communities.gov.uk/publications/planningandbuilding/practicalguidesea).

1.4 Scoping Consultation Responses

1.4.1 The First (Generic) Scoping Report Consultation

The first (generic) scoping consultation was undertaken between June 17th and July 23rd, 2010. All nine Statutory Bodies provided responses, as did the Scottish Government. Of the eight other relevant Government Departments and Agencies invited to participate, four did so. Three non-respondents were content to leave feedback to the relevant Statutory Bodies.

The received submissions, along with the MOD's response to each point raised, are detailed in Annex F. The key points raised by consultation are shown in **Table 1.1** below, structured according to the questions posed in the Stage 'A1' generic scoping report.

Table 1.1 Overview of Issues Raised From the First Stage of Scoping Consultation

Question	Summary of Consultee Responses
Do you have any comments on the proposed alternative options outlined for the SDP?	Most respondents were generally content with the scope of the alternatives presented. Questions were tabled about why 'greenfield,' 'brownfield' and 'existing Licensed/ Authorised' sites were chosen as generic site categories, and there was some confusion about whether these effectively formed site selection criteria. Several respondents suggested that the scope should consider different ship-recycling options or sites. Comments were also received about the importance of using existing facilities where possible to minimise environmental impact.
Do you agree with the main environmental issues identified?	Respondents generally agreed that all relevant environmental issues were captured by the report, although there was some confusion between the aims and content of Sections 3 (baseline issues) and 5 (scoping of potential effects). More emphasis was requested on certain areas, such as management of non-radiological wastes, risks from invasive species, outdoor access opportunities and the effects of dredging. It was suggested that the environmental categories be re-ordered to give a single focus for coastal change, flooding and climate change risks.
Are there additional plans, programmes and strategies which should be considered in the SEA?	It was generally noted that the Scoping Report gave insufficient consideration to the plans, programmes, policies and environmental protection objectives of the UK's Devolved Administrations. Several respondents requested clarification about the applicability of Habitats Regulations Assessment to the SDP at strategic (Plan) level. DECC highlighted that the proposed NDA Strategy should be included, as it includes consideration of non-NDA liabilities such as MOD wastes.
Do you know of any additional baseline evidence which will help to inform the SEA process?	A range of baseline data was suggested to help target the assessment. The majority concerned the devolved administrations. Respondents wished to see site-specific data in the updated scoping report.

Question	Summary of Consultee Responses
Do you agree that the proposed SEA objectives cover the breadth of issues appropriate for assessing the SDP?	There was one substantive change to the SEA objectives proposed, regarding flood risk and coastal change. Suggestions were made to amend or create additional assessment questions across a number of areas, including landscape, public access, waste management and land use.
When and how should we be seeking your opinions on site-specific information?	Most respondents agreed that the two-stage approach to scoping, whereby the report is updated when potentially credible sites are identified, is reasonable. The importance of including undeveloped 'greenfield ' and previously-developed 'brownfield' land in the SEA, and hence avoiding restriction of alternatives to 'credible' existing Licensed/Authorised sites only, was also made. Several consultees indicated a preference for including credible civil ship-recycling sites in the assessment of options for the non-radiological parts of the submarines. DECC later highlighted that the draft NDA Strategy (which closed to public consultation on 24 Nov 10) is exploring potential opportunities to share current and planned storage facilities to improve value for money and reduce the environmental impact of new store build. The development of such a national waste consolidation strategy represents a significant opportunity for MOD to realise better value for money in conjunction with wider government liabilities, but is not sufficiently mature to support the screening of potential candidate sites.
Do you have any further suggestions regarding the proposed approach to SEA?	A wide range of comments were received on this section, all of which will help shape the MOD's approach to undertaking the SEA. Details can be found at **Annex F.**

The updated scoping report took the majority of comments on board, and contained numerous amendments, as well as the addition of site-specific background data. The headline changes that were made to the Stage A2 report in response to the comments received were as follows:

- The inclusion of National baseline information (including devolved plans, programmes etc where relevant) for Wales, Scotland and Northern Ireland. This is important to ensure that all areas of the United Kingdom are given equal consideration by the SEA.
- The restructuring of the assessment categories to include an additional section on Coastal Change and Flood Risk. This will focus this important issue in one area, and replace disparate (and overlapping) references to flooding, coastal erosion and climate change risks in the other assessment categories.
- The clarification of the definitions for the generic land types upon which SDP facilities may be developed.

1.4.2 The Second (Updated) Scoping Report Consultation

The second (updated) scoping consultation was undertaken between December 6th, 2010 and January 24th, 2011. All consultees were invited to attend a workshop to aid understanding of the SDP and inform the subsequent written submission to scoping consultation. Responses to the invitation indicated strong interest in Scotland and so a workshop was held on the 10th January 2011 to meet this need. Attendees were from SEPA, SNH, HS and the NDA. Due to a lower level of interest, a meeting was held in England with the EA and HPA on the 11th January 2011.

Seven of the nine Statutory Bodies provided responses, along with the Scottish Government. Of the eight other relevant Government Departments and Agencies invited to participate, four did so. A response was also received from Plymouth City Council. The received submissions, along with the MOD's response to each point raised, are detailed in Annex F.

Table 1.2 Overview of Issues Raised From the Second Stage of Scoping Consultation

Question	Summary of Consultee Responses
Do you have any further comments on the revised approach to undertaken the SEA?	Respondents confirmed that the revised scope and approach presented in the updated Scoping Report was acceptable. No further topics were proposed; however, each Statutory Body emphasised an interest in the topics for which they are responsible and sought reassurance that these would be treated appropriately within the assessment. For example, the Environment Agency emphasised the importance of the waste management hierarchy, water quality, water resource management, flood risk and climate change. CCW sought clarification of aspects to be included under some of the topics and encouraged greater consideration of natural processes, functions and ecological services that contribute to biodiversity. Considerable interest was expressed in the approach to cumulative assessment and the need to ensure that the assessment of the potential impacts of the SDP take into consideration other likely infrastructure projects in the vicinity of the candidate sites. In the workshop, SNH emphasised the importance of considering potential effects on European designated conservation sites that were beyond the 20km radius used (due to the need to considering any effects on migratory species).
Do you agree with the revised national baseline information?	Respondents were generally content that relevant national baseline information was presented in the Scoping Report and in Annex A. Respondents took the opportunity to propose additional baseline or trend information as appropriate and the final scoping report now contains additional updated information on: • Hazardous waste quantities and trends. • Health. • Air quality, climate change and biodiversity information for Northern Ireland.
Do you agree with the additional sub-regional baseline information?	Respondents were generally content that the sub-regional baseline information was presented in the Scoping Report and in Annex C was relevant. Respondents accepted the request for additional information and provided additional baseline information on • Cultural heritage for Devonport. • A Marine Conservation Zone for Plymouth Sound. • Flood risk assessments for Rosyth. Plymouth City Council provided links to updated baseline information for the area. The EA raised a potential concern regarding the implication of comparing a baseline for Fife, a large county with Plymouth much smaller land area which could skew the assessment outcomes. The EA also noted that adjacent administrative areas were not included in the baseline assessment.

Question	Summary of Consultee Responses
Are there additional plans, programmes and strategies which should be considered in the SEA?	Respondents were generally content that relevant plans and programme information was presented in the Scoping Report and in Annex B. Additional plans and programmes highlighted for inclusion were • Flood and Water Management Act 2010. • Specific River Basin Management Plans. • Specific Coastal Management Plans. • Specific Water Resource Management Plans. • UK Strategy for the Management of Solid Low Level Radioactive Waste. • The proposed NDA Strategy 2010 • Scotland's Higher Activity Radioactive Waste Policy 2011. • Noise Policy Statement. • WHO Night Noise guidelines.
Do you agree that the proposed SEA objectives cover the breadth of issues appropriate for assessing the SDP?	There were no substantive changes to the SEA objectives proposed, although minor amendments were suggested for a limited number of the guide questions.

The final Scoping Report includes further minor amendments to the presentation of key baseline issues (Section 3), the identification of potential significant environmental issues to be scoped into the assessment (Section 5) and the presentation of example mitigation measures (Box 6.2). Annexes A, B and C have all been updated to reflect the additional information provided by the Scoping Consultees.

1.5 Scope of the SEA for the SDP

The Submarine Dismantling Project represents (for the purposes of SEA) a national programme which consists of seven stages (see **Figure 1.1**). *Note however that the SDP is referred to throughout this report as a **project**, as this fits with the MOD's standard nomenclature.*

Stages I and II (development of dismantling and interim ILW storage capabilities) are spatial in nature and involve a number of strategic site options. **Stage III** (dismantling the reactor compartment) has a number of potential technical options. **Stages IV** (processing non-radiological sections), **V** (movement of ILW to interim storage) and **VI** (movement of ILW to the GDF) will all include a number of transport options. **Stage VII** (decommissioning of SDP facilities) will be purely generic in nature.

The SEA will therefore firstly assess the potentially significant environmental effects (including short, medium and long term direct, indirect and cumulative effects) associated with each of the seven SDP stages. This will be completed at a generic level and will consider the strategic options for each stage, including the generic assessment of developing SDP facilities on undeveloped, previously developed and existing Licensed/Authorised sites.

Once completed, the generic assessment will be followed by a determination of the site-specific effects that could arise from initial dismantling at a number of potential candidate 'existing' nuclear Licensed/Authorised sites, identified through a separate siting study. The assessments will help illustrate the potential environmental impacts arising from implementing the reasonable alternatives for each of these stages, to help inform the public consultation process.

Finally, the combination of feasible dismantling site, technical and transport options and feasible interim storage options will be assessed to provide an indication of the cumulative effects of the SDP. The consideration of cumulative effects will also include the potential effects (if any) of the SDP in combination with other proposed and consented developments.

The third Public Consultation (of which the SEA will be a part) will then inform government decisions about the overall dismantling process, the initial dismantling site(s) and the management process for interim storage for ILW arisings (required because the proposed Geological Disposal Facility ('GDF') which will eventually house the ILW is not expected to be available to the MOD until *at least* 2040).

This assessment is strategic in nature. Whilst it will consider potential candidate 'existing' Nuclear Licensed or Authorised sites for dismantling, it does not constitute a detailed site-level assessment. Following decisions on the proposed way forward, site-specific issues will be addressed through the consenting process for individual developments. This will include Environmental Impact Assessments associated with Town and Country Planning and nuclear decommissioning, Environmental Permitting, and/or Habitats Regulation Assessment, as appropriate. The practices involved in the SDP may also be subject to the separate process of justification under the Justification of Practices Involving Ionising Radiation Regulations 2004.

1.6 Environmental Effects to be Considered

The range of potential environmental effects under consideration has been informed primarily by the SEA Directive and Regulations, using published government guidance[4]. Annex I of the SEA Directive requires that the assessment should include information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". In order to demonstrate consistency with the SEA Directive, these environmental categories have been used throughout this report, with further definition taken from the MOD Sustainability and Environmental Appraisal Tools Handbook (2009).

In the absence of detailed guidance on their content, a number of these environmental categories (population, human health and material assets) can be subject to varying interpretation. Within this report:

[4] Office of the Deputy Prime Minister (2005). A Practical Guide to the Strategic Environmental Assessment Directive.

- ‘population’ includes information on demographics and generic socio-economic issues;
- ‘human health’ includes information on mortality, illness and indices of perceived well-being; and
- ‘material assets’ includes information on transport, waste management, land use and materials.

This SEA is not intended to address wider socio-economic issues that are outside the scope of the Directive. Should the SEA indicate that socio-economic effects may be significant, further socio-economic impact assessment will be undertaken as appropriate. The wider public consultation (of which the SEA will be a part) will demonstrate how social, economic and environmental issues associated with the SDP have been taken into account to arrive at specific options.

The SEA will include consideration of direct, indirect, cumulative and synergistic effects.

1.7 Habitats Regulations Assessment

Defence Estates (as a Competent Authority) has conducted a draft screening of the SDP proposals on behalf of the Ministry of Defence, in accordance with the EC Habitats Directive (92/43/EEC) and transposing Regulations.

It has been determined that the SDP may be subject to HRA at Plan level, since a number of European Designated sites are within 20km of (or otherwise potentially affected by) a potential candidate site for SDP activity. A separate HRA screening document has been produced and consulted upon with Statutory Bodies and other Competent Authorities in parallel with (but separate from) the SEA consultation process. The findings of the SEA and HRA will now inform each other, to ensure consistency of approach. HRAs may also be required at individual project level, once consultations have been completed and strategic decisions have been made.

1.8 How the Information will be presented

To meet the SEA requirements, information on the following is required:

- the current state of the environment and likely evolution without the implementation of the plan or programme;
- the environmental characteristics of areas likely to be significantly affected;
- any relevant existing environmental problems, especially in terms of nature conservation; and
- the relationship of the proposals to other relevant plans and programmes.

Table 1.3 (below) details how we propose to address these requirements in the SEA.

Table 1.3 SEA Information Requirements Addressed Within this SEA Scoping Report

SEA Information Requirements	Scoping Report Reference
Schedule 2 of the SEA Regulations (SI 2004 No. 1633) sets out the following information requirements:	***The following sections of this scoping report address the requirements of the SEA Regulations:***
1. An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	This requirement is addressed in **Section 2 (SDP), Section 4 (plans and programmes)** and **Annex B and C**. It will be further reported on in the SEA Environmental Report.
2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	This requirement is addressed in **Annexes A and C. It** will be further reported on in the SEA Environmental Report.
3. The environmental characteristics of areas likely to be significantly affected.	This requirement is addressed in **Section 3 (baseline information), Annexes A and C**. It will be further reported on in the SEA Environmental Report.
4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds[5] and Council Directive 92/43/EEC (the Habitats Directive[6]).	This requirement is addressed in **Section 3 (baseline information), Annexes A and C.** It will be further reported on in a separate Habitats Regulations Assessment and in the SEA Environmental Report
5. The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	This requirement is addressed in **Section 4 (plans and programmes), Annexes B and C**. It will be further reported on in the SEA Environmental Report.
6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as: biodiversity; population; human health; fauna; flora; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).	A provisional indication of the likely effects of the SDP has been provided in **Section 5 (scoping of effects)** to provide direction about which environmental issues need to be included. However, it is the purpose of Stage B of the SEA process to assess the potential effects of the SDP's 'reasonable alternative' options. In consequence, more specific detail on the likely significant effects of the SDP will be provided in the SEA Environmental Report.

[5] Council Directive 79/409/EEC on the conservation of wild birds. The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended) and The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

[6] Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). In the UK the Directive has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended). The 'Habitats Regulations' apply to the UK land area and its territorial sea (to 12 nautical miles from the coast), and are supported by government policy guidance.

SEA Information Requirements	Scoping Report Reference
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	It is not appropriate to consider this requirement at this stage in the environmental assessment process. In many cases, effects will be so site specific that environmental measures and mitigations can only be meaningfully determined through the later tiers of environmental assessment such as Environmental Impact Assessment and Habitats Regulations Assessment. However in broad terms the 'mitigation hierarchy' will be applied where practicable and results reported in the SEA Environmental Report. Examples of these types of measure are included in **Section 6 (assessment and reporting).**
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	This requirement is addressed in **Section 2 (SDP) and Section 6 (assessment and reporting)** and will be further reported on in the SEA Environmental Report.
9. A description of the measures envisaged concerning monitoring of environmental conditions	As detailed at point 7 above, it is not appropriate to consider this requirement at this stage in the environmental assessment process. However where practicable, monitoring regimes will be identified through the further SEA consultation and assessments, with results reported in the SEA Environmental Report.
10. A non-technical summary of the information provided under paragraphs 1 to 9.	A Non-Technical Summary is provided with this Scoping Report. A Non-Technical Summary will accompany the SEA Environmental Report.

1.9 Scoping Report Structure

This Scoping Report is structured as follows:

Non Technical Summary
Provides a summary of the Scoping Report, including information on both the SDP and the proposed approach to assessment.

Section 1: Introduction (pp 1-14)
Includes a summary of the SDP, an overview of proposed scope, report contents and an outline of how to respond to the consultation.

Section 2: The Submarine Dismantling Project (pp 15-26)
Outlines the SDP and its strategic objectives, and explains how the MOD proposes to apply SEA to it.

Section 3: Baseline Information (pp 27- 36)
Outlines the review of current and projected national, regional and sub-regional baseline conditions for the environmental categories required by the Directive. Further detailed information is contained at Annex A and C.

Section 4: Other Plans and Programmes and Environmental Protection Objectives (pp 37- 48)
Outlines the review of the international, national, regional and sub-regional plans or programmes, and the relationship with the SDP. Further information can be found at Annex B and C.

Section 5: Scoping of Potential Significant Effects (pp 49 - 68)
Outlines the potentially significant effects of the SDP proposals on the key aspects of the environment, to scope the issues that should be included in the assessment.

Section 6: Assessment and Reporting (pp 69 - 80)
Outlines the proposed SEA objectives and guide questions, how cumulative effects will be assessed, and reporting structure.

Section 7: Summary and Next Steps (pp 81- 82)
Provides the conclusion of the draft updated Scoping Report and details the next steps in the assessment process.

Annex A: Review of National Baseline Information
Presents in detail the national baseline conditions for the environmental categories required by the SEA Directive and their likely evolution in the event of the SDP not taking place.

Annex B: Review of National Plans, Programmes and Environmental Protection Objectives
Presents details of relevant international, European and National plans, programmes and environmental protection objectives, as highlighted in **Section 4**.

Annex C: Review of Sub-Regional Baseline Information and Plans/Programmes
Presents in detail the site-specific baseline conditions for the environmental categories required by the SEA Directive and their likely evolution in the event of the SDP not taking place. Also includes relevant sub-regional plans, programmes and environmental protection objectives.

