Environmental Baseline Report

Prepared for

Slapton Line Partnership

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Contents

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SECTION 1

Introduction

1.1 Background and Study Area

This report has been prepared for the Slapton Line Partnership (SLP) and their partners South Hams District Council (SHDC), the Environment Agency and Devon County Council (DCC), as part of the Slapton Beach Management Plan (BMP). The BMP study area covers the coastline from Torcross in the south, to Strete Gate in the north, as shown in Figure 1.1.

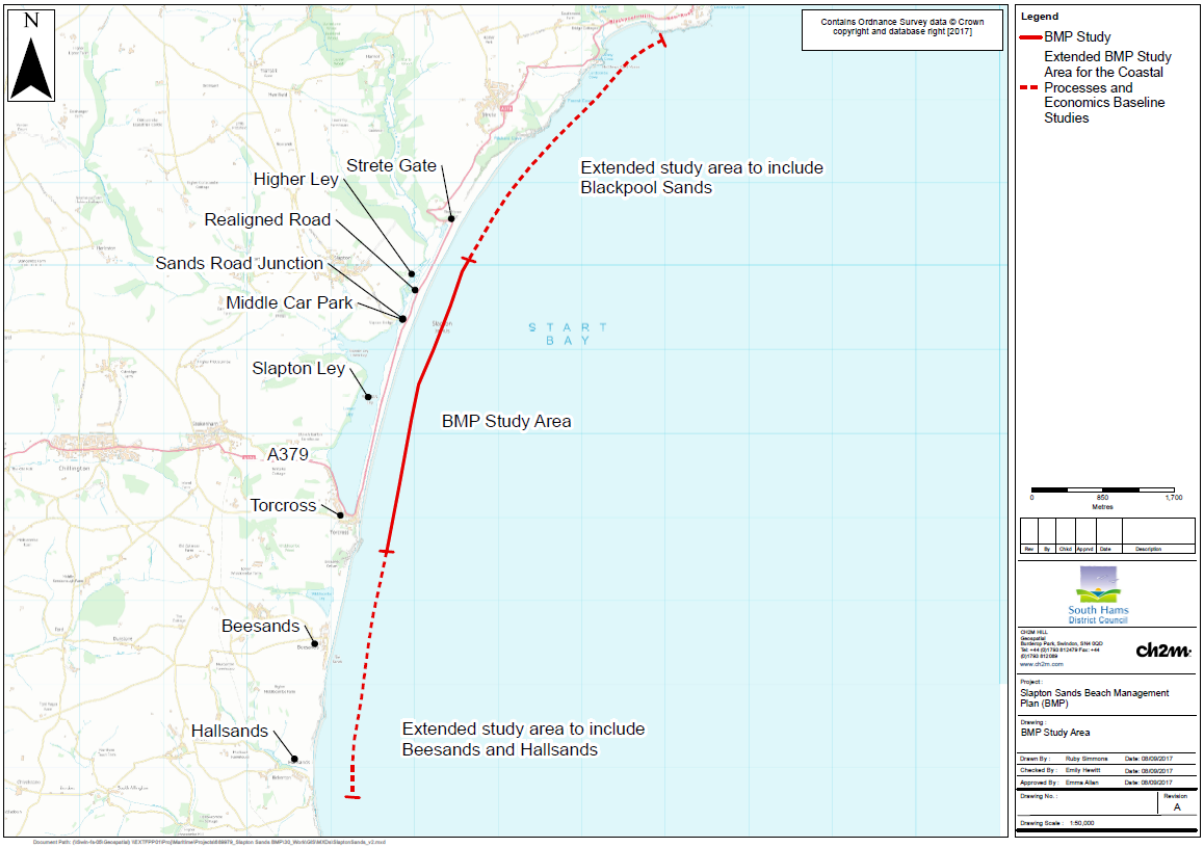

Figure 1.1 Slapton Sands BMP Study Area
Map showing the extent of the BMP study area

1.2 The Basis of this Report

This Environmental Baseline Report is a supporting document to the BMP. Studies covering coastal processes, defences and economics are being undertaken separately and a detailed options appraisal will be completed as part of the BMP process.

This document updates the environmental baseline of the Slapton Coastal Zone Management Study (SCZMS) (Scott Wilson, 2006) to ensure that all key environmental features and social factors relating to the study area are given appropriate consideration during the options appraisal.