Annex D: Abbreviations and Glossary

Annex E: Quality Assurance Checklist

Annex F: Responses Received from Scoping Consultees to the A2 Scoping Report

2. The Submarine Dismantling Project

2.1 What is the SDP?

2.1.1 Aim and Scope

The overall aim of the Submarine Dismantling Project (SDP) is to define, develop, procure and implement a timely solution for the dismantling and disposal of the UK's redundant, defueled nuclear-powered submarines which inspires public confidence, is safe, environmentally responsible, secure and cost-effective. The project (which was set up in 2000 as Project ISOLUS) will provide an alternative to the continued afloat storage of the defueled submarines, which will include the eventual disposal of Intermediate Level Waste (ILW) to the proposed ILW disposal facility, referred to in this report as the National Geological Disposal Facility, or GDF.[7]

The scope of the SDP, which extends over a 60 year period, encompasses the following:

- provision of facilities and expertise to dismantle the Royal Navy's 27 nuclear submarines (of past and current classes[8]) once defueled, re-using and recycling as much non-radiological material as possible;
- provision of interim, land-based storage for the resultant ILW until at least 2040, pending the availability of the proposed UK GDF; and
- the eventual decommissioning of the dismantling and storage facilities used in this process.

2.1.2 What is the Background to the SDP?

When a nuclear powered submarine leaves service with the Royal Navy, a process known as De-fuel, De-equip and Lay-Up Preparation (DDLP) is undertaken. This is conducted as soon as possible, but is dependant on the availability of suitable docks and facilities. Currently, Babcock International Group at Devonport has the only UK submarine dockyard licensed to remove used fuel (upgraded facilities are currently being built there, and are due to come into service in 2013). The reactor is defueled and the fuel, the most highly radioactive material in the submarine, is removed for long-term storage at the Nuclear Decommissioning Authority (NDA) site at Sellafield, Cumbria. The remaining radioactive

[7] Details of the GDF programme can be found at http://mrws.decc.gov.uk/en/mrws/cms/home/What_is_geolog/What_is_geolog.aspx. Note that the Scottish Government position differs from the UK government position and is that of 'near site, near surface' long-term storage. Further information can be found at http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Waste-1/16293/higheractivitywastepolicy.

[8] 6x 'Superb' Class; 7x 'Trafalgar' Class; 2x 'Valiant' Class; 3x 'Churchill' Class; HMS Dreadnought; 4x 'Resolution' Class; 4x 'Vanguard' Class. The scope of the SDP does not include disposal of ASTUTE class or successor to the Vanguard Class submarines, although facilities will retain the flexibility to accommodate future classes of submarines where possible.

material (mainly irradiated steel, classed as Low and Intermediate-Level Wastes (LLW/ILW)), is contained securely in the reactor compartment and remains in the submarine, which is stored safely afloat.

To date, 16 nuclear powered submarines have left naval service and are stored safely afloat; seven are located at Rosyth, Scotland, and nine are on the south coast of England in Devonport, five of which await defueling. Whilst afloat storage has proved to be a very safe arrangement for over 20 years, it no longer fulfils MOD[9] or wider Government[10] policies, which require that nuclear decommissioning and disposal operations should be carried out "as soon as reasonably practicable." There are also issues of public perception and of afloat storage capacity, which is expected to run out before 2020. The cost of maintaining the laid-up submarines (all which will be out of service by 2040) and conducting unplanned remedial work is increasing as they age, and this situation is not sustainable in the long term.

In 1998, approval was given to proceed with an in-house study into options for the interim storage of nuclear submarines following their withdrawal from service. The resulting ISOLUS Investigation Concept Phase Report[11] recommended that a land storage strategy for the ILW contained within reactor compartments was the most viable option and should be pursued. In May 2000, the recommendations of the study were accepted and Project ISOLUS was formally established. The project gained Initial Gate approval in 2002, and is currently in its Assessment Phase. In May 2009, the project was formally re-titled the Submarine Dismantling Project (SDP) to better reflect the nature of the project.

The key underpinning principles and assumptions of the SDP are that:

- due to both MOD and wider Government decommissioning policies, together with storage capacity constraints and increasing costs, continued long-term afloat storage is not a reasonable option;
- for defence and security reasons, the UK's redundant submarines cannot be disposed of abroad;
- all submarines will already have been defueled before they are docked for dismantling, so will not contain any nuclear fuels nor any associated High Level Waste (HLW);
- the proposed GDF is assumed to become available in time. However, it is not expected to be available until at least 2040, necessitating provision of an interim ILW storage solution;
- Low-Level Waste will continue to have a disposal route via the NDA;
- all activity on the Reactor Compartment must take place at a site that holds an appropriate Nuclear Licence and/or Authorisation (whether this is new or an existing facility);
- most of the radiological work involved in dismantling is already established practice in submarine refitting and in decommissioning of civil reactors, so there will be very few new technical procedures involved;

. [9] "MOD policy for decommissioning and the disposal of radioactive waste and residual nuclear material arising from the nuclear programme", issued 9 Oct 07.

[10] Govt policy framework: Managing Radioactive Waste Safely (MRWS), DEFRA & Devolved Administrations, 2001. 'Managing the nuclear legacy – a strategy for action.' DTI, 2002. The Decommissioning of the UK Nuclear Industry's Facilities – Amendment to Command 2919. DTI, 2004.MRWS White Paper – A Framework for Implementing Geological Disposal. 2008.

[11] The ISOLUS Investigation Concept Phase Report, issued 26 May 1999

- the non-radiological front and rear parts of the submarine do not have to be dismantled at a Nuclear Licensed or Authorised site, and could be processed at a commercial ship-recycling facility that could be selected by competition to give better value for money;
- the waste hierarchy will apply throughout; where feasible, materials from dismantling will be re-used or recycled (rather than be disposed of); and
- transparency will be applied to the project, and further public consultation will be undertaken before any major decisions are made.

2.1.3 Public Consultation on the SDP

Recognising the importance that public acceptability plays in the development of the solution, an iterative process of public consultation is being undertaken prior to major decisions being made. Two consultations have been held to date, conducted by independent researchers at Lancaster University:

- **Front End Consultation (FEC):** This consultation in 2001[12] was to identify what members of the public and other stakeholders considered should be taken into account when developing a solution.
- **Consultation on ISOLUS Outline Proposals (CIOP)**: In 2003, four Industry groups submitted outline proposals to meet the ISOLUS/SDP requirement to the MOD[13]. These formed the subject of the CIOP, and generated a degree of controversy and criticism. The CIOP report was published in May 04; MOD's response was released through the then Minister for Defence Procurement in Feb 05[14], following extensive consultation with Other Government Departments and Devolved Administrations.

A key CIOP recommendation was that ISOLUS should be aligned with the process of the Committee on Radioactive Waste Management (CoRWM), set up by Government in November 2003 as an independent body to recommend a strategy for the long term management of the UK's legacy higher-activity solid radioactive waste. Work on identifying potential interim ILW storage sites was suspended, in order to achieve a cohesive cross-Government approach to radioactive waste management. CoRWM's report was issued on 31 July 2006[15]; Government and Devolved Administrations responded on 25 October 2006[16].

As part of a package of recommendations, CoRWM recommended geological disposal coupled with a programme of robust, safe and secure interim storage, until a higher-activity waste disposal facility is

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[12] See http://www.submarinedismantling.co.uk/assets/downloads/publicconsultation/ISOLUS_consultation_report.pdf

[13] See http://www.submarinedismantling.co.uk/ConsultationCOIP.asp

[14] Min(DP)'s statement in response to the Consultation on ISOLUS Outline Proposals (CIOP), Feb 05. http://www.submarinedismantling.co.uk/assets/downloads/documentlibrary/CONSULTATION-OUTLINE-2003/02/isolus-ciop-mod-responses.pdf

[15] Managing our Radioactive Waste Safely, CoRWM's recommendations to Government, 31/07/06, http://www.corwm.org.uk/Pages/Lnk_pages/key_issues.aspx

[16] Response to the Report and Recommendations from the Committee on Radioactive Waste Management (CoRWM), By the UK Government and he devolved administrations, 25 October 2006. http://www.corwm.org.uk/Pages/Lnk_pages/key_issues.aspx

available. This fitted well with the strategic aims of the SDP. As a result, the MOD was able to continue developing the strategies for processing submarines and interim storage of the resultant ILW.

2.2 Key Stages, Activities and Options of the SDP

At this stage, the SDP is a national programme consisting of a number of broadly sequential stages, which may, however, overlap or coincide:

- **Stage I: Design and Develop the Initial Submarine Dismantling Capability** - This involves providing the means (essentially the facilities, processes and personnel) to safely dock and then dismantle the nuclear elements of the 27 defueled and de-equipped nuclear-powered submarines. There are three generic types of land where this capability could be developed; namely undeveloped land, previously-developed land and existing Licensed or Authorised sites. These are discussed further in Section 2.3.1.
- **Stage II: Design and Develop the Interim ILW Storage Capability** - This involves providing the means (essentially the facilities, processes and personnel) to safely store the arising ILW, until such time as the proposed GDF becomes available. This could take place on any of the three generic land types described above.
- **Stage III: Dock Submarines and Process Reactor Compartments** - This involves docking the defueled submarines into the dismantling facility before processing the Reactor Compartments in line with industry good practice. There are three different technical options under consideration for achieving this; namely Reactor Compartment (RC) storage, Reactor Pressure Vessel (RPV) storage and Packaged Waste storage. These are discussed further in **Section 2.3.2**.
- **Stage IV: Dismantle the Front and Rear Sections of the Submarines and Process all Wastes except ILW** - This involves recovering re-useable components and then taking the rest of each submarine apart in accordance with appropriate industry good practice, to produce recyclable and non-recyclable waste streams. There is an opportunity to maximise value for money by transporting the non-radiological fore and aft sections of the submarine to an established commercial ship recycling facility elsewhere in the UK, since these sections will not need to be processed at a Nuclear Licensed or Authorised site. Low-level radioactive waste (LLW) from the submarine programme has a current disposal route to the NDA's National LLW Repository in Cumbria, and continued access for SDP materials to a National LLW facility is assumed. This is discussed further in **Section 2.3.3**.
- **Stage V: Move the ILW to Interim Storage** - This involves transporting the ILW from the dismantling facility/ies to interim storage. The modes of transport used to move the ILW will depend upon the size of the packages, the location(s) of the dismantling and storage facilities and the availability of suitable transport infrastructure. This is discussed further in **Section 2.3.4**.
- **Stage VI: Dismantle RC/Reactor Pressure Vessel (RPV) (if required); transfer packaged ILW to GDF.** If the RC is fully dismantled into packaged waste at Stage III, this stage will solely involve transporting the packaged ILW to the GDF. If, however, initial dismantling at Stage III involves separation of the RC or the RPV this Stage will see these components being dismantled to fully-packaged ILW, in a similar manner to Stage I. The fully-packaged ILW will then be transported to the GDF. This is discussed further in **Section 2.3.5**.

- **Stage VII: Decommission the SDP Facilities** - This involves safely decommissioning the dismantling and interim storage facilities, and returning them to a condition that is consistent with any proposed future use. This is discussed further in **Section 2.3.5**.

2.3 Proposed Approach to Applying SEA to each of the SDP Stages

2.3.1 Stage I - Site options for Submarine Dismantling and Stage II - Site options for ILW Storage

Stages I and II could feasibly be undertaken on one single site (if space were available), or on multiple sites; e.g. using one or more sites for dismantling and one or more sites for ILW storage.

In their broadest sense, these sites fall into one of the following three generic categories of land:

- **Undeveloped, 'greenfield' sites.** These would be new sites developed on land that has not previously been subject to industrial development, such as farmland or parkland, or which has been abandoned after historic use and has reverted to a 'natural' state - such as a disused quarry or mine workings. At a site on such land, there would be no existing dock, or ship handling facility, nuclear License or expertise to undertake the required work; most or all the required infrastructure would need to be developed from scratch.
- **Previously-developed, 'brownfield' sites.** These would be new sites developed on land that is or has been developed and occupied by buildings or infrastructure. Ideally, there should be sufficient existing infrastructure in place (such as a dock to accommodate the submarines), but there would be no nuclear facilities or qualified personnel available. Commercial ship recycling facilities without a Nuclear License or Authorisation would fall into this category.
- '**Existing,' Nuclear-Licensed and/ or Authorised sites.** This comprises developed sites where specific nuclear activities have been Licensed or Approved[17] by the UK nuclear regulators, and where current nuclear expertise exists. Ideally, there should be sufficient existing infrastructure in place, such as a dock to accommodate the submarines. Within this category, there are three generic site types: Licensed and Authorised sites owned by the MOD, Licensed sites owned by the UK Nuclear Decommissioning Authority (NDA) and Licensed sites owned by commercial operators.

The generic site categories have evolved from the basic distinctions of using an existing Licensed/ Authorised nuclear site, versus developing a new site. The 'new site' category intuitively divides itself into building on land which is not built up, and building on already developed or derelict land. Note that these definitions have been substantially updated to reflect consultee feedback from Stage 'A1' and are no longer based solely on the definitions provided in PPS3 (housing).

Initial Submarine Dismantling

[17] It is important to note that it is the undertaking of the nuclear activity per se, rather than the site itself, that is approved, although the term "Authorised/ Licensed site" is commonly used.

There are only a small number of 'existing' nuclear Licensed or Authorised sites in the United Kingdom, and only some of these could practicably undertake submarine dismantling - for example, sites will have to have sea access, so those sites not on the coast would not be feasible. The MOD considers it reasonable to name those potentially suitable dismantling sites at this stage, especially since the location of the dismantling site(s) will be a determining factor in the nature and scale of the subsequent environmental effects (especially in relation to EU-designated sites).

An indicative list of the potential candidate 'existing' Licensed/Authorised sites was developed using operational criteria derived from the project's Key User Requirements, and has now been confirmed. The list of these candidate sites can be found at **Table 2.1;** further details and environmental baselines for these sites are included in the Annexes to this updated report. The site selection logic which has given rise to the candidate dismantling site list (the SDP Site Criteria and Screening Paper) is available on the SDP website (www.submarinedismantling.co.uk).

Table 2.1 Candidate Sites for Initial Submarine Dismantling

Site	Location	Owner
Devonport Royal Dockyard	Plymouth, England.	Babcock International Group
Rosyth Royal Dockyard	Fife, Scotland.	Babcock International Group

It should be noted that this list implies three credible options of the initial dismantling site involving either Devonport Royal Dockyard or Rosyth Royal Dockyard or a combination of both sites. It should also be noted that consideration of individual Licensed or Authorised dismantling sites in the SEA does not imply the exclusion of the other generic options to develop SDP capability on undeveloped or previously-developed sites. These remain within the scope of the SEA at a generic level, with the associated costs, benefits and environmental impacts considered.

However, as there are an almost unlimited number of undeveloped and previously-developed sites in the UK, it is considered disproportionate in relation to the scale of the SDP (the volume of ILW that is estimated to arise from SDP is less than 0.2% of the national ILW inventory) to attempt to consider each one individually, unless the possibilities for using an existing nuclear licensed or authorised site are exhausted. This conclusion is supported by the findings of the earlier public consultations[18] and in comments received from the Environment Agency during Statutory Consultation.

Interim ILW Storage

The current practice in the civil sector is that ILW is stored at the point of generation until a disposal solution becomes available; as a result, there is no established precedent for transfer of ILW between

[18] Project ISOLUS, Front End Consultation, Final Report, September 2001 and Project ISOLUS, Consultation on Outline Proposals, Final Report, September 2001. Both reports can be viewed at www.mod.uk/submarinedismantling

stores. NDA have challenged this position in their latest draft Strategy , (which closed for public consultation on 24th November 2010), and are exploring opportunities to share current and planned storage facilities to improve value for money and reduce the environmental impact of new store build. The development of such a national waste consolidation strategy represents a significant opportunity for MOD in conjunction with wider government liabilities, but it is not sufficiently mature to support the screening of potential candidate sites at this time.

At this stage, therefore, the MOD proposes to assess the generic site options of undeveloped 'greenfield' sites, previously-developed 'brownfield' sites and 'Existing' Licensed/ Authorised sites, considering any specific environmental effects associated with the different generic site types (e.g. those located where initial dismantling takes place and those located elsewhere in the UK). Such sites are owned by the MOD, NDA and Commercial operators.

Summary

In summary, the SEA will **firstly** consider the environmental effects associated with each stage of the SDP. This will include those associated with developing the initial dismantling and interim ILW storage capabilities at undeveloped, previously-developed and existing Licensed/ Authorised sites. **Secondly**, the SEA will then consider the environmental effects associated with developing initial dismantling facilities at those named 'existing' Licensed or Authorised sites that are reasonably able to accommodate SDP activity. The SEA will also assess the significant environmental effects of developing ILW storage capability on the two different generic types of 'existing' site (namely those under MOD, NDA or commercial ownership that are at/ close to the point of generation and elsewhere in the UK), should any significant differences become clear.

Assessment of individual candidate sites will clearly be at a greater level of detail than the generic assessment of the site types; however the SEA is a strategic assessment and not intended to replace site-specific assessments. It will not remove any requirement for the subsequently-selected site(s) to be assessed against the EIADR or EIA Regulations[19].

2.3.2 Stage III - Dock Submarines and Process the Reactor Compartment

Stage III entails moving and docking the defueled submarines into the initial dismantling facility/ies, and dismantling the Reactor Compartments to remove the remaining radiological material.

The extent to which the submarines will need to be moved depends on the location of the initial dismantling facility/ies relative to the existing interim storage locations at Devonport and Rosyth. Unless the submarines are dismantled *in situ*, it follows that some of the submarines will need to be transported off-site by sea.

[19] The Town & Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008, plus devolved equivalents; the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999

The extent to which each Reactor Compartment is taken apart will determine what form the resulting radioactive waste will be in, and hence affect the design of the interim store. Three such 'technical options' have been considered:

- Cut-out and Storage of the Intact Reactor Compartment would entail removing the intact RC from each submarine hull. The rest of the submarine would be dismantled using standard commercial 'ship recycling' processes. This is the current approach adopted by the USA, Russian Federation and France. The RCs would be stored intact on land until the proposed GDF becomes available at some point after 2040. Only at that point would the RC be fully dismantled. Dose reduction measures would be applied to demonstrate the application of As Low As is Reasonably Practicable ('ALARP') principles during dismantling, to minimise occupational dose. ALARP would mean, for instance, that the oldest submarines would be dismantled first.
- Storage of the Reactor Pressure Vessel and Associated Intermediate-Level Waste would entail cutting into the RC and removing the RPV, which would then be stored intact. The other components of the RC would be fully dismantled. The low-level radioactive wastes (LLW) would be transported to the National LLW Repository in Cumbria. Very low-level radioactive waste (vLLW) may have sufficiently low levels of radioactivity that it can be classified as exempt waste or can be cleared for recycling or re-use. The stored RPV would be dismantled once the GDF becomes available. 'ALARP' dose reduction measures would again be applied to minimise occupational dose during dismantling.
- Storage of Fully-Packaged ILW would entail full processing of the RC 'up front,' and prior to interim storage. The LLW would be packaged and transferred to the National LLW facility, while the ILW would be suitably packaged into GDF-compliant, NDA-approved containers and then stored on land at the interim store until the GDF becomes available. 'ALARP' dose reduction measures would again be applied to minimise occupational dose during dismantling.