1.3 Report Content

This report has been divided into several sections, including a summary of the information reviewed in Section 2; and the main content on Environmental Setting in Section 3. The content of the Environmental Setting has been prepared in line with best practice and follows recommendations made by the Beach Management Manual 2nd Edition (Rogers *et al.*, 2010) to cover the specific topic listed. Details of the topics are presented in Table 1.1, as noted below with a summary of what is

contained within each column of the table, along with signposting to the relevant section in this report and where this relates to the SCZMS:

1. Column one Slapton Sands BMP topics are sourced from the Beach Management Manual 2nd Edition (Rogers *et al.*, 2010).
2. Column 2 develops these topics into applicable sub-topics with reference provided in the third column.
3. Column 4 highlights the environmental topics covered by the SCZMS.
4. Column 5 makes comment to updates or new information provided in this BMP report to the SCZMS.
5. Column 6 and 7 refers to potential receptors under EIA Directive, transposed to UK Law under The Town and Country Planning (Environmental Impact Assessment) Regulations (2017, Regulation 5 (2)) and Marine Works (Environmental Impact Assessment Regulations (2015) and the environmental factors to be considered as part of the Environmental Impact Assessment process (see box below). This is provided by way of cross reference for use during the development of the BMP options to determine if the preferred option will present a significant scale of effect as to require the need for a statutory Environmental Statement (ES) to accompany any future consent applications.

Environmental Impact Assessment (EIA) procedures in EC countries are based on the European Community Directive 'The Assessment of the Effects of Certain Public and Private Projects on the Environment' (85/337/EEC) as amended by the Council Directive 97/11/EC.

The Directive was implemented in the UK through various regulations. Those regulations relevant to this BMP are considered to be:

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017

These EIA Regulations apply only to the environmental impact assessment ("EIA") of certain developments which are given consent for development under the town and country planning laws of England.

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 revoke and replace the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011, as amended, in England.

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017

Paragraph 4

Within the Environmental Impact Assessment process:

(2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors

a) population and human health;

b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(34) and Directive 2009/147/EC(35);

c) land, soil, water, air and climate;

d) material assets, cultural heritage and the landscape

The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2015

These EIA regulations apply only to the environmental impact assessment ("EIA") of certain developments which are given consent for development under the Marine and Coastal Access Act 2009.

The regulations revoke and replace The Marine Works (Environmental Impact Assessment) Regulations 2007

The Marine Works (Environmental Impact Assessment) Regulations 2017

Schedule 3, information to be included in an environmental statement

(2) A description of the aspects of the environment likely to be significantly affected by the project and the regulated activity, including:

a) human beings, fauna and flora;

b) soil, water, air, climate and the landscape;

***c)** material assets and the cultural heritage.*

It should be noted that the level of detail presented in this document allows for an initial appraisal of environmental features to provide for an environmentally sustainable future management regime. This does not negate the requirement for future detailed environmental assessment which may be required to support consent applications or prejudge the scope of the assessment. Background information on possible consenting requirements and legislative drivers are also described in Table 1.1 below.

Table 1.1 Environmental Baseline Topics

Details of the topics covered by the Environmental Setting Section, including Signposting to the SCZMS, and in Context with Current EIA Legislation

Slapton Sands BMP Environmental Topics *	**Slapton Sands BMP Sub-to**	**Slapton Sands Section Reference**	**Comparative SCZMS Environmental Topics**	**Topic updated by Slapton Sands BMP (yes/no)**	**Reference to the environmental aspects outlined in The Town and Country Planning (Environmental Impact Assessment) Regulations 2017**	**Reference to the environmental aspects outlined in The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017**
Geology and Geomorphology	• Geology • Designated Geological Sites • Geomorphology	3.3	Geomorphology (Chapter 5)	**Yes**	Land, soil,	soil
Ecology	Marine and Terrestrial: • Designated Nature Conservation Sites • Priority Habitats • Priority Species • Fish Ecology	3.4	Ecological (Chapter 4) (Terrestrial) • Designated Nature Conservation Sites • Priority Habitats • Priority Species • Fish Ecology o Freshwater	**Yes**	Biodiversity, with attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC	Fauna and flora
Fisheries	• Commercial fisheries • Recreational fisheries	3.5	-	**Yes**	Material Assets including the architectural and archaeological heritage,	Fauna and flora, Human beings, Material assets and Cultural heritage