Note that all of these options will ultimately require the reactor compartment to be completely dismantled and the ILW placed into GDF-compliant containers, to allow final disposal. The significant difference between these options is when this will be completed. RC and RPV storage would mean deferring full dismantling and processing until some point in the future, once the GDF becomes available.

MOD is currently reviewing these technical options to determine which solution best balances safety, practicality and value for money. The results of this assessment will be presented in the forthcoming public consultation, alongside all other supporting studies. These options were previously subject to public consultation through the FEC and CIOP. However, it is considered appropriate to consult on them again now, because both the definition of these technical options, and the supporting evidence, has matured significantly since those earlier consultations.

The SEA will assess the generic impacts of both submarine transport and the three technical options for processing the reactor compartment. Site-specific impacts will also be considered in relation to the proposed initial dismantling facility/ies.

Detailed technical assessment will be undertaken, and the safety case proven, through the development of a Demonstrator project, which will prove the industrial process by dismantling at least one submarine.

The key decisions on the Demonstrator (including location) will not be taken until after the public consultation has been completed and feedback has been assessed.

2.3.3 Stage IV - Dismantle the Front and Rear Sections of the Submarines, and Process all Wastes except ILW

The non-radiological front and rear sections that form the bulk of each submarine will not have to be dismantled at a Licensed or Authorised site, once they are given approval to be dismantled by the Nuclear Installations Inspectorate. This creates the options of i) undertaking all the dismantling work at the selected Licensed/Authorised site; or ii) undertaking the nuclear work at this facility, but then sending the remaining boat sections to a commercial ship-recycling facility elsewhere in the UK, which may present opportunities for competition and maximising value for money.

The SEA will assess generic impacts of ship-recycling and managing the resulting waste streams. This will highlight any significant differences in the environmental impacts of ship-recycling at the initial dismantling site versus a generic commercial site. However, the scope will not extend to a comparative assessment of individual commercial ship-recycling sites, since these are established facilities whose activities are licensed under identical regulatory requirements to ensure appropriate environmental standards are met. It is not considered reasonable or necessary to assess any alternatives to such well-established standards.

The disposal routes for Low Level Waste (LLW) and Very Low Level Waste (VLLW) are well established, with an NDA repository in operation that is able to receive MOD LLW in operation. Future disposal options for these lower-level wastes have now been set out at National level[20], and it is not considered reasonable or necessary to consider alternative options to this established process. The environmental impacts associated with the long-term management of LLW will not be assessed, as these have been (or will be) subject to environmental assessment by the NDA and so are outside the scope of the SDP**.**

2.3.4 Stage V - Move the RC/RPV/packaged ILW to Interim Storage

The best form(s) of transport for the radioactive waste streams will be largely determined by the physical form of the waste (e.g. whether as an intact RC, extracted RPV or as fully-packaged ILW) and by the physical characteristics and transport links of the processing and storage site(s). It is already known that off-site transport of intact RCs is only feasible by sea, as RCs will be too large to travel by road or rail.

The SEA will assess the generic impacts of transporting the RC, RPV or packaged ILW by road, rail and sea/waterway, as appropriate. Site-specific impacts will also be considered in relation to the feasible transport links associated with proposed dismantling sites.

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[20] Policy for the Long-Term Management of Solid Low-Level Radioactive Waste in the United Kingdom. Publ. Defra, DTI & Devolved Administrations; 26 March 2007.

The scope of the SDP (and hence the SEA) does not extend to that of the spent nuclear fuel, as this is removed from the submarines at Devonport before the submarines enter the scope of the SDP, and is stored at the fuel Repository at Sellafield. Spent fuels are not classified as waste.

2.3.5 Stage VI: Dismantle RC/RPV (if required); transfer packaged ILW to the Proposed Geological Disposal Facility

Once the GDF is operational and able to accept ILW from submarines, the ILW will need to be transported to the GDF in compliant packaging. If the RCs are taken apart and fully packaged up-front at Stage III, no more work will be needed, and this stage will only involve transporting the packages to the repository. If, however, the RCs are stored intact or partially processed to RPVs and packaged waste, further dismantling and / or packaging will be required before ILW can be received by the GDF.

The generic environmental impacts associated with dismantling stored RCs or RPVs at some point in the future are covered by Stage III, as the processes and issues will be very similar to those associated with full dismantling. Any significant differences between the environmental impacts of 'early' cut-up and 'late' cut-up will be highlighted.

The generic impacts associated with transporting the packaged ILW are covered by Stage V, as the processes and issues will be very similar.

Note that, although reference is made to the proposed UK GDF, the environmental issues associated with its' development are subject to separate assessment process by the NDA and so are outside the scope of the SDP**.**

2.3.6 Stage VII: Decommission SDP Facilities

The submarine processing facility/ies will be operational until around 2046; interim storage until at least 2040. Since decommissioning is so far in the future, there are significant uncertainties about the nature and magnitude of the associated environmental effects. The SEA will assess the generic impacts of decommissioning, using evidence gained from the civil nuclear industry. However it is not proposed to include site-specific assessment, as anything more than a generic assessment at this stage would not be meaningful.

2.4 Summary

The proposed application of SEA to the SDP is summarised in **Table 2.2**. The SEA will firstly consider the generic environmental effects associated with each stage of the SDP. This assessment will be followed by a determination of the site-specific effects that could arise from initial submarine dismantling at candidate 'existing' nuclear Licensed or Authorised sites.

Table 2.2 Summary of the Level of SEA Assessment for the Key Stages of the SDP

Key Stages of the SDP	Proposed Generic Assessment for SDP strategic options	Proposed Site-level Assessment for SDP strategic options
Stage I Develop the initial dismantling capability at a coastal location	Assess each generic site category (undeveloped site, developed site or 'existing' Licensed/ Authorised nuclear site)	Assess generic effects of developing SDP facilities at Rosyth and/ or Devonport
Stage II Develop the interim ILW storage capability	Assess each generic site category (undeveloped site, developed site or 'existing' Licensed/Authorised nuclear site).	Consider generic effects of storing ILW at the point of generation and elsewhere at other 'existing' UK Licensed/ Authorised sites
Stage III Dock submarines and process Reactor Compartments	Assess transport of submarines to initial dismantling facility/ies Assess each technical option for processing the reactor compartment	Consider site-specific transport issues, where relevant
Stage IV Dismantle the fore and aft sections and process all materials (except ILW)	Generic assessment of ship-recycling	Consider generic effects of ship recycling both on-site (Rosyth/ Devonport) and off-site.
Stage V Transport RC/RPV/ ILW to interim storage	Generic assessment of transport options from Rosyth and/ or Devonport to a hypothetical storage site in the UK.	
Stage VI Dismantle RC/ RPV (if appropriate); transfer packaged ILW to Geological Disposal Facility (ca. 2040) on	Generic assessment of the dismantling process (as per stage III) if required; generic assessment of transport options	
Stage VII Decommission SDP facilities once all submarines have been processed	Generic assessment of the decommissioning process	Assess generic effects of decommissioning SDP facilities at Rosyth and/ or Devonport

The SEA will inform the development of the SDP's strategic direction, by assessing the reasonable strategic options at each stage of operation, including comparative assessment of developing new sites versus use of existing Nuclear Licensed/Authorised facilities.

Consideration of individual Licensed or Authorised sites in the SEA does not imply the exclusion of the other generic options to develop SDP capability on undeveloped or previously-developed land. These remain within the scope of the SEA, with the associated costs, benefits and environmental impacts considered.

The relative assessment of potential candidate sites will clearly contain more detail than the generic assessments, since site-specific information will be available. Whichever site(s) are eventually chosen, further site-specific environmental assessments will be needed before any development can take place. We expect that these will include (but not be limited to) Town and Country Planning Environmental

Impact Assessment, Environmental Impact Assessment for Nuclear Decommissioning and Environmental Permitting[21].

These choices are presented within the context that indefinite afloat storage of redundant submarines (the 'do minimum' option) is not a reasonable long-term solution for the United Kingdom. As a result, this 'do minimum' option will be used as a baseline comparator in the SEA and not be subject to assessment in its own right as a 'reasonable alternative.' This option will also be used as a baseline comparator in the wider public consultation process.

[21] The Town & Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008, plus devolved equivalents; the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999; and the Environmental Permitting Regulations 2010

3. Baseline Information

3.1 Introduction

An essential part of the SEA process is to identify the current state of the environment and its likely evolution under a 'business as usual' scenario. Only with sufficient knowledge of the existing baseline conditions can the key potential effects of the SDP proposals be identified, characterised and assessed. The SEA also requires that the actual effects of implementing the SDP on the baseline are monitored.

Annex I of the SEA Directive requires that the subsequent assessment (to be contained in the Environmental Report) should include information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". To support a comprehensive assessment of potential effects, a baseline for each of these environmental categories has been considered. **Table 3.1** presents how the proposed categories in this report are consistent with the SEA Directive requirements.

Table 3.1 Scope of Effects Considered by SDP Scoping Report

Annex I SEA Directive Effects	Categories Considered by SDP Scoping
Biodiversity, Flora and Fauna	Biodiversity and Nature Conservation
Population	Population including socio-economic effects
Human Health	Human Health and Wellbeing
	Health (Noise and Vibration)
Soil	Soil and Geology
Water	Water
Air	Air
Climatic factors	Climate Change and Energy Use
	Coastal Change and Flood Risk
Material assets	Material assets (Transport)
	Material assets (Waste Management)
	Material assets (Land Use and Materials)
Cultural heritage, including architectural and archaeological heritage	Cultural heritage, including architectural and archaeological heritage
Landscape	Landscape and Townscape

3.2 Baseline Data

Annex A provides a summary of the current and projected national baselines for each SEA category, taken from Annex I of the Directive. **Annex C** provides a summary of the current and projected sub-regional baselines for each SEA category.

Consistent with the requirements of Annex 1 (b), (c) and (d) of the SEA Directive, **Annex A** and **Annex C** sets out for each SEA category:

- relevant aspects of the current state of the environment;
- the likely evolution of these baseline conditions without the implementation of the SDP; and
- characteristics and current problems in areas of particular environmental importance.

Annex A present's information that has been collected at the national level (UK, England, Scotland, Wales and Northern Ireland). It provides a contextual overview of the state of the nation in each category area. Following comments from statutory consultees, the information presented for the national baseline was significantly extended, specifically to include data for Scotland, Wales and Northern Ireland. The national baseline will be used to inform the assessment of the generic issues associated with the implementation of stages I to VII of the SDP.

Annex C presents baseline data at sub-regional level for each local authority area that includes a potential candidate site for dismantling. These local authority areas (and the indicative sites located within them) are as follows:

- Plymouth (for Devonport Royal Dockyard and /Her Majesty's Naval Base Devonport)
- Fife (for Rosyth Royal Dockyard).

Information has been used from a variety of sources including Defra, DECC, the Environment Agency, Natural England, the Office of National Statistics, Welsh Assembly Government, the Scottish Environmental Protection Agency and DoE(NI). On occasion, for some of the categories within the baseline, there are specific data that we have not been able to identify. Where this occurs, this has been identified and consultee support is welcomed in identifying suitable sources of the outstanding information.

Following consultation and amendment, this information will be used to inform the assessment of the credible site options for dismantling and storage, to be reported in the Environmental Report. This information includes more detailed information on local conditions and trends, particularly for Special

Areas of Conservation (SAC) and Special Protection Areas (SPAs) designated under Directive 79/409/EEC and 92/43/EEC [22].

3.3 Key Baseline Issues

From an analysis of current and projected baseline conditions, the following issues have been identified as being relevant to the SDP. Under each topic, the reference to the assessment objectives indicates how these issues have been reflected within the assessment methodology (**see Section 6**). Please note that the issues summarised in **Section 3.3** below are those identified by the national and sub-regional baselines as being particularly pertinent. They *do not,* however, anticipate the potential effects of the SDP on these baseline conditions. The provisional assessment of the SDP's potential environmental effects is outlined in **Section 5** and these effects will be included in the scope of the SEA Stage B assessment.

3.3.1 Key Biodiversity and Nature Conservation Baseline Issues

- Areas already covered by European designations and SSSIs are predominantly well managed and improving in condition; 94% of UK SSSIs are currently recorded as being in Favourable or Unfavourable Recovering condition. There is a presumption against harming the integrity of a European-designated site (including Ramsar sites). Protected habitats and species (such as at sensitive coastal locations) may affect where and how SDP activities can take place.
- Species and habitats outside of such designated areas are, however, more vulnerable and often in decline. For example, most of England's (unprotected) semi-natural habitats have recently been assessed as being insufficiently protected, under-managed or isolated.
- Too few people have access to wildlife, leading to a loss of cultural connection with the natural environment.
- The trend of increasing development pressure at coastal and estuarine areas (often accompanied by coastal engineering projects such as sea defences) is having an adverse affect on biodiversity, particularly through impacts on water quality and loss of habitat.
- **Plymouth** (home to Devonport) has nine SSSIs, one SAC and one SPA (the Tamar Estuaries Complex, which is predominantly in favourable condition). Current threats to the designated features of SACs and SPAs are mainly from increased coastal development, dredging and increased marine activity. Plymouth has six designated Local Nature Reserves, mostly situated on the eastern side of the city.
- **Fife's** coastland and wetlands are important sites for migrating wildfowl and breeding seabird populations. Fife (home to Rosyth) has 48 SSSIs, two SACs, two SPAs, one Ramsar site, seven local nature reserves and one regional park. The environmental problems and threats affecting

[22] A European Site is any classified SPA and any SAC from the point where the Commission and the Government agree the site as a Site of Community Importance.

biodiversity in Fife include fragmentation of habitats due to development pressures; non native invasive species; climate change impacts; agricultural practices; and land and freshwater pollution (including nutrient enrichment). Fife's wetlands, in particular, appear to be declining due to changes in habitat distribution and land use.

These issues are reflected in the assessment process though Objective A (Biodiversity and Nature Conservation),Objective D (Noise and Vibration), Objective F (Water), Objective G (Air), Objective H (Climate Change and Energy Use), Objective L (Land Use and Materials) and Objective N (Landscape and Townscape).

3.3.2 Key Population and Socio-Economic Baseline Issues

- The UK population continues to grow; however, there is a decline in those of working age and competition from the civil sector for those with requisite civil or defence-related nuclear skills and experience. This may affect when and where the SDP's radiological activities can feasibly take place.
- The UK economy is currently in recovery; however unemployment rates have been rising and may continue to rise beyond 2010. Disadvantage continues to exist in many communities, both in remote areas and inner cities.
- Budget constraints may affect current delivery plans, in line with the situation for wider national and local government.
- Defence activity generally brings positive economic impacts around its facilities and bases, due to relatively stable employment levels and inward investment.
- **Plymouth** has a resident population of 256,700 with 67% of population of working age. The area has relative lower wages than the UK averages. Plymouth has a strong and recognisable industrial and military heritage which has left behind a set of ongoing and evolving specialisms in Advanced Engineering and Maritime industries. However, in recent years there has been a decline in employment in technology and knowledge based activities in Plymouth. The Naval Base is the largest in Western Europe, and accounts for 10% of Plymouth's income.
- **Fife's** resident population is 363,500 with 78% of the working age population economically active. The area has relatively lower wages than UK average. Fife is more dependent on manufacturing than Scotland as a whole, but is seeing a shift to a more modern service economy. Specialist manufacturing in defence, marine engineering and electronics remain important.

These issues are reflected in the assessment process though links with Objective B (Population).

3.3.3 Key Health Baseline Issues

- Health problems associated with radiological exposure are generally a minor issue in the UK; the great majority of the average public dose comes from natural sources of radiation, although medical testing and accidental releases do contribute to this. Background levels of natural radiation vary considerably from area to area, and any additional exposure (however small) may be an important issue for those communities who are already exposed to high natural background levels.

- Health inequalities exist in many communities, often exacerbated by poor access to or use of health services. Any future funding constraints on health services are likely to affect this situation.
- **Plymouth** has an average life expectancy slightly below the UK average. Life expectancy in Plymouth is going up overall; however, some deprived areas have lower than average rates. Studies report that whilst Plymouth has higher cancer rates than the national average, this is most likely to be due to socio-economic deprivation and smoking rather than any other actives in the city.
- The trend in **Fife** is of gradually improving health. Between 1995 and 2004, death rates from cancer, CHD, cerebrovascular disease and respiratory disease decreased; CHD by 36%, cerebrovascular and respiratory disease by 25%. Fife is not a Radon-affected area.

These issues are reflected in the assessment process though links with Objective C (Health and Wellbeing).

3.3.4 Key Health (Noise and Vibration) Baseline Issues

- Ambient noise levels are gradually increasing in the UK as a result of an increasing - and increasingly mobile - population. The cumulative impacts of noise on sensitive groups in local communities may create or exacerbate existing health issues.
- For both sub-regional baselines, road traffic noise (especially from major through-routes) is identified as the key cause for disturbance, e.g. the A90 north of the Forth Road Bridge in Fife. Councils are recording an increase in noise complaints.

These issues are reflected in the assessment process though links with Objective D (Noise and Vibration), Objective I (Transport) and Objective A (Biodiversity and Nature Conservation).

3.3.5 Key Soils and Geology Baseline Issues

- Significant areas across the UK carry a burden of contamination from industrial activity, although this is progressively being cleaned up as sites are redeveloped. Whilst contamination is remediate during redevelopment, the process can be expensive.
- Disturbance of contaminated sites carries the risk of pollution pathways being created or re-opened for any existing ground contamination.
- **Plymouth** has four SSSIs designated for their geological importance. Plymouth also has a large number of unlicensed, historic waste disposal sites containing a variety of wastes, many of which were closed prior to the establishment of the Control of Pollution Act in 1974.
- **Fife** (including Clackmannanshire) has 24 geological SSSIs and 7,000 potentially contaminated sites, mainly as a result of the area's industrial heritage.

These issues are reflected in the assessment process though links with Objective E (Geology and Soils), Objective L (Land Use and Materials) and Objective F (Water).

3.3.6 Key Water Baseline Issues

- Between 1985 and 2005, UK radioactive emissions to water fell by 87% and that trend is on-going.
- The majority of UK coastal waters (around 94%) conform to the requirements of the Water Framework Directive.
- 26% of rivers, 36% of lakes and reservoirs and 27% of estuaries and coasts in England and Wales are at good or better ecological status in every one of the characteristics looked at for Water Framework Directive (WFD) targets. 98.3% of England's bathing waters met the EC's minimum water quality standards in 2009, up from 96% in 2008.
- There are 182 protected areas in UK inshore waters with a marine element, which includes 81 Special Protection Areas (SPAs) with marine habitats for birds, 98 Special Areas of Conservation (SACs) with marine habitats or species and three Marine Nature Reserves. In total the area coverage of these sites exceeds 1.8 million hectares, or 2.2% of UK waters.
- The annual per-capita radiation dose to people in the UK from all EC marine discharges was 0.68μSv (down from 1.17μSv in 1998). Around 10% of this is due to nuclear industry.
- Climate change and the effects of an increasing population are placing growing pressure on the availability and quality of surface and ground-water resources. In some parts of the country, availability of sufficient water supplies may constrain future development.
- **Plymouth's** inland water quality is generally considered to be good (65% were in good biological condition with 100% in good chemical condition. Plymouth Sound and Estuaries SAC and the Tamar Estuaries Complex SPA are protected water features. The water in Plymouth Sound is assessed as having good ecological quality, but poor chemical quality. A 2004 Natural England study reported that the radionuclides discharged into the Plymouth Sound and Estuaries SAC was of low radiological significance. .
- In **Fife,** water quality is relatively good. In 2007, the 80% of bathing waters in Fife meet quality standards. In 2006 609km of rivers were sampled for quality. 20% were rated excellent; 42% were rated as good; 26% were rated fair; and 12% were rated as poor. Isle of May SAC, Firth of Tay and Eden Estuary SAC, Firth of Tay and Eden Estuary SPA, Firth of Forth SPA, Cameron Reservoir SPA, Forth Islands SPA, South Tayside Goose Roosts SPA, and Loch Leven SPA are all protected water features within Fife. As a result of river basin management plans, there is a general trend of increasing freshwater quality from reduced agricultural and point source pollution.

These issues are reflected in the assessment process though links with Objective F (Water), Objective H (Climate Change and Energy Use) and Objective A (Biodiversity and Nature Conservation).

3.3.7 Key Air Baseline Issues

- Air quality has improved in the UK over the last sixty years as a result of the switch from coal to gas and electricity for heating of domestic and industrial premises, stricter controls on industrial

emissions, higher standards for the composition of fuel and tighter regulations on emissions from motor vehicles. However, poor air quality - particularly from vehicles - remains a significant issue for community health and for biodiversity, especially in/downwind of urban areas and major transport networks. Air pollution continues to cause significant damage to peoples' health. Air pollution is also a significant cause of decline in the condition of 55 of UK SSSIs.

- Between 1985 and 2005, UK radioactive emissions to the atmosphere fell by 83% and that trend is on-going.
- For the sub-regional baselines, air quality is considered good overall, when assessed against national air quality standards.
- **Plymouth** is a Radon-affected area. The naturally-occurring radioactive Radon gas is associated with the prevalence of granite bedrock. 3-5% of dwellings in the Devonport area have been assessed as having Radon levels above the accepted Action Level of 200 Becquerels per cubic metre of air.
- By contrast, **Fife** is not a Radon-affected area, with 1% of less of dwellings above the Action Level.

These issues are reflected in the assessment process though links with Objective G (Air), Objective A (Biodiversity and Nature Conservation) and Objective C (Health and Wellbeing).

3.3.8 Key Climate Change and Energy Baseline Issues

- Energy security is becoming a significant emerging issue for the United Kingdom as national fossil fuel resources are depleted; the development of the suite of energy infrastructure NPSs is attempting to address these issues. This (currently) recommends development of low/zero carbon sources, including new nuclear power facilities.
- The UK's Climate Projections (UKCP09) show that the country as a whole is likely to experience hotter drier summers, warmer wetter winters and rising sea levels, particularly in the South East of England. This is likely to have a significant effect on a range of environmental conditions, including the water environment. This may have a significant impact on where and how submarine dismantling can take place.
- The UK national target of an 80% cut in greenhouse gas emissions by 2050 (compared to 1990 levels) has been incorporated into MOD policies and procedures for energy and the built environment. This will affect the design and execution of SDP activities.
- Per-capita energy consumption in Plymouth and Fife were higher than both regional and national averages (with consequently higher than average per-capita CO_2 emissions).

These issues are reflected in the assessment process though links with Objective H (Climate Change and Energy Use), Objective A (Biodiversity and Nature Conservation) and Objective F (Water).

3.3.9 Key Coastal Change and Flood Risk Baseline Issues

- Sea levels are rising, with worst case scenarios of a 1.9m increase in sea level by 2100 (with up to 0.76m more likely). The south and east of England will experience the greatest effective increases, due to the effects of post-glacial rebalancing.
- Many coastal sites (especially in the south and east of the country) are already prone to erosion, due to their underlying geology, coupled with rising sea levels and increased storm intensity.
- Increasing development pressures on and around the coastal environment (often accompanied by coastal engineering projects such as sea defences) are conflicting with the need for their effective management in the face of climate change. Shoreline management plans are being implemented across the country to assess and manage these risks.
- **Plymouth** is affected by flooding; a significant amount of this is caused by ineffective drainage and insufficient sewer capacity. High-risk areas (Flood Zone 3 in PPS 25) extend along the western side of the City. Plymouth is likely to be affected by rising sea levels and subsequent flooding.
- **Fife** has a relatively long coastline and tidal flooding is already an issue. Many areas are at risk from rising sea levels and increased storminess. 3% of houses are within a fluvial flood risk area. Rosyth dockyard lies within the 1 in 200 year (0.5% annual probability) flood envelope of the Indicative River & Coastal Flood Map (Scotland), and may therefore be at medium to high risk of coastal flooding. In Fife, most watercourses are small and fast flowing, and flooding is usually caused by short-duration, intense rainfall. Of the two larger rivers in Fife (the Leven and Eden), the latter is historically subject to significant flooding, whilst the Leven shows little tendency to flood.

These issues are reflected in the assessment process though links with Objective I (Coastal Change and Flood Risk), Objective H (Climate Change and Energy Use), Objective A (Biodiversity and Nature Conservation) and Objective F (Water).

3.3.10 Key Material Assets (Transport) Baseline Issues

- The UK has major road, rail, air and water transport infrastructures. However, all are under increasing pressure as the population increases and becomes more mobile, and as networks age.
- The transport of radiological materials by road and rail in the UK is controlled by the NII and DfT and has an excellent safety record. Nevertheless, any transport of such materials off-site carries a remote risk of accidental damage.
- Each of the sub-regional baselines has recorded an increase in vehicle movements, an increase in the movement of freight by road and increasing congestion.

These issues are reflected in the assessment process though links with Objective J (Transport).

3.3.11 Key Material Assets (Waste Management) Baseline Issues

- In 2007, defence accounted for 2% of UK total radiological waste arisings. The SDP will, however, add to the accumulating ILW and LLW in the UK that will need to be disposed of.
- There is currently no centralised UK higher-activity radioactive waste storage capacity. Intermediate-level waste (ILW) is generally stored at or close to the point of generation, whilst spent fuels are stored at Sellafield. The delivery of a National Geological Disposal Facility is being planned, with a current in-service date of around 2040. However, this date is not guaranteed, so ILW may have to be stored for longer than this; a design life of 100 years has been adopted for the interim storage solution.
- Reuse and recycling rates for industrial wastes are increasing, due to the combined effects of statutory, reputational and financial drivers. However, there are still high levels of waste being disposed of, with limited opportunity for recycling hazardous and very low-level radioactive materials.
- Each sub-regional baseline records an increase in the quantities of waste arising along with significant increases in recycling rates. Limited landfill capacity is noted as a critical future issue for a number of areas.

These issues are reflected in the assessment process though links with Objective K (Waste Management) and Objective L (Land Use and Materials).

3.3.12 Key Material Assets (Land Use and Materials) Baseline Issues

- 5.6% of UK land is currently classed as 'built up.' Development targets in Regional Spatial Strategies, which placed significant pressure for economic development and housing on undeveloped land, have now been scrapped; nevertheless, development pressure remains, and it is not expected that previously-developed land will be able to fully deliver the UK's future needs. This will continue to place development pressures in rural areas and the urban fringe.
- The Defence Estate strategy and recent Strategic Defence and Security Review are driving significant and progressive reductions in the amount of MOD-owned land across the UK. This may impact the availability of military land for SDP activity.
- Consistent with the national trends, within the sub-regional baselines, there has been an increase in the location of development on previously developed land. No data was found on any particular land use or materials supply issues. *Consultee input welcome*.

These issues are reflected in the assessment process though links with Objective L (Land Use and Materials) and Objective A (Biodiversity and Nature Conservation).

3.3.13 Key Cultural Heritage Baseline Issues

- The MOD is responsible for a significant number of designated cultural heritage sites and features (782 listed buildings and 723 scheduled monuments). Appropriate management has resulted in over 80% of these now being in good or fair condition.

- **Plymouth** has 37 SAMs, 750 listed buildings and 14 conservation areas. There are 85 listed buildings within Devonport Naval Base (embracing all MOD and Babcock landholdings) which is over 11% of the total number of 750 listed buildings within Plymouth. Of the 85 listed buildings, 2 are grade I and 23 are grade II*. Indeed many of Plymouth's most important buildings are associated with the Dockyard, such as the Royal William Yard and Naval Hospitals and are listed as Grade II* or Grade I reflecting their significance. The naval base also contains has 5 scheduled monuments. Devonport as a whole has major significance as one of the most important historic dockyards in Europe.

- **Fife** has 260 SAMs 795, 4910 (Category A: 41; Category B: 410; Category C(S): 390) and 48 conservation areas. No data was found on particular cultural heritage issues. *Consultee input welcome*.

These issues are reflected in the assessment process though links with Objective M (Cultural Heritage) and Objective L (Landscape and Townscape).

3.3.14 Key Landscape and Townscape Baseline Issues

- The UK has many important and protected landscapes which may be sensitive to development. The character of the UK's landscapes are broadly being maintained, however 20% show signs of neglect.

- The natural environment of the UK is much less 'rich' than 50 years ago and remains under pressure from more intense use of the land and sea; continuing economic development, climate change and increased pressures from public access.

- **Plymouth's** diverse landscape includes historic waterfronts and dockyards surrounding the large Ria/natural harbour; parkland, hilltop planting, steep wooded slopes, ridges and valleys. The South Devon AONB has dominant views of Plymouth Sound with its commercial and naval shipping and busy waterfronts.

- **Fife** is composed of mainly open countryside, and includes six Areas of Great Landscape Value (AGLV) (covering 70,640ha). Fife's wetlands appear to be progressively reducing, and there is an acknowledged trend of increasing development pressure on landscapes more generally in the area.

These issues are reflected in the assessment process though links with Objective N (Landscape and Townscape), Objective A (Biodiversity and Nature Conservation) and Objective M (Cultural Heritage).

4. Review of Plans, Programmes and Environmental Protection Objectives

This section outlines the plans, programmes and environmental protection objectives, established at International, European, National and sub-regional level, which are relevant to the SDP. A full review of National plans and programmes (including those for devolved administrations) is provided in **Annex B.** Information relevant to individual areas at sub-regional level is provided in Annex C.

4.1 Review of Plans and Programmes

The SEA scoping process needs to identify and review other relevant plans, programmes, policies and strategies (herein after referred to as 'plans and programmes') that are applicable to the SDP and outline the nature of the project's relationship with them. They are set at an International, European, National and Sub-Regional level, covering a variety of topics (including spatial and resource planning).

Annex B contains the review of the International, European and National plans and programmes relevant to the SDP, whilst **Annex C** provides sub-regional information.

4.2 Key Environmental Protection Objectives

From the review of these plans and programmes, a number of key environmental protection objectives have been identified. These are summarised below, along with an indication of where the policy objectives are reflected in the SEA assessment objectives (discussed further in **Section 6.1)**. The key objectives and policy messages have been structured around the environmental categories taken from SEA Directive Annex I issues (and used to structure the baseline information in the previous section). **Table 4.1** (below) provides a précis of relevant National and International environmental protection objectives.

Table 4.1 Key Environmental Protection Objectives

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
Biodiversity and Nature Conservation	**International** To protect international/European protected wildlife areas (including SACs, SPAs and Ramsar sites). To contribute to the conservation of global biodiversity. To ensure that the conservation and enhancement of natural heritage including wetland conservation is reflected in land use planning. To protect and enhance the ecosystems and the biological diversity of the maritime areas. To ensure the conservation of biodiversity in order to continue to harness the derived health and wellbeing benefits for the population. To identify where operators are financially liable for threats of or actual damage to the environment under the “polluter pays” principle. To anticipate, prevent and act on causes of significant reduction or loss of biodiversity. **National** To conserve and enhance biological diversity within the UK. To ensure that the quality of habitats and biodiversity is enhanced or at least conserved and take account of key priority habitats and species in decision making. To protect of the network of nationally protected wildlife areas (including SSSIs). To protect marine biodiversity with UK jurisdiction, both within and beyond UK territorial waters. **MOD** To conserve, and where appropriate, enhance biodiversity as part of estate ownership, to contribute to the UK commitment to halt the loss of biodiversity by 2010 and onwards, whilst ensuring the provision of defence capabilities. To achieve this aim the MOD will be an exemplar in the management of designated sites where compatible with military requirements; ensure natural environment requirements and best practice are fully integrated into estate management practices; and contribute, as appropriate, to the UK BAP and County biodiversity strategies.	Objective A Biodiversity and Nature Conservation Objective C Health and Wellbeing
Population	**International** To grants public rights to information, public participation and access to justice. To undertake appropriate consultation with consultation bodies and the public during the SEA process. To achieve economic development and reduction of inequalities whilst	Objective B Population Objective C Health and Wellbeing

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)

adhering to the principles of social and environmental justice and sustainable development.

To promote full employment, quality and productivity at work and promoting inclusion by addressing disparities in access to labour markets.

To promote the economic development of disadvantaged areas within the European Union.

National

To create strong, prosperous communities and deliver better public services.

To narrow the gap between deprived neighbourhoods and the rest of the country.

To achieve economic development and reduction of inequalities whilst adhering to the principles of social and environmental justice and sustainable development.

To create places shaped by their communities where people are proud to live.

To raise the productivity of the UK economy, maximise job opportunities, improve economic performance and reduce the gap in economic growth rates between regions.

To deliver sustainable development; build prosperous communities; promote regeneration; and tackle deprivation.

To ensure more and better jobs as a result of sustainable economic development.

To promote the vitality and viability of town and other centres as important places for communities.

To develop and support successful, thriving, safer and inclusive urban and rural communities.

To create inclusive and locally distinctive rural communities whilst continuing to protect the open countryside for the benefit of all.

To raise the quality of life and the environment in rural areas by promoting thriving.

MOD

The delivery of Defence capability will contribute to the creation of more sustainable UK communities, and an environment in which people can fulfil their potential.

To deliver this aim the MOD will:

- Help build the skills of young people.
- Create a workforce that is drawn from the breadth of society and ensure that the unique contribution of every individual in that workplace is respected and valued.
- Provide a safe and healthy workplace.
- Manage the social impacts of Defence activities on UK communities

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	(civilian and Armed Forces). • To improve effectiveness within the context of practicality, achievability and value for money on an ongoing basis. • To provide economic, environmental and social justification for any decision to procure new facilities as opposed to the re-use of existing facilities. Ensure that procurement strategies take full account of economic, environmental and social impacts.	
Health and Wellbeing	**International** To ensure children have safe water and clean air. To ensure that measures to improve the health and wellbeing of the population are appropriately supported. To preserve, protect and improve the quality of the environment and to protect human health. To promote good health throughout the lifespan of the population. Support Dynamic Health Systems and New Technologies. To reduce inequities in health. **National** To and minimise work-related injuries and ill-health. To ensure workers and the public are protected from ionising radiation. To reduce and where possible avoid the effects and causes of statutory nuisance and to comply with all relevant UK environmental legislation. **MOD** In addition to the MOD SD Action Plan targets detailed above in Population, the Secretary of State's policy statement requires the department to avoid work-related fatalities and minimise work-related injuries and ill-health. To comply with the letter and the spirit of UK environmental law applicable to ionising radiations so far as is reasonably practicable, regardless of any Crown or Defence Exemptions. To reduce exposure of the workforce, members of the public and the environment to levels of radiation which are as low as reasonably practicable (ALARP). To justify the use of ionising radiations before their introduction and to reduce exposure of the workforce, members of the public and the environment to levels which are as low as reasonably practicable (ALARP).	Objective C Health and Wellbeing Objective B Population
Health (Noise and Vibration)	**International** To prevent critical health effects as a result of high levels of noise in and around dwellings. To promote transport systems that do not generate noise levels which may	Objective B Population Objective C Health and Wellbeing

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	have negative effects on human health. To avoid, prevent or reduce the harmful effects including annoyance due to exposure to environmental noise. **National** To minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business. To ensure noise reduction occurs where there may be adverse impacts of noise on human health or protected species. To incorporate noise reduction measures in the construction of rail guided transport systems. To promote good health and good quality of life through the effective management of noise in the context of Government policy on sustainable development'. **MOD** To reduce and where possible avoid the effects and causes of statutory nuisance and to comply with all relevant UK environmental legislation. MOD establishments are not allowed to create excessive noise liable to cause a nuisance as part of activities not directly connected with the operation of equipment, training of personnel or other military operations. To make every effort to keep the disturbance to the public caused by the noise generated by military activity to a minimum. Where possible, activities generating substantial noise will be kept at a distance from residential areas, and night time activity will be limited to achieving training objectives which cannot be met during the day.	
Soil and Geology	**International** To ensure that soil resources are protected and that expansion of organic farmland and adoption sustainable farming techniques can be facilitated. To protect soil on the basis of the principles of: preservation of soil functions; prevention of soil degradation; mitigation of its effects; and restoration of degraded soils. To take precautionary measures where soil function may be affected. To identify areas at risk of erosion, organic matter decline, salinisation, compaction and landslides. To limit the introduction of dangerous substances into the soil, to avoid accumulation in soil that would hamper soil functions and create a risk to human health and the environment. **National** To ensure development takes a strategic approach to the conservation, enhancement and restoration of geology; and where appropriate incorporate design features to beneficial geological features.	Objective E Geology and Soils Objective C Health and Wellbeing Objective A Biodiversity and Nature Conservation

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	To ensure contaminated land is identified and remediated where appropriate. To protect and preserve the environment and guard against pollution to land. To preserve, where possible, the best and most versatile agricultural land. **MOD** To establish a complete picture of risks associated with land quality across the Defence Estate and have in place robust mechanisms for managing those risks to an acceptable level. To maintain a Corporate EMS based on ISO 14001 across the Estate. …to maintain a view of the impacts of MOD activities and the impact of land quality on MOD activities.	
Water	**International** To ensure that the water and ecological quality of freshwater and marine environments is enhanced and at least conserved. To ensure sustainable use of water resources and reduced pollution and physical impacts. To facilitate the integrated management of both the coastal zone and River Basin Districts to ensure sustainable use and protection of resources. To encourage the sustainable use of water resources and protect: aquatic ecology, drinking water, and bathing waters. To provide information to the public on bathing water quality. To protect the environment from the adverse effects of urban waste water discharges and discharges from industrial processes. To prevent the pollution of groundwater. To protect the marine environment across Europe. To protect the health of European water consumers. **National** To protect the water environment in a way that allows it to adjust flexibly to changing climate. To reduce pressure on the environment caused by water taken for human use; promote water use efficiency; and protect vital water supply infrastructure. To improve the coastal environment particularly in urbanised or despoiled areas. To improve quality of the UK water environment and the ecology which it supports. To prevent pollution of the maritime area covered by the OSPAR Convention from ionising radiation. **MOD** To ensure all MOD sites become more water efficient to comply with	Objective F Water Objective A Biodiversity and Nature Conservation Objective C Health and Wellbeing Objective H Climate Change and Energy Use Objective I Coastal Change and Flood Risk Objective M Cultural Heritage

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	Government and MOD targets. To conduct activities in accordance with government policy and to comply with the letter and spirit of environmental law. To support the aims and objectives of the UK Marine Bill, with exceptions negotiated solely to support operational capability or retain classified information.	
Air	**International**	
	To promote cleaner transport technologies and manage the demand for transport to prevent detrimental effects to human health from air pollution. To ensure that air quality is enhanced or at least maintained and ensure that measures are adopted to support continued air quality standards. To monitor and reduce trans-boundary atmospheric pollution. To ensure that information on ambient air quality is made available to the public. To maintain air quality where it is good and improving it in other cases. To attain levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment.	Objective G Air Objective A Biodiversity and Nature Conservation Objective C Health and Wellbeing Objective J Transport
	National To align with the principles of sustainable development and the importance of controlling and minimising pollution. To protect and preserve the environment and guard against pollution to air.	
	MOD To comply with the provisions of relevant environmental legislation and work towards reducing the Department's contributions to, and impacts of, air pollution. .Crown exemption remains for smoke, but for training and operational purposes only. To ensure all establishments operating prescribed processes (that would require an Environmental Permit) comply with the letter and spirit of the statutory requirements. To minimise gaseous and particulate emissions, particularly where they include heavy metals or other substances on the Red List of substances considered particularly harmful in water. To ensure vehicles comply with emission limits. To ensure vessels in harbour or close to shore comply with Clean Air legislation. To eliminate all sources of fluorinated greenhouse gasses and ozone-depleting substances as soon as is technically and economically feasible.	
Climate Change and Energy Use	**International** To prevent "dangerous" human interference with the climate system, namely through reductions in the emissions of greenhouse gases.	Objective H Climate Change

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	To promote renewable energy sources. To promote sustainable development with regards to: energy development, efficiency and consumption, transportation, industrial development, terrestrial and marine resource development and land use. To reduce emissions of carbon dioxide and combat the serious threat of climate change. To help transform Europe into a low-carbon economy and increase its energy security. To ensure that energy efficiency measures are put in place and, where possible, renewables are employed to contribute to appropriate Climate Change targets. **National** To improve carbon management and help the transition towards a low carbon economy. To promote climate change risk management in all aspects of business to ensure future resilience for communities, businesses and the environment. To pursue new development in places that are resilient to climate change; and in ways that are consistent with social cohesion and inclusion. To conserve and enhance biodiversity, recognising that the distribution of habitats and species will be affected by climate change. To reduce energy consumption, minimise detrimental effects on the climate from greenhouse gases and maximise resilience to climate change. **MOD** To be a leader amongst UK Government departments and Defence departments in EU and NATO States in the sustained reduction of CO_2 and other GHG emissions, and to ensure the continued delivery of Defence capability in a changing climate. To ensure that the emissions of the GHGs that result from defence activities are continually reduced, such that Defence will eventually not be a significant contributor to the causes of climate change. To agree and implement an effective process to enable Defence activities to continually adapt to a changing climate, such that Defence capability is not compromised and any potential benefits from the future climate are realised. To reduce dependency on fossil fuels by ensuring that military equipment, estate and services are energy efficient and use low or zero-carbon energy sources where practicable.	and Energy Objective A Biodiversity and Nature Conservation Objective B Population Objective F Water Objective G Air Objective I Coastal Change and Flood Risk
Coastal Change and Flood Risk	**International** To reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. **National** To reduce the threat of flooding to people and their property; avoid	Objective I.Coastal Change and Flood Risk Objective A Biodiversity and Nature Conservation

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	inappropriate development in areas at risk of flooding; and sustainably manage risks from flooding and coastal erosion. To ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time. To prevent new development from being put at risk from coastal change. **MOD** None identified.	Objective B Population Objective F Water Objective H Climate Change and Energy
Material assets (Transport)	**International** To promote renewable energy usage in transport systems. To promote healthy and sustainable transport alternatives. To improve the quality and effectiveness of transport in Europe. **National** To reduce transport's emissions of CO2 and other greenhouse gases, with the desired outcome of minimising climate change. To reduce the risk of death, injury or illness arising from transport, and promote travel modes that are beneficial to health. To promote greater equality of transport opportunity for all citizens. To improve journey time reliability on the strategic road network. To improve experiences of travel and reduce barriers to travel by different modes of transport. To support national economic competitiveness and growth, by delivering reliable and efficient transport networks. To ensure radioactive material is safely transported. **MOD** To continually reduce emissions from air, road and rail business admin travel by MOD personnel. To reduce the use of marine, land and aviation fuels as much as reasonably practicable, without impacting on operational capability, while at the same time assessing the viability of alternatives to these fuels. To develop a Defence Travel Emissions Strategy with targets and actions for all modes of transport. The development of a Defence Travel Emissions Strategy in 2009 will bring with it targets and actions for modes of business transport other than road transport.	Objective J Transport Objective A Biodiversity and Nature Conservation Objective B Population Objective C Health and Wellbeing Objective D Noise and Vibration
Material assets (Waste Management)	**International** To ensure that waste reduction is at the forefront of waste management and where disposal is unavoidable ensure a high level of protection for the	Objective K Waste

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	environment and human health. To adopt waste management principles such as the “polluter pays principle” and the “waste hierarchy”. To protect human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste. To help Europe become a recycling society that seeks to avoid waste and uses waste as a resource. To achieve and maintain a high level of nuclear safety through the enhancement of national measures and technical cooperation. To establish and maintain effective defences against radiological hazards in nuclear installations in order to protect people and the environment, etc. To prevent nuclear accidents and limit their consequences. **National** To decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use. To increase diversion from landfill of municipal and non-municipal waste and secure better integration of treatment for all waste. To increase recycling of resources and recovery of energy from residual waste using a mix of technologies. To ensure waste is disposed of as near as possible to the place of production. To ensure the layout and design of new development should support sustainable waste management. **MOD** To recover and recycle more waste than is sent to landfill by 2012. To become a zero waste to landfill organisation by 2020. The production of all waste streams (both hazardous and non-hazardous waste) from all units and/or establishments must be reduced and minimised. To manage waste in accordance with the Waste Hierarchy and waste management options must move to the preferred options of waste reduction and re-use.	Objective A Biodiversity and Nature Objective C Health and Wellbeing Objective E Geology and Soils Objective F Water Objective G Air
Material assets (Land Use and Materials)	**International** To adopt a sustainable approach to land use though consideration of: economic development, social inclusion, environmental protection and prudent use of resources. To promote establishment of a multi centre regional organisation structures and balanced urban system. **National** To improve housing affordability in the market sector and ensure appropriate social housing availability.	Objective L Land Use and Materials Objective A Biodiversity and Nature Objective B Population Objective E

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	To promote and enhance existing centres, by focusing development in such centres and encouraging a wide range of services in a good environment, accessible to all. To encourage well-designed and greener homes, linked to good schools, transport and healthcare. To promote development of previously developed land. To achieve a sustainably built and managed central government estate that minimises carbon emissions, waste and water consumption and increases energy efficiency. To achieve sustainably built and managed properties and roads throughout the public sector. To implement government supply-chains and public services that are increasingly low carbon, low waste and water efficient, which respect biodiversity and deliver wider sustainable development goals. To adopt an integrated approach to sustainable development which includes: economic development; social inclusion; environmental protection; and prudent use of resources. To engage in positive planning and proactive management of development, rather than simply regulation and control. To have a planning system this is transparent, accessible and accountable. To promote more sustainable patterns of development. To raise the quality of life and the environment in rural areas. **MOD** To procure, use and dispose of its estate, equipment, goods and services in a way that meets Government sustainable development objectives and targets, whilst ensuring the continued effective delivery of Defence capability. To become a national leader in sustainable procurement. To embed Sustainable Procurement in all aspects of MOD acquisition and throughout the Defence supply chain. To deliver sustainable defence buildings (through the application of Office of Government Commerce (OGC) minimum procurement standards, including the application of BREEAM standards or equivalent. To improve effectiveness within the context of practicality, achievability and value for money, on an ongoing basis. To provide economic, environmental and social justification for any decision to procure new facilities as opposed to the re-use of existing facilities. To ensure that procurement strategies take full account of economic, environmental and social impacts.	Geology and Soils Objective K Waste Objective M Cultural Heritage
Cultural heritage, including architectural and archaeological heritage	**International** To identify, protect and preserving potential sites of World Heritage. To protect and sustain the historic environment for the benefit of current and future generations	Objective M Cultural Heritage Objective B

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	To identify and protect important heritage features. To collect and disseminate scientific information on cultural and archaeological heritage to aid conservation and public awareness. **National** To protect listed buildings, scheduled monuments and buildings within conservation areas. To protect and promote stewardship of the historic environment. To promote positive planning and management to bring about sensible solutions to the treatment of sites with archaeological remains and to reduce the areas of potential conflict between development and preservation. To adopt a presumption in favour of the physical preservation of nationally important archaeological remains and their settings, whether scheduled or not. To protect shipwreck features of historical, archaeological or artistic importance. To safeguard internationally and nationally-designated historically or culturally significant sites. **MOD** To conserve and enhance the historic environment for the benefit of future generations and to reflect the ethos and heritage of the MOD. To promote the sustainable use of the historic environment, in recognition of its importance as an integral part of cultural heritage and the role it plays in supporting defence capability. Adopt the Department for Culture Media and Sport's Protocol for the Care of the Historic Government Estate. Where responsibility for management of historic property is transferred to the private sector, for example through PPP/PFI arrangements, the Protocol standards will be incorporated into contractual arrangements.	Population Objective L Land Use and Materials Objective N Landscape and Townscape
Landscape and Townscape	**International** Ensure that development is 'appropriate' particularly in relation to protected landscapes. To protect, manage and plan landscapes throughout Europe. **National** To provide public access to the countryside and promote sustainable farming and protection of wildlife. To retain attractive landscapes, and enhance landscapes near to where people live. To improve damaged and derelict land around towns. To retain land in agricultural, forestry and related uses. **MOD**	Objective N Landscape and Townscape Objective A Biodiversity and Nature Conservation Objective B Population Objective C Health and Wellbeing Objective L Land Use and

SDP SEA Topic	Summary Objectives and Policy Messages (See Annex B and C for full list)	SEA objectives link (see Section 6.1)
	To promote the objectives of statutory designated areas (National Parks and AONBs) wherever possible. Reasonable measures should be undertaken in respect of landscape designations to mitigate the impacts of any development proposals on landscape character. Management of sites should seek to maintain the character of the landscape by safeguarding and, where practicable, enhancing or developing significant landscape features.	Materials Objective M Cultural Heritage

5. Scoping Potentially Significant Effects of the SDP

This section sets out the potentially significant environmental effects associated with the SDP at a generic level to inform which issues should be considered in more detail at Stage B. The effects outlined below are indicative, and illustrate those issues that are likely to be determined as relevant during the assessment. Information is presented for development, operation and decommissioning phases and includes reference to all seven stages of the SDP. These generic effects may also occur at the indicative candidate sites; this will be tested at Stage B. In many cases, detailed site-specific information will not be determined until later tiers of environmental assessment (such as EIA) are undertaken.

Where appropriate, the opportunity to scope out specific effects which are not considered relevant, or for which no effects are anticipated, is identified. However, issues (or topics) may be scoped in at later stages in the assessment process as additional information emerges. In this way, the scoping stage is seen as an ongoing and iterative process and as the SDP is developed, alternatives are considered and opinions expressed during consultation are reviewed.

5.1 Biodiversity and Nature Conservation

- The significance of any effects to biodiversity, flora or fauna will depend upon the site location relative to sensitive receptors.

5.1.1 Development Phase

- Internationally and nationally-protected sites are likely to be significantly affected if there are adverse effects to the conservation features (whether a habitat or species) that underpin the reasons for the designation. There is also potential for indirect, cumulative and synergistic effects on habitats and species from development.

- Disturbance to designated sites could occur from development of SDP facilities. Where the potential for any adverse effect on the conservation objectives of a European designated site could arise, individual proposals will be subject to a Habitat Regulations Assessment (HRA) and formal discussion with the relevant statutory conservation body. Note that the MOD has assessed the SDP as also subject to HRA at Plan level. *Scoped in for Further Assessment?* ✓

- Both land take and disturbance (e.g. noise or dust) are likely to be of greater magnitude for undeveloped or previously-developed 'brownfield' land which has been left undisturbed and reverted to a 'wild' state. Land take effects on localised biodiversity, flora and fauna are likely to be permanent; whilst construction disturbance effects are likely to be of short duration and could be mitigated. The degree to which both land take and disturbance effects are significant will depend on factors including: the scale of construction required, and the proximity to protected species or habitats. *Scoped in for Further Assessment?* ✓

- Additional dredging, *if required,* could have impacts on wildlife and biodiversity in the aquatic and intertidal environment. The magnitude of such impacts will depend on the location, the extent and duration of activities, and the quality of the existing environment. *Scoped in for Further Assessment?* ✓

- The construction phase may require large material movements with consequent impacts on biodiversity, flora and fauna adjoining local transport networks. Such effects are likely to be of short duration and may be mitigated. *Scoped in for Further Assessment?* ✓

- Construction of new or upgraded facilities may indirectly impact on habitats and species through the supply chain, for example through sourcing mineral, aggregate or timber resources. *Scoped in for Further Assessment?* ✓

- Significant effects could also occur from construction materials, or from existing contaminants on the site. *Scoped in for Further Assessment?* ✓

5.1.2 Operation Phase

- Operational activities at the dismantling site(s) will be closely regulated and subject to stringent Health and Safety and Environmental Permitting requirements. Use of Best Available Techniques (BAT) principles will also need to be adopted. To a large extent, these measures will also safeguard local biodiversity by minimising harmful discharges. However, this does not provide a basis for scoping potentially significant effects out of further consideration. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Operational activities resulting in elevated as noise or vibration levels are likely to be sustained throughout the submarine dismantling process. Such disturbance is likely to be associated with the operation of plant and power tools, and will be similar in nature to current refit and repair activities. Although environmental measures would necessarily be in place to manage and minimise disturbance, potentially significant effects may still occur. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- If any of the submarines are to be towed significant distances for initial dismantling or subsequent ship-recycling , there is a slight potential for spreading invasive species between waters. The likelihood of such an effect will depend on the invasive species (if any) at Rosyth and Devonport. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Operational discharges of both radioactive and non-radioactive liquids, gases and solid wastes (including dusts) will largely be managed through Environmental Permitting regimes and the application of BAT, so there is little risk of significant effects on biodiversity from normal operations. Nevertheless, the potential for significant effects are included, due the potential for the receiving environment to be sensitive and/or protected. *Scoped in for Further Assessment?* ✓ *(on a precautionary basis).*

- Removal or cut-up of the Reactor Compartment carries a remote risk of unforeseen accidental discharge of radioactive and non-radioactive contaminants to water, air or land, which could subsequently affect biodiversity. Due to the sensitivity of this issue, it will be considered further. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Dismantling and interim storage will both entail the use of transport. Activity will be relatively small in magnitude relative to local and national transport levels, but sustained throughout the operational phase. Potentially significant effects on biodiversity from transport (including development of transport infrastructure and the remote risk of accident) are scoped in for further assessment in the 'transport' section.

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there will be limited activity at the site until the GDF becomes available and the waste is processed and/or moved. Potential effects from operation of the interim storage site are associated with on-site transport and movement of storage containers. Interim storage will be closely regulated and subject to stringent health and safety standards. However, there is a remote risk of accidental emissions from unforeseen breaches of storage containers coupled with pollutant pathways into the air, land or water. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

- If the RCs or RPVs are stored, they will eventually have to be processed and packaged into GDF-compliant containers. The environmental effects of such as operation are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.1.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities (following the movement of stored radioactive wastes to a permanent disposal facility) will have similar impacts to those of the construction phase (such as dust, waste, noise and habitat disturbance). These are unlikely to have a significant effect on biodiversity as the necessary statutory controls will be in place to minimise impacts. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

5.2 Population

The significance of effects on local populations are likely to depend upon site location, the nature of the adjacent community, prevailing economic conditions, labour market conditions and the workforce skills required.

5.2.1 Development Phase

- The development phase may require significant amounts of labour, depending on the type of site being developed. Use of existing sites, where most or all the required infrastructure is already in place, may require little or no additional construction; however developing a new site would require a significant workforce. *Scoped in for Further Assessment? ✓*

- Development of the dismantling and interim storage facilities is unlikely to require significant development of specialist construction skills in the local or wider community. *Scoped in for Further Assessment? **X***

- Should new facilities be required, the construction phase could require large material movements, with consequent effects on populations adjoining local transport networks. These are likely to be

of short duration and could be mitigated. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Any construction associated with initial dismantling and interim storage facilities is likely to require significant investment in products, services and people. It is expected that such investment would benefit local economies and service providers; however, this would depend upon the scale and duration of the proposals, as well as procurement practices, the site location and prevailing economic and labour market conditions. *Scoped in for Further Assessment?* ✓

- Effects to the wider economy could also be significant, depending on the scale of development and construction may take advantage of products and services from across the UK. *Scoped in for Further Assessment?* ✓

5.2.2 Operation Phase

- The operational phase could create and support local jobs, skills development and inward investment, in proportion to the scale of the operations themselves. This is expected to be greatest for the initial dismantling operation and subsequent ship-recycling, which would require a mix of skilled posts, including specialist nuclear expertise. *Scoped in for Further Assessment?* ✓

- The proximity of industrial operations to disadvantaged communities could exacerbate existing deprivation issues. *Scoped in for Further Assessment?* ✓

- SDP activities could create additional demands on local community infrastructure (depending on the number of additional employment opportunities created, the extent to which the additional employment opportunities can be met by local people and the circumstances of each employee). *Scoped in for Further Assessment?* ✓

5.2.3 Decommissioning Phase

- The decommissioning phase is likely to require skilled labour, in proportion to the scale and complexity of the infrastructure. *Scoped in for Further Assessment?* ✓

- In the long-term, there may be a reduction in investment, skills development and employment opportunities once the SDP is complete. Such effects are not likely to be significant, due to the transferable skills associated with those roles. *Scoped in for Further Assessment?* **X**

- Decommissioning of the dismantling and interim storage facilities may create additional disturbance for local populations, through additional through traffic, noise, dust etc. The scale of the impact will depend on the size and complexity of the facilities. Such disturbance is likely to be sustained throughout the decommissioning process. Measures would necessarily be in place to manage levels and durations of disturbance. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.3 Health

The significance of any local construction effects to peoples' health will depend upon site location and nature relative to local populations.

5.3.1 Development Phase

- Development of the dismantling and the interim storage facilities is not expected to have any potentially significant health and safety risks beyond those encountered on a normal construction project, since all standard precautions will be taken to safeguard workers and the public. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- The development phase may require large material movements on and off site, with consequent implications for health and safety, particularly adjoining local transport networks. Such effects are likely to be of short duration and can be minimised. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- There is the potential for development to affect existing public access to recreational or amenity sites, with subsequent indirect impacts on health. The effects could be greater where new sites are developed, as access could be lost to a significant area of previously-accessible land. Existing sites are unlikely to have much existing public access that could be blocked. *Scoped in for Further Assessment?* ✓

- There is a small risk of health effects from accidental discharges of construction-related materials to water, air or land, or from the creation of new pollution pathways for existing contaminants on the site (for example where contaminated land or sediment is disturbed). *Scoped in for Further Assessment?* ✓

5.3.2 Operation Phase

- Operational activities at the dismantling site will be closely regulated and subject to stringent health and safety standards. However, this does not provide a basis for *unilaterally* scoping potentially significant effects associated with 'normal' operations out of Further Assessment. Each issue should be considered on its merits.

Dismantling

- Dismantling operations on the reactor compartment would result in those workers involved being exposed to ionising radiation, although this is not expected to be as high as for day-to-day operations on in-service submarines due to the absence of any nuclear fuel, and radioactive decay in the laid-up submarines. There is potential for ILW to be placed in short-term 'buffer' storage at the initial dismantling site until it can be moved. The principle of As Low As Reasonably Practicable ('ALARP') must apply to all radiological waste management activities. *Scoped in for Further Assessment?* ✓

- Due to the stringent safety controls already in place, no additional direct radiation exposure from dismantling is expected under normal conditions for other site users, nor for the local or wider community. Further to this, operational discharges of liquids, gases and solid wastes to the environment would be closely managed through Environmental Permitting regimes and the application of Best Available Techniques (BAT) for dismantling. Such scheduled discharges are therefore unlikely to have any significant effects on people's health. However, the importance of perceived risks to health from radiological discharges means that the issue must be considered further. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

- Anxiety about pollution (with or without actual additional exposure) is known to be a risk to health. As alluded to above, perception of additional involuntary risk needs to be explored. *Scoped in for Further Assessment? ✓*

- Dismantling activities always carry a remote risk of unforeseen accidental discharges of radioactive or non-radioactive contaminants, which could potentially affect the health of workers and the local population. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

Transport

- Dismantling and interim storage will both require transport activities, the nature of which will be dictated by the form of the waste. Such activities are likely to be small in magnitude relative to local and national transport levels, but sustained throughout the operational phase. Transport carries health and safety implications, particularly for workers and the communities adjoining transport networks. Such effects are likely to be of short duration and can be minimised. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

- The transport of radioactive materials to the interim storage site will be strictly regulated and subject to stringent packaging/health and safety requirements to prevent workers or the public from being injured or exposed to any accidental emissions from radioactive material. There remains a remote risk of an accident resulting in injury or release of radiation into the environment. Nevertheless, the importance of perceived risk (and associated anxiety effects) for radioactive materials necessitates this issue to be considered. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

- The transport of other materials such as scrap metal and hazardous materials will also be regulated to prevent workers or the public from being injured through accident or exposed to any hazardous agents. Nevertheless, some risk remains of an accident resulting in injury or release of harmful materials into the environment. The importance of perceived risk (and associated anxiety effects) for hazardous materials necessitates this issue to be considered. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

Storage

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there should be limited activity at the interim storage site until the GDF becomes available and the waste is processed and/or moved. Potential effects from operating the interim storage site are associated with on-site transport and movement of storage containers. These activities are strictly controlled by health and safety requirements to prevent workers or the public from being injured or

exposed to radiation. Nevertheless, the importance of safety issues, particularly for radioactive materials, necessitates this issue to be assessed further. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- If the RCs or RPVs are stored, they will eventually have to be processed and packaged into GDF-compliant containers. The environmental effects of such an operation are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.3.3 Decommissioning Phase

- Decommissioning may lead to a small increase in permitted and unforeseen discharges of dusts, effluent and run-off to the environment. The scale of the impact will depend on the size and complexity of the facilities. Operational discharges to the environment would be managed through Environmental Permitting regimes in force at the time; such discharges are therefore very unlikely to have any significant effects on health. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.4 Human Health (Noise)

- The significance of noise impact will depend upon site location relative to local populations and other sensitive local receptors.

5.4.1 Development Phase

- Use of industrial plant and tools has the potential to generate occupational noise levels which may have health and safety implications for construction workers. However, statutory construction health and safety requirements will require noise minimisation and appropriate safety equipment to be used, including the use of ear defenders. *Scoped in for Further Assessment?* **X**

- Construction, if required, is expected to generate similar noise levels to any industrial construction project, with effects being relatively localised. Standard noise reduction measures would need to be employed to reduce levels of disturbance to other site users and the wider community. *Scoped in for Further Assessment?* ✓

- The development phase may require material movements with consequent impacts on noise levels adjoining local transport networks. Such potential significant effects are likely to be of short duration and reversible, but may contribute to health effects. *Scoped in for Further Assessment?* ✓

5.4.2 Operation Phase

- As for the construction phase, occupational noise levels may be significant. However, health and safety requirements will again require appropriate mitigation measures to be taken before operations can proceed. *Scoped in for Further Assessment?* **X**

- The construction phase may require material movements with consequent impacts on noise levels adjoining local transport networks. Such potential significant effects are likely to be of short duration but sustained throughout the development phase. *Scoped in for Further Assessment?* ✓

- Operational activities, including transportation, may result in elevated noise levels (e.g. through the use of grinding and cutting tools, pressure hammers etc) throughout the submarine dismantling process. These are likely to be localised in nature and, although measures will be taken to minimise noise disturbance, they may be locally significant in combination with other noise from local industry, traffic etc. *Scoped in for Further Assessment?* ✓

- Interim storage is expected to be a relatively passive activity, and unlikely to generate levels of noise that could significantly affect worker or public human heath. *Scoped in for Further Assessment?* **X**

- Any further processing of the RC or RPV prior to emplacement in the GDF will have similar impacts to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment. *Scoped in for Further Assessment?* ✓

5.4.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities is expected to generate similar noise levels to those encountered on a normal demolition project, with the duration of disturbance proportional to the size and complexity of the facilities. Any effects are likely to be localised in nature, and measures will be taken to minimise noise disturbance. However, in combination with other noise from local industry, traffic etc. they may be locally significant. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.5 Soil and Geology

- The significance of construction on soils and geology will depend upon site locations relative to sensitive local receptors.

5.5.1 Development Phase

- Development of the initial dismantling and ILW storage sites (which are planned to be on-surface facilities) has the potential to affect geological SSSI features or Regionally-Important Geological Sites, depending on location. *Scoped in for Further Assessment?* ✓

- Development may result in soil compaction or permanent loss of the soil resource. The degree to which these effects are significant will depend on factors including the scale of construction, the amount of permanent land take and the importance of soil type affected. Effects will be greater where the soil has for example been activity used, is classified as Best and Most Versatile Land or is rich in carbon. *Scoped in for Further Assessment?* ✓

- There is a small risk of soil contamination from accidental discharges to land (including via air or water) during construction. There is also a risk of new pollution pathways being created for existing contaminants on the site. This risk is greater for an existing site or previously-developed

land where contaminated land or sediment could be disturbed. *Scoped in for Further Assessment?* ✓

- There is a risk that any construction, demolition, or change of use may affect land stability, geomorphology and/or soil erosion rates, on- or off-site. The nature of the effects will depend on the geology and physical nature of the area, the size of the development and the extent to which dredging, piling and other invasive construction techniques are used. *Scoped in for Further Assessment?* ✓

5.5.2 Operation Phase

- Operational discharges of both radioactive and non-radioactive liquids, gases and solid wastes will be strictly managed through Environmental Permitting regimes and the use of Best Available Techniques (BAT). Such discharges are therefore unlikely to cause significant effects on soils, sediments or geological features, but the importance of the issue for the SDP necessitates further consideration. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Dismantling activities always carry a remote risk of unforeseen accidental discharges of radioactive or non-radioactive contaminants to land. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Operational activities associated with interim storage will be limited and are unlikely to significantly affect soils or geology. *Scoped in for Further Assessment?* **X**

- The environmental effects of processing the RCs or RPVs in the future are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

- Although the interim storage site will be closely regulated, there remains a remote risk of an unforeseen breach of the storage containers, which could potentially affect soils, sediments or geological features. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.5.3 Decommissioning Phase

- Decommissioning may lead to an increase in discharges of dusts, effluent, solid wastes and run-off to soils or sediments. The scale of the impact will depend on the size and complexity of the facilities. Discharges will be managed through Environmental Permitting regimes in force at the time, minimising the risk of significant impact from 'normal' decommissioning operations; however the possible risk of unforeseen discharges necessitates this issue to be considered further. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.6 Water

- The significance of any effects on water resources and the water environment will depend upon site location relative to sensitive local receptors.

5.6.1 Development Phase

- Construction activities will necessarily involve the use of water. The extent of water use will depend on the amount of development and the construction techniques and materials used. This may have an indirect effect on water resources, particularly in drier areas or those with existing drainage capacity problems. *Scoped in for Further Assessment?* ✓

- Development will also create waste water and additional surface run-off. Surface and ground water control and protection measures will have to be employed during construction; however, there remains the possibility that water quality in streams, rivers, inshore waters or aquifers could be affected. *Scoped in for Further Assessment?* ✓

- Additional dredging, if required, could have impacts on water quality and the aquatic and estuarine environment, depending on the location, extent and duration of activities along with quality of the existing aquatic environment. *Scoped in for Further Assessment?* ✓

- There is a small risk of significant effect on the water environment from accidental discharges (including via air or land) of construction materials or excavated soil/sediment. This is a particular risk where dredging is required. There is also a risk of new pollution pathways being created for existing contaminants (especially for previously-developed land where contaminated land or sediment could be disturbed). *Scoped in for Further Assessment?* ✓

5.6.2 Operation Phase

- SDP operations will both use and discharge fresh water. Depending on the nature and scale of operations, this may have an indirect effect on water resources, particularly in drier areas or those with existing drainage capacity problems. *Scoped in for Further Assessment?* ✓

- Operational discharges of both radioactive and non-radioactive liquids, gases and solid wastes will be strictly managed through the Environmental Permitting regime and the use of 'ALARP' and BAT principles. Such discharges are therefore unlikely to cause significant effects on the water environment, but the importance of the issue for the SDP necessitates further consideration. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Dismantling and storage activities always carry a remote risk of unforeseen accidental discharges of radioactive or hazardous contaminants, which could affect the water environment. This would be a particular issue where a site is close to an internationally or nationally-designated freshwater or marine environment. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- The effects of processing the RCs or RPVs in the future are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.6.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities may have requirement for fresh water. Depending on the nature and scale of requirement, this may have an indirect effect on

water resources, particularly in drier areas or those with existing drainage capacity problems. *Scoped in for Further Assessment?* ✓

Decommissioning of the dismantling and interim storage facilities may lead to an increase in both permitted and unforeseen discharges to ground or surface waters. The scale of the impact will depend on the size and complexity of the facilities. Operational discharges to the environment will be managed through Environmental Permitting regimes/BAT principles in force at the time; such discharges are therefore unlikely to have any significant effects on water quality. *Scoped in for Further Assessment?* ✓*(on a precautionary basis)*.

5.7 Coastal Change and Flood Risk

The initial dismantling site will need to be at a coastal location to receive the submarines; depending on how the submarines undergo initial dismantling, the interim ILW storage site may also be at the coast. Most commercial ship-recycling facilities are also coastal.

5.7.1 Development Phase

- Any land-take and subsequent development has the potential to cause an increase in surface-water runoff, with subsequent flood risks both on and off the development. The degree to which the development increases existing flood risks will depend on factors including the scale of construction, elevation, topography and geology of the site, the local water infrastructure and projected rain-fall. *Scoped in for Further Assessment?* ✓

- The development site(s) could be affected by flooding. This may result in flood damage to facilities, disruption of activity, health and safety risks or the potential mobilisation of hazardous materials on and off site. Flood risk assessments will inform site selection and appropriate flood defence measures will be used. *Scoped in for Further Assessment?* ✓

- The construction of the initial dismantling and interim storage facilities may affect (or be affected by) coastal processes, which may exacerbate any flood risk concerns. The scale of the impact will depend on the size and location of the facilities. The relationship between future coastal change and the proposed land use (whether development of the initial dismantling facility or interim storage facility) will also need to be addressed. *Scoped in for Further Assessment?* ✓

- Additional dredging, *if required,* could have impacts on the geomorphology of the water and estuarine environment, depending on the location, extent and duration of activities along with quality of the existing aquatic environment. *Scoped in for Further Assessment?* ✓

- Due to the coastal location of at least the initial dismantling site, there is potential for disruption to existing pollution control infrastructure, flood and/or coastal defences. *Scoped in for Further Assessment?* ✓

5.7.2 Operation Phase

- Operational activities at the dismantling and the interim storage sites have the potential to be affected by flooding, particularly in low-lying and/or coastal areas. This may result in flood

damage to facilities, disruption of activity or the potential mobilisation of hazardous materials both on- and off-site (although all radioactive materials would necessarily be held safely in a sealed and water-tight environment). Appropriate flood defence measures will be incorporated into site designs. *Scoped in for Further Assessment?* ✓

- Dismantling activities, ship recycling and potentially interim storage also have the potential to be affected by progressive coastal changes linked to climate change. The impacts will be felt more in the southern and eastern parts of the country due to the compounding effects of post-glacial rebalancing. *Scoped in for Further Assessment?* ✓

5.7.3 Decommissioning Phase

- The eventual decommissioning of the dismantling and interim storage facilities may affect coastal processes and flood risks in the future. The scale of the impact will depend on the size and location of the facilities. *Scoped in for Further Assessment?* ✓

5.8 Air

- The significance of effects on air quality will depend upon site location relative to sensitive local receptors.

5.8.1 Development Phase

- The development of the dismantling and the interim storage facilities is expected to generate dust and particulate levels similar to those encountered on any construction project. The amount of dust will be proportional to the amount of excavation required, and the pollution potential will tend to be higher for previously-developed sites where contamination could be expected. Effects are likely to have a relatively small radius of effect, with longer-range impacts expected in the direction of the prevailing wind. Standard dust reduction measures would need to be employed, where required. *Scoped in for Further Assessment?* ✓

- The development phase may require large material movements with consequent impacts on air quality adjoining local transport networks. Such potential significant effects are likely to be of short duration. *Scoped in for Further Assessment?* ✓*(on a precautionary basis)*.

- Air quality effects may also occur due to (accidental) discharges to air (including via land or water) from materials used during construction. *Scoped in for Further Assessment?* ✓

5.8.2 Operation Phase

- The dismantling process may result in operational discharges of both radioactive and non-radioactive gasses and particulates to the air. These will be strictly managed through the Environmental Permitting regime and the use of 'ALARP' and BAT principles; as such, emissions are not envisaged to have significant effects on air quality. However, the importance of the issue

for the SDP necessitates further consideration. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

- Initial dismantling, ship-recycling and interim storage will both require transport. Vehicle movements are likely to be relatively small in magnitude compared to local and national transport levels, but sustained throughout the operational phase. *Scoped in for Further Assessment? ✓(on a precautionary basis)*.

- Dismantling activities always carry a remote risk of accidental discharges of radioactive or non-radioactive contaminants to air (including via land or water). *Scoped in for Further Assessment? ✓(on a precautionary basis)*.

- Once radioactive waste has been placed into interim storage, it is assumed that there will be limited activity at the site until the GDF becomes available and the waste is processed and/or moved. Operational emissions to air will be associated with generators and mobile plant. These operational activities are unlikely to significantly affect air quality. *Scoped in for Further Assessment?* **X**

- There is a remote risk of an unforeseen breach of the storage containers, potentially allowing pollutants into the air. *Scoped in for Further Assessment? ✓(on a precautionary basis)*.

- The environmental effects of processing the RCs or RPVs in the future are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.8.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities may lead to an increase in both permitted and unforeseen discharges to the atmosphere. The scale of the impact will depend on the size and complexity of the facilities. Discharges will be managed through Environmental Permitting regimes/ BAT principles in force at the time, minimising the risk of significant impact. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

5.9 Climate Change and Energy Use

5.9.1 Development Phase

- Development activities, if required, will use energy and hence cause the direct and indirect emission of CO_2 and other greenhouse gasses. The magnitude of effects depends on the size of the development, the type of materials used and the distance travelled - construction traditionally uses material with high embodied carbon values, such as concrete and steel. There will be opportunities through facility design, construction and subsequent operation to ensure that energy efficiency is optimised. *Scoped in for Further Assessment? ✓*

- Climate change effects such as intensified weather events have the potential to affect the development of both the dismantling site and the interim storage site. Such effects may result in damage to facilities or disruption of construction activity. *Scoped in for Further Assessment? ✓*

5.9.2 Operation Phase

- The significance of climate change on operational activities will be predicated upon the location of the site.
- Both initial dismantling and subsequent ship-recycling (and associated transportation) have the potential to be energy intensive and result in direct/indirect greenhouse gas emissions. At this stage, total carbon footprint of the operational phase is uncertain, although there are opportunities to maximise operational energy efficiency. *Scoped in for Further Assessment?* ✓
- Interim storage is assumed to be a relatively passive activity and is not expected to be energy intensive. There is the opportunity to maximise operational energy efficiency in development and in transportation. *Scoped in for Further Assessment?* ✓
- If the RCs or RPVs are stored, they will eventually have to be processed and packaged into GDF-compliant containers. The environmental effects of such an operation are expected to be similar to those for initial dismantling (described above). The impacts will therefore be considered in that assessment.

5.9.3 Decommissioning Phase

- Decommissioning and any associated remediation activities are expected to have an energy demand (and greenhouse gas emissions profile) similar to other industrial demolition projects. *Scoped in for Further Assessment?* ✓

5.10 Material Assets (Transport)

- Note that the effects of transport on other environmental receptors such as air quality, climate change, health etc. are discussed more fully in those sections, rather than in this section.

5.10.1 Development Phase

- Development of the dismantling and interim storage sites may require large numbers of vehicle movements to transport construction materials to site and remove construction waste. This will have consequent impacts on local and regional transport networks, the magnitude of which will depend on the sensitivity and capacity of those networks, and the length of the development phase. *Scoped in for Further Assessment?* ✓
- Depending on the extent and type of development, long transport distances may be involved in SDP supply chains. *Scoped in for Further Assessment?* ✓
- The location and transport requirements of the SDP may necessitate improvements to local transport networks, which may affect local communities and wildlife. This will be particularly significant if the site is remote to the existing transport systems. *Scoped in for Further Assessment?* ✓

5.10.2 Operation Phase

- The SDP will involve moving the laid-up submarines to the initial dismantling facility/ies. Once initially processed, the dismantled radiological components will need to be taken to the Interim ILW storage facility/ies, which may involve off-site transportation. The non-radiological portions of the submarines will also need to be moved off-site - the working assumption is that these sections will be dealt with at a commercial ship-recycling facility.

- Local and regional transport infrastructure (road, rail and seaways) are likely to be affected. The magnitude of the effects will vary from site to site (and distances between them); however, an increase in the overall number of vehicle movements (when compared to baseline conditions) may be expected, which could cause direct or indirect disturbance to communities and wildlife. The form of the waste will also affect the magnitude of disruption, with out-sized loads causing greater disturbance around the affected transport networks. These effects would be sustained throughout the operational phase as submarines are dismantled. *Scoped in for Further Assessment?* ✓

- The further the distance travelled, the greater the environmental impacts from fume, noise and vibration. The locations of the National LLW facility GDF will be fixed; however the locations for the SDP facilities are not yet decided upon. Their proximity to these national repositories and to disposal facilities for Very Low Level Waste (VLLW) and non-radiological materials need to be considered. *Scoped in for Further Assessment?* ✓

- Transportation always carries a risk of an unforeseen accident. Where radioactive materials are being carried, the public perception that there may be a risk of radioactive discharge requires that the issue of transport safety is considered further, even though the actual risk of any discharge is remote. *Scoped in for Further Assessment?* ✓*(on a precautionary basis)*.

5.10.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities will require the use of transport infrastructure in a similar manner to the development phase, with the scale and duration of disturbance proportional to the size and complexity of the facilities. Effects are likely to be most obvious locally to these facilities. *Scoped in for Further Assessment?* ✓*(on a precautionary basis)*.

5.11 Material Assets (Waste Management)

5.11.1 Development Phase

- Facility development will inevitably give rise to construction wastes, including excavated material. Waste volumes will depend on the scale of development, design, the materials used and the construction and site waste management practices adopted. *Scoped in for Further Assessment?* ✓

- The development phase will bring opportunities to minimise through-life waste volumes through careful design. *Scoped in for Further Assessment?* ✓

5.11.2 Operation Phase

- The SDP is essentially a waste management project. Dismantling activities will generate recoverable materials, hazardous and controlled waste streams, as well as a relatively small amount of radioactive material. The magnitude of effects will depend on the volume of wastes generated, the capacity of existing waste management infrastructure and the viability of recycling and reuse options. The waste hierarchy should apply, and wastes will have to be managed through Environmental Permitting and use of BAT principles. *Scoped in for Further Assessment?* ✓

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there will be limited operational waste arising until the material is removed to the GDF and the facility is decommissioned. *Scoped in for Further Assessment?* ✓ *(on a precautionary basis).*

- The interim storage site will be secure and closely regulated. There is a remote risk of unforeseen breaches of waste storage containers; however the waste will be in a secure, solid form, and the risk of radiological waste being released into the environment is not considered significant. Nevertheless, the importance of perceived risk (and associated anxiety effects) for radioactive materials necessitates this issue to be included. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- The environmental effects of processing the RCs or RPVs in the future are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.11.3 Decommissioning Phase

- Decommissioning and any associated remediation are expected to generate significant amounts of materials, some of which may become waste. The waste hierarchy will apply; non-hazardous materials may be reused, recycled or disposed of as waste; hazardous wastes (which may include a small quantity of LLW) will require a specialist disposal route. The volume of waste will depend on the size and complexity of the facilities. *Scoped in for Further Assessment?* ✓

5.12 Material Assets (Land Use and Materials)

5.12.1 Development Phase

- Any new facilities for initial dismantling and/or interim ILW storage may involve land-take. The amount of land developed will depend on the scale of the development and the capacity of any existing infrastructure to accommodate SDP activities. The environmental effects of land-take will depend on the size of plot required, location, current and surrounding land uses and the potential effects of climate change. *Scoped in for Further Assessment?* ✓

- Any developments are likely to require the use of building materials and services. Depending on the nature and scale of the facilities, there is the potential for impacts through the supply chain on limited or sensitive natural resources such as minerals, metals and timber products, as well as from long-distance transport. *Scoped in for Further Assessment?* ✓

5.12.2 Operation Phase

- The majority of land use effects are associated with the initial land take during construction and any consequent land use changes. As the operational activities constitute the proposed land use, the potential significant effects of operational activities on land use are not taken forward for Further Assessment. *Scoped in for Further Assessment?* **X**

- Effects on neighbouring land *might* occur as a result of operational actives at the dismantling or interim storage sites, although the precise nature and risk of such effects has yet to be defined. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

5.12.3 Decommissioning Phase

- Decommissioning and any associated remediation will need to leave the sites in a suitable state for reuse or redevelopment. Hence, the sites will eventually become available for reuse and this could subsequently affect local land use patterns. *Scoped in for Further Assessment?* ✓

- The environmental effects of processing the RCs or RPVs in the future are expected to be similar to those for the initial dismantling site (described above). The impacts will therefore be considered in that assessment.

5.13 Cultural Heritage

- The significance of any local construction effects on cultural heritage will depend upon site location relative to sensitive local receptors.

5.13.1 Development Phase

- Development has the potential to affect unknown archaeological features. Any effects are likely to be restricted to the areas of ground disturbance, and the potential for disturbance is likely to depend on the size of the plot, the historic context of the site and the density of previous finds. *Scoped in for Further Assessment?* ✓

- Development also has the potential to affect the setting of existing heritage features. Any effects could potentially have a large radius of effect, depending on viewpoints and the local historic context. *Scoped in for Further Assessment?* ✓

- Use of construction plant and ground-disturbing activities such as piling and HGV movements have the potential to generate vibration and dust, which may adversely affect sensitive historic/designated structures in the immediate vicinity of the site and/or transport routes. *Scoped in for Further Assessment? ✓(on a precautionary basis).*

5.13.2 Operation Phase

- Operational activities are not expected to significantly disturb the ground, as any land take will have occurred during the development phase. The impacts on known or unknown archaeology from operational activities are therefore unlikely to be significant. *Scoped in for Further Assessment?* **X**

- Visual and other impacts (such as dust) from operational activities and transport could possibly affect the setting and value of cultural heritage features. These could potentially have a large radius of effect, depending on viewpoints and local historic context. *Scoped in for Further Assessment?* ✓

- The SDP will dispose of the UK's past and current submarine fleet. There is an opportunity to preserve a submarine or artefacts from them as pieces of nationally-important cultural and military heritage. *Scoped in for Further Assessment?* ✓

- There is expected to be only very limited activity at the storage site. Potential disturbances are associated with on-site transport and placement of storage containers, which are unlikely to significantly affect cultural heritage. *Scoped in for Further Assessment?* **X**

5.13.3 Decommissioning Phase

- Decommissioning and any associated remediation are not expected to result in greater below ground disturbance than has already occurred during the development phase. *Scoped in for Further Assessment?* **X**

- Decommissioning may generate disturbance (such as noise, traffic and dust); as well as potentially changing the built environment if structures are removed or replaced. Such effects could affect the setting of existing cultural heritage features. Measures would necessarily be in place to manage levels and durations of disturbance. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

5.14 Landscape and Townscape

- The significance of any local construction effects on the landscape will depend upon site location relative to sensitive local receptors and the degree of change in the prevailing landscape and townscape character.

5.14.1 Development Phase

- Development activity has the potential to affect landscape and townscape character. Effects could have a large radius of effect, depending on viewpoints and local topography. *Scoped in for Further Assessment?* ✓

- Development activities are more likely to result in significant visual effects where developments are within (or have viewpoints from) conservation areas, protected/designated landscapes or areas of high landscape value. *Scoped in for Further Assessment?* ✓

- Landscape effects are likely to be of greater magnitude where undeveloped and undisturbed, previously developed land which has reverted to a 'wild' state are affected, as such sites are perceived to contribute more positively to prevailing landscape character. *Scoped in for Further Assessment?* ✓*(on a precautionary basis).*

- Development of any new facilities may lead to a reduction or loss of public access into the area(s) developed, which could include coastal sites. *Scoped in for Further Assessment?* ✓

5.14.2 Operation Phase

- The provision of facilities and subsequent operational activities at the dismantling site may entail changes in landscape or townscape character. These potential effects of are therefore scoped in for Further Assessment. *Scoped in for Further Assessment?* ✓

5.14.3 Decommissioning Phase

- Decommissioning is expected to generate disturbance (such as noise, traffic and dust); as well as potentially changing the built environment if long-standing structures are removed or replaced. Such effects have the potential to affect the setting of landscape or townscape features, as well as the amenity value of landscapes themselves. Measures will be in place to manage levels and durations of disturbance. *Scoped in for Further Assessment?* ✓

6. Assessment and Reporting

This section presents the proposed framework for undertaking the SEA including the revised draft objectives and guide questions (**Section 6.1**). The revised objectives reflect the issues arising from the analysis of the environmental baseline, its evolution and the review of plans, programmes and strategies (see **Sections 3 and 4, Annex A, Annex B and Annex C**). The method of considering cumulative effects in the Environmental Report is described in **Section 6.3**. The proposed form and content of the Environmental Report is outlined in **Section 6.4**.

6.1 Proposed SEA Categories, Objectives and Guide Questions

Establishing appropriate objectives and guide questions is central to the assessment process. The objectives and guide questions provide a method to enable the consistent and systematic assessment of the effects of the SDP.

What are SEA Objectives?

'Objectives specify a desired direction for change and how they should *focus on outcomes*, not how the outcomes will be achieved (e.g. not specifying targets). They should focus on the ends rather than the means; on the state of the environment rather than the pressures on it. For instance, they should focus on "improving biodiversity" or "improving access", rather than say establishing wildlife areas or protecting rail corridors (Therivel, R. (2005) *SEA in Action*).

The revised SEA objectives described in this section have been informed by examination of the baseline evidence, incorporating the identification of key issues, and the review of plans and programmes and the associated environmental protection objectives summarised in the previous section. They have also been revised to reflect comments received by the statutory consultees on the generic Scoping Report. The development of the objectives also reflects guidance contained in *The Environmental and Sustainability Appraisal Tool Handbook for the MOD Estate (Volume Two: SEA)* (MOD 2009). Broadly, the objectives present the preferred environmental outcome which usually involves minimising detrimental effects and enhancing positive effects.

Revised guide questions are proposed for each objective and have been developed to provide a detailed framework against which the SDP proposals can be assessed. Where appropriate the guide questions anticipate the more specific effects outlined in **Section 5**. A general assumption that underpins the proposed objectives is that all existing legal requirements will be met, and as such, statutory compliance has not been reflected individually in the objectives or guide questions.

The revised objectives and assessment guide questions are presented in **Table 6.1**.

Table 6.1 SEA Themes, Objectives and Guide Questions

Assessment Category and Overall Objective	Assessment Guide Questions *Will the SDP Proposals…*
A. Biodiversity and Nature Conservation Protect and enhance habitats, species and ecosystems.	Affect animals or plants, including protected species? Affect designated nature conservation sites? Affect the structure and function of natural systems (ecosystems)? Affect public access to areas of wildlife interest? Have an impact on fisheries?
B. Population Promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts.	Affect the social infrastructure and amenities available to local communities? Affect local population demographics and/ or levels of deprivation in surrounding areas? Affect opportunities for investment, education and skills development? Affect the number or types of jobs available in local economies? Affect how diverse and robust local economies are? Affect the sense of positive self-image and the attractiveness of surrounding areas as places to live, work and invest in?
C. Health and Wellbeing Protect and enhance health, safety and wellbeing of workers and communities; minimise any health risks associated with processing submarines.	Affect the health or safety of SDP workers, or other people working at the proposed sites? Affect the health, safety and well-being of local communities? Affect local healthcare infrastructure and provision?
D. Noise and Vibration Minimise disturbance and stress to people, wildlife and historic buildings caused by noise and vibration.	Significantly increase levels of noise and vibration? Affect the amount of noise and vibration felt by local communities?
E. Geology and Soils Minimise threats to the extent and quality of soils and geological resources.	Have an effect on soil quality, variety, extent and/or compaction levels? Have an effect on soil function and processes? Increase the risk of significant soil contamination? Have an effect on any known and existing contamination? Affect geological conservation sites and important geological features? Affect land stability?
F. Water Maximise water efficiency, protect and enhance water quality.	Affect demand for water resources? Affect the amount of waste water and surface runoff produced? Cause any changes in radioactive or other hazardous discharges to water? Affect the quality of groundwater, surface waters or sea water? Affect the distribution and quality of freshwater or marine sediments?
G. Air Minimise emissions of pollutant gases and particulates and enhance air quality	Affect air quality? Cause a change in radioactive emissions to air? Affect emissions of ozone-depleting substances? Create a nuisance for people or wildlife (for example from dust or odours)?

Assessment Category and Overall Objective	Assessment Guide Questions *Will the SDP Proposals…*
H. Climate Change and Energy Use Reduce energy consumption, minimise detrimental effects on the climate from greenhouse gases and maximise resilience to climate change.	Affect the amount of carbon dioxide and other greenhouse gases emitted? Be significantly affected by climate change (for example rising temperatures and more extreme weather events)? Affect how climate change might impact on the wider environment? Promote or impede the use of energy efficiency measures, low carbon and/ or renewable energy sources? Have wider implications for combating the effects of climate change?
I. Coastal Change and Flood Risk Minimise the risks from coastal change and flooding to people, property and communities.	Affect existing flood risks? Be at risk of flooding from any source? Affect coastal processes and/or erosion rates? Be affected by coastal processes and/or erosion?
J. Material Assets (Transport) Minimise the detrimental impacts of travel and transport on communities and the environment, whilst maximising positive effects.	Affect the number and frequency of heavy, oversized, radioactive and/ or hazardous loads being transported off-site, particularly through sensitive areas (e.g. population centres, historic areas and vulnerable ecosystems?) Increase or decrease traffic congestion around SDP sites? Increase or decrease the risk of traffic accidents around SDP sites?
K. Material Assets (Waste Management) Minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of wastes on the environment and communities.	Increase the amount of radioactive waste to be disposed of? Affect the amount of hazardous waste to be disposed of? Affect the amount of non-hazardous wastes produced? Affect the capacity of existing waste management systems, both nationally and locally? Maximise re-use and recycling of recovered components and materials? Help achieve government and national targets for minimising, recovering and recycling waste? Affect the environmental risks associated with managing radioactive and hazardous wastes?
L. Land Use and Materials Contribute to the sustainable use of land and natural and material assets.	Change patterns of land use on or around SDP sites? Affect any existing or proposed redevelopment/regeneration programmes? Lead to the loss of undeveloped land or green spaces? Increase the burden on limited natural resources such as aggregates or wood? Promote the use of sustainable design and construction practices and help the government achieve its targets for the quality of built environments? Make best use of existing infrastructure and resources?
M. Cultural Heritage Protect and where appropriate enhance the historic environment including cultural heritage resources, historic buildings and archaeological features.	Affect designated or locally-important archaeological features? Affect the fabric and setting of historic buildings, places or spaces that contribute to local distinctiveness, character and appearances?

Assessment Category and Overall Objective	Assessment Guide Questions *Will the SDP Proposals…*
N. Landscape and Townscape Protect and enhance landscape and townscape quality and visual amenity.	Have significant visual impacts (including those at night)? Affect protected/designated landscapes or townscapes, such as National Parks or Conservation Areas? Affect the intrinsic character of local landscapes or townscapes? Affect public access to open spaces or the countryside?

6.2 Completing the Assessment

The assessment of the SDP proposals will be undertaken by testing the options against the SEA objectives and detailed assessment questions identified in this Scoping Report Update. Commentary on impacts will include:

- the nature and scale of the potential environmental effects (what is expected to happen);
- when the effect could occur (timing);
- what mitigation measures might be appropriate for potentially significant negative effects;
- what options there are to enhance positive effects;
- assumptions and uncertainties that underpin the appraisal; and
- what additional information will be required to address uncertainties and to undertake more detailed site-specific assessment.

Effects will be characterised as short, medium or long term. It is proposed that, for SDP, short term effects = up to five years after each activity begins; medium term effects = five years to the end of the activity; long term effects = after the activity has ceased (with respect to radioactive materials this could be very lengthy).

Tables 6.2 and 6.3 set out the proposed assessment framework developed to meet the requirements of the SEA Directive. It contains the SDP SEA themes, objectives and guide questions. **Table 6.2** will be used to record the assessment of the generic effects associated with each SDP stage and with developing the three generic land use types (undeveloped 'greenfield,' previously-developed 'brown-field' and 'existing' Licensed/ Authorised sites). **Table 6.3** will be used to record the assessment of the effects associated with developing individual licensed or authorized sites.

Table 6.2 Proposed Assessment Framework for Generic Land Use Type Options

Options Objectives	Option 1: 'Greenfield' site	Option 2: 'Brownfield' site	Option 3: 'Existing' Licensed/ Authorised Site
A. Biodiversity and Nature Conservation Protect and enhance habitats, species and ecosystem functionality.	**Context:** The UK Government is committed to promoting sustainable development by conserving and enhancing biodiversity and the integrity of the habitats on which wildlife depends. This is set out in a number of documents such as the *Habitat Regulations* (as amended 1998), *UK Sustainable Development Strategy, PPS9 Biodiversity and Geological Conservation* and the Biodiversity Strategy for England *Working with the grain of nature* (2002). A variety of legislation exists to enforce this in a number of circumstances (e.g. Countryside and Rights of Way Act (1981, 2000) and the Environmental Protection Act (1990)). There are also a number of European Directives which place requirements on the UK and other Member countries to make the provision for the protection of specified habitats and species. The MOD is the UK's largest public owner of sites designated for nature conservation, including 171 SSSI and their equivalent in Northern Ireland, Areas of Special Scientific Interest (ASSIs). Over 110 also had international and European nature conservation designations. In March 2008 the following percentages of MOD managed SSSIs were in target condition: 85% in England (against a Government target of 95% by 2010), 68% in Scotland (target 95% by 2010), 78% in Wales (target 85% by 2013) and 57% in Northern Ireland (target 95% by 2013). The Defence Lands Handbook (JSP 362, 1980), following amendment, reflects the need for appropriate assessment regarding EU protected sites. A Memorandum of Understanding exists between the MOD and Defra which enables mutual agreement to be agreed on planned activities. Similarly, the MOD has a Joint Declaration of Intent with statutory bodies including Natural England, Scottish Natural Heritage and the Countryside Council for Wales. This requires the MOD to consult the statutory bodies before changing patterns of land use, activities or changes in intensification of use.		
	Score: Negative **-** Key Effects: Uncertainty: Mitigation:	Score: Positive **+** Key Effects: Uncertainty: Mitigation:	Score: Major positive **++** Key Effects: Uncertainty: Mitigation:

Table 6.3 Proposed Assessment Matrix for Initial Dismantling Sites

Assessment Category and Objective	Likely Effects (including direct , indirect, cumulative and synergistic effects, and possible mitigation measures)	Timescale		
		Short-Term	Medium-Term	Long-Term
A. Biodiversity and Nature Conservation: Protect and enhance habitats, species and ecosystem functionality.	A description of the biodiversity and nature conservation effects of each option will be provided here, with reasoning and justification included…	-	0	0
B. Population: Promote a strong, diverse and stable economy with opportunities for all, minimise disturbance to local communities and maximise positive social impacts.	A description of the population effects of each option will be provided here…	++	+	0
C. Health, Safety and Wellbeing Protect and enhance health, safety and wellbeing of communities and minimise potential risk associated with processing radioactive and non-radioactive materials.	A description of the health and wellbeing effects of each option will be provided here…	0	0	+
….etc				

++ Strongly Significant positive effect	+ Significant positive effect	0 No significant effects	- Significant negative effect	- - Strongly significant negative effect

Note: This draft SEA matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the SEA categories, objectives and appraisal criteria.

Box 6.1 provides examples of the factors that are likely to be considered when determining the relative significance of a potential effect (and will be in addition to the information that is provided in Annex II of the SEA Directive). The SEA Directive includes the following as material factors to be considered:

- the probability, duration, frequency and reversibility of the effects;
- the cumulative nature of the effects;
- the trans-boundary nature of the effects;
- the risks to human health or the environment (e.g. due to accidents);
- the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);
- the value and vulnerability of the area likely to be affected; and
- the effects on areas or landscapes which have a recognised national, European or international protection status.

Box 6.1 Examples of Factors that Could Influence the Determination of Significance

Significant Effect	Minor Effect
Extensive	Localised
Will affect many people	Will affect few people
Large change in environmental conditions	Small change in environmental conditions
Effect will be unusual or particularly complex	Effect will be ordinary or simple
Will affect valuable or scarce features or resources	Will not affect valuable or scarce features or resources
High risk that environmental standards will be breached	Low risk that environmental standards will be breached
High likelihood that protected sites/areas/features will be affected	Low likelihood that protected sites/areas/features will be affected
High probability of effect occurring	Low probability of effect occurring
Irreversible	Reversible
Mitigation difficult	Mitigation straightforward

Identifying effective mitigation measures will also be a fundamental part of the SEA. Box 6.2 provides information on types and examples of mitigation measures that might be proposed and includes an overview of the mitigation hierarchy. The mitigation hierarchy is based on the principle that it is preferable to prevent the generation of an impact rather than counteract its effects. It thus suggests that mitigation measures higher up the hierarchy should be considered in preference to those further down the list. However, any mitigation measures that are identified will be suggestions only. No attempt will be made to estimate financial costs for mitigation.

Box 6.2 Suggested Mitigation measures

Mitigation measures should be consistent with the mitigation hierarchy (after DETR 1997[23] and CLG 2006[24]):

a. Avoidance – making changes to a design (or potential location) to avoid adverse effects on an environmental feature. This is considered to be the most acceptable form of mitigation.

b. Reduction – where avoidance is not possible, adverse effects can be reduced through sensitive environmental treatments/design.

c. Compensation – where avoidance or reduction measures are not available, it may be appropriate to provide compensatory measures (e.g. an area of habitat that is unavoidably damaged may be compensated for by recreating similar habitat elsewhere). It should be noted that compensatory

[23] Department of the Environment, Transport and the Regions, 1997, Mitigation Measures in Environmental Statements. London: DETR

[24] Department for Communities and Local Government, 2006, consultation document EIA: A guide to good practice and procedures

measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.

d. Remediation – where adverse effects are unavoidable, management measures can be introduced to limit their influence.

e. Enhancement – where there are no negative impacts, but measures are adopted to achieve a positive move towards the sustainability objectives e.g. through innovative design.

Examples of how mitigation measures could be incorporated into the SDP proposals could include:

f. Applying technical measures during the implementation stage of an option (e.g. application of design principles or considerate constructors' scheme);

g. Undertaking further assessments to assess specific issues in depth (e.g. Archaeological Evaluation, Appropriate Assessment or Built Environment Assessments such as BREEAM, CEEQUAL or DREAM);

h. Applying ongoing management tools (e.g. Environmental Management System or Construction Environmental Management Plan); and

i. Working with partners such as the Environment Agency, Local Authority or Regional Development Agency.

6.3 Considering Cumulative Effects

The SEA Directive, and its implementing regulations in the UK, requires that secondary, cumulative and synergistic effects are considered as part of the assessment.

Table 6.4 Definitions of Secondary, Cumulative and Synergistic Effects

Type of Effect	Definition*
Secondary (or indirect)	Effects that do not occur as a direct result of the SDP, but occur at distance from the direct impacts or as a result of a complex pathway. Examples of a secondary effect of the SDP would include the materials (and embedded carbon) used in the development of the dismantling and interim storage capability, or health effects of changes to air quality.
Cumulative	Effects that occur where several individual activities which each may have an insignificant effect, combine to have a significant effect. Examples of a cumulative effect of the SDP could include the potential effects on a European designated site, where a habitat or species is vulnerable and the cumulative effects of disturbance and pollutant emissions arising from development and operation causes a significant impact. Cumulative effects will also include the potential effects (if any) of a proposed activity and any other proposed and consented developments.
Synergistic	Effects that interact to produce a total effect that is greater than the sum of the individual effects. This may also relate to the potential for additive synergy between radioactive materials and non-radioactive materials, such as other chemical compounds, asbestos etc).

*Adapted from SEA guidance, ODPM (2005)

For the assessment of cumulative effects to be effective, guidance indicates that these effects should be considered throughout the stages of assessment in preference to being seen as a separate assessment. In the course of completing this Scoping Report Update, this was achieved by:

- collecting baseline information and completing a review of plans and programmes which took a broad view of potential impacts (please refer to **Sections 3, 4 and 5 and Annexes A, B and C**); and
- ensuring appropriate reference is made to guidance such as that produced by Institute of Ecology and Environmental Management which includes consideration of potential direct, indirect and cumulative effects arising from activities on European designated sites (SACs and SPAs) and sites of national nature conservation importance (SSSIs and NNRs).

A matrix similar to that shown in **Table 6.5** could be used to summarise the generic effects of each of the stages considered for the SDP proposals. This assessment will include consideration of the secondary or indirect effects (such as the potential effect any discharge to water would have on water quality which then may affect biota). The cumulative effects of each of the stages can then be summarised and their relative positive and negative effects considered.

Table 6.5 Example of a Cumulative Assessment Matrix (illustrative purposes only)

Stage	Stage I Location and development of dismantling and processing capability				Stage II Location and development of interim storage capability				Stage III etc…			
Sustainability Objectives	Biodiversity & Nature Conservation	?	Energy & Climate Change	0	Biodiversity & Nature Conservation	+	Energy & Climate Change	+	Biodiversity & Nature Conservation	++	Energy & Climate Change	++
	Communities & Social Values	0	Transport	0	Communities & Social Values	+?	Transport	+	Communities & Social Values	+?	Transport	+
	Health, Safety & Well-Being	+	Waste	+	Health, Safety & Well-Being	0	Waste	?	Health, Safety & Well-Being	0	Waste	?
	Noise & Vibration	+	Land Use & Built Environment	+	Noise & Vibration	?	Land Use & Built Environment	+	Noise & Vibration	?	Land Use & Built Environment	?
	Geology & Solis	0	Economy & Employment	+	Geology & Solis	++	Economy & Employment	++	Geology & Solis	++	Economy & Employment	+
	Water & Drainage	+	Historic Environment	0	Water & Drainage	++	Historic Environment	-	Water & Drainage	++	Historic Environment	--

Stage	Stage I Location and development of dismantling and processing capability				Stage II Location and development of interim storage capability				Stage III etc…			
	Air Quality	0	Landscape & Townscape	0	Air Quality	++	Landscape & Townscape	++	Air Quality	++	Landscape & Townscape	+
	• Positive impacts because…. • Negative impacts because… • Impacts dependent on…..				• Positive impacts because…. • Negative impacts because… Impacts dependent on…..				• Positive impacts because…. • Negative impacts because… Impacts dependent on…..			

The consideration of the generic cumulative effects will be supplemented with consideration of the potential effects of the proposed siting options. It is anticipated that a number of preferred options from the myriad of potential options will be presented for public consultation, which will be assessed in detail. When considering these siting options, reference will also be made to any other relevant significant plans or programmes to identify the potential 'in combination' effects.

6.4 Environmental Report Content

The assessment of potential effects will be presented in the SEA Environmental Report, which will be published alongside the other public consultation documents for the SDP. The Environmental Report has the following purpose:

- to ensure that the significant potential environmental impacts associated with the different SDP options are identified, characterised and assessed;
- to propose measures to mitigate the adverse effects identified and, where appropriate, to enhance potential positive effects;
- to provide a framework for monitoring the potential impacts arising from the adoption of the selected SDP options; and
- to provide sufficient information to those affected so that the SDP achieves its stated aims with respect to public consultation and stakeholder engagement.

In accordance with the requirements of Schedule 2 of the SEA Regulations (which reproduce the SEA Directive Annex I issues), the SEA Environmental Report will consist of:

- A Non-technical Summary.
- A chapter setting out the scope and purpose of the assessment.
- A chapter setting out the main objectives of the SDP and its relationship to other relevant plans and programmes. This will include consideration of all stages of the SDP.

- A chapter setting out the proposed approach to assessment including the relevant environmental protection objectives.
- A chapter outlining the likely significant environmental effects of the SDP options (e.g. the 'reasonable alternatives' within the project), including cumulative effects, mitigating measures, uncertainties and risks. This will also include issues associated with transport of waste and the eventual decommissioning of the dismantling and storage facilities. The reasons for selecting the proposed options and any difficulties encountered in completing the assessment will be explained.
- A chapter presenting views on implementation and monitoring.
- An Annex, structured by each SDP SEA topic, setting out all the information contained in the baseline, evolution of the baseline, key issues and plans and programmes along with the detailed generic and site specific assessments. It is anticipated that each topic section will contain:
    - introduction - provides an overview and definition of the topic;
    - summary of Plans and Programmes - provides an overview of the policy context in which the SDP sits;
    - overview of the Baseline - provides an overview of the baseline and the key topic specific baseline factors which will need to be considered as part of the appraisal;
    - existing Problems - highlights some of the existing pressures on the topic area, particularly in relation to the SDP;
    - likely Evolution of the Baseline - provides an overview of how the baseline is likely to change in the absence of the SDP, an understanding of this is key to understanding the effects of the SDP on the topic area;
    - assessment objective and guide questions;
    - assessment - including information on the potential nature and scale of effects, proposed mitigation measures (where appropriate) and measures for enhancement, assumptions and uncertainties and additional information that may be required;
    - monitoring requirements;
    - summary - each section will be summarised in a tabular format with a clear indication of what mitigation and enhancements would help to minimise the adverse environmental effects of the SDP proposals; and
    - an Annex outlining statutory consultee responses to scoping.
- An Annex outlining how the Quality Assurance checklist identified in the ODPM SEA Guidance has been met.

Please also refer to **Table 1.1 (Section 1)** which sets how the information gathered in this Scoping Report Update will be used to support the completion of the Environmental Report, in line with the SEA requirements.

7. Summary and Next Steps

This Final Scoping Report presents the approach and scope to undertaking the SEA assessment following receipt of consultees views gained though the two rounds of scoping consultation (Stages A1 and A2). The structure is derived from good practice guidance provided by ODPM (now DCLG) and the MOD. It has been prepared to meet the requirements of the SEA Directive and associated Regulations. It fulfils the requirements of Stage A, as outlined within the Quality Assurance Checklist presented in **Annex E**.

The environmental issues considered to be relevant to the SDP are summarised in **Table 7.1** below. They are not exhaustive and are not presented in any order of priority.

Table 7.1 Key Environmental Issues for the SDP

Biodiversity and Nature Conservation: Consideration will be given to the potential effects of the SDP proposals on the natural environment, including fisheries and areas protected for their wildlife and conservation importance.

Population: Consideration will be given to the potential effects of SDP proposals on local communities, including socio-economic impacts and the extent to which proposals present opportunities for community benefit, e.g. through skills development. *(Note that assessment of economic effects is not an environmental issue and is not required by SEA, but has been included to reflect the importance of these issues to the wider public).*

Health and Wellbeing: The potential effects of SDP proposals on people's health and on health service provision will be assessed. This will include issues related to radiological work.

Health (Noise and Vibration): The potential noise-related impacts of the SDP options will be assessed on people and communities.

Soil and Geology: Consideration will be given to potential effects on soil extent, variety and quality (including contamination and on the SDP's potential to disturb historic contamination) The potential effects on protected/ important geological features will also be assessed.

Water: Consideration will be given to potential effects on surface waters, groundwater systems and the marine environment, including the effects of Licensed and unplanned discharges to water.

Air: Consideration will be given to potential effects on air quality, including construction, transport and the effects of Licensed and unplanned radioactive discharges to the atmosphere.

Climate Change and Energy Use: Consideration will be given to the likely impacts of climate change, such as storminess, water availability and temperature. The SEA will also assess the potential effects of the SDP itself on energy use and greenhouse gas emissions.

Coastal Change and Flood Risk: Consideration will be given to existing and future flood risks, as well as the effects on coastlines of projected sea level rise and a possible increase in storm intensity. The effects of land instability and erosion will also be assessed.

Material Assets (Transport): The SDP will necessarily involve dismantled components and materials being transported off-site. Consideration will be given to the potential effects of transporting oversized, hazardous and/or radioactive materials on existing transport systems and infrastructure, particularly through urban and other sensitive areas.

Material Assets (Waste Management): The SDP is essentially a waste management programme. Consideration will be given to potential waste volumes and the effects this may have on current waste management infrastructure and the market for recycled materials. The extent to which the SDP proposals represent good practice (e.g. reduce, re-use, recycle, dispose) will also be assessed.

Material Assets (Materials and Land Use): The SDP will involve the development of new or upgraded facilities. Consideration will be given to the potential effects of the SDP on land use, on the use of finite resources such as minerals, and on the quality and environmental performance of buildings and facilities.

Cultural Heritage: Consideration will be given to the potential effects of the SDP on the historic environment, including cultural heritage resources, historic buildings and archaeological features.

Landscape and Townscape: Consideration will be given to the potential effects of the SDP proposals on the quality and attractiveness of landscapes and townscapes, as well as on public access to open spaces.

The next stages of the SEA process (Stages B and C) involve the prediction and evaluation of the effects that the credible SDP options are likely to have. The assessment will propose, where appropriate, mitigating measures for adverse impacts as well as opportunities to enhance beneficial aspects.