					Population and human health, Material Assets	
Navigation	• Road Transportation • Marine Navigation	3.6	**Transportation (Chapter 9)** • Roads	**Yes**	Material Assets including the architectural and archaeological heritage	Human beings, Material assets, Landscape and Cultural heritage
Landscape setting	• Designations • Landscape character	3.7	**Landscape Character and Visual Receptor Baseline (Chapter 7)**	**Yes**	Cultural heritage and the landscape	Landscape, cultural heritage
Archaeology and Cultural Heritage	• Designated Archaeology and Cultural Heritage • Non-Designated Archaeology and Cultural Heritage	3.8	Archaeology and Cultural Heritage (Chapter 6)	No	Material assets, cultural heritage and the landscape	Material assets, landscape and cultural heritage
Water quality	• Designated Bathing Water • Water Framework Directive (WFD)	3.9	-	**Yes**	Water, population and human health	Human beings, fauna and flora, and water
Sediment quality	• Sediment Quality	4	-	**Yes**	Land, Soil,	soil
Air quality	• Air Quality	5	-	**Yes**	Air and climate, population and human health	Human beings, air and climate
Noise	• Noise	6	-	**Yes**	Population and human health	Human beings, fauna and flora
Land Use	• Amenity Value • Land Ownership • Contaminated Land	3.10	**Archaeology and Cultural Heritage (Chapter 6)** **Socio-Economic Baseline (Chapter 8)**	**Yes**	Population and human health, material assets, soil	Human beings, fauna and flora, soil and material assets

*(with reference to the Beach Management Manual 2nd Edition, Rogers *et al.*, 2010).

SECTION 2

Information Reviewed

A key aim of the Slapton Sands BMP and objective of this report is to provide an update to the environmental information presented in the SCZMS (Scott Wilson, 2006). This report therefore focusses on highlighting new information that has become available since 2006, which has largely come about due to key legislative changes, including the Marine and Coastal Access Act 2009 and River Basin Management Plans, as a requirement of the Water Framework Directive (2000), most recent being the River Basin Management Plans v2 in 2015, described in more detail in Section 2.2 and Section 9.5 respectively.

The information reviewed for this report has been limited to an area that extends a 3km radius of the BMP study area. This is consistent with the spatial remit applied to the SCZMS report.

2.1 Details of Information Reviewed

New information has largely been sourced from recent Devon County Council (DCC) ecological studies, and data records that have been recently collected by the Slapton Ley Field Centre. A summary of the key data sources that have been used to produce this report, including a brief description and details of how they have been used is provided in Table 2.1. A full list of references and bibliography is provided in Section 10 of this report.

For clarity, where new information exists and there is an update to the SCZMS, a record has been made in Table 2.2.

Table 2.1 Summary of Key Data Sources Used

Name of Report	Author	Brief Description	How Utilised in this Environmental Baseline
Wildlife and Ecological Report: DRAFT Wildlife Report for the A379	DCC, 2016	New information.	Section 3.4 Ecology
Slapton Ley SSSI Ecological Information	DCC, 2016	New information	Section 3.4 Ecology
Ecological survey data	Slapton Ley Field Centre	New information	Section 3.4 Ecology
Enhancing the Sustainable Tourism Potential of the Slapton Line Area: A Tourism Strategy for destination Start Bay 2009 -2011	Slapton Line Partnership	New information	Section 3.10 Land Use
Magic.gov.uk Online environmental information search tool	Natural England	New information based on information provided under the direction of Steering Partners: Department for Environment, Food and Rural Affairs Historic England Natural England Environment Agency Forestry Commission Marine Management Organisation	Section: 3.2 Environmental Designations 3.3 Geology and Geomorphology 3.4 Ecology 3.5 Fisheries 3.9 Water Quality

What's in your back yard? Online environmental information search tool	Environment Agency	New information	Section: 3.9.1 Designated Bathing Water 3.10.3 Land use, Contaminated Land

Table 2.2 SCZMS Update Summary

Update to SCZMS			
Update Reference	***Reference to SCZMS***	***Update to Chapter 4 Ecological Baseline***	***Refer to Section in this report***
Update 1	Chapter 4 Ecology Baseline, section Designated Sites	A newly designated national nature conservation site: Skerries Bank and Surrounds Marine Conservation Zone (MCZ).	Section 3.2.1 and 3.4.1.2
Update 2	Chapter 4 Ecology Baseline, Section Designated Sites	A newly designated international site is within close proximity to the study area: Lyme Bay and Torbay Site of Community Importance (SCI).	Section 3.2.2 and 3.4.1.1
Update 3	Chapter 4 Ecology Baseline, Section Fish	There are fish nursery and spawning grounds within Start Bay.	Section 3.2.3 and 3.4.5.2
Update 4	Chapter 4 Ecology Baseline, Section Designated Sites	Start Bay is a newly designated Shellfish Water under the Shellfish Directive for the wild grown production and harvesting of surf clams (*S. solida*).	Section 3.4.5.2 and 3.5.1
Update 4	Chapter 4 Ecology Baseline, Section Species; Mammals	There are records of marine mammals (Whale, dolphin, porpoise and seal) within Start Bay	Section 3.2.4 and 3.4.4.2
Update 5	Chapter 4 Ecology Baseline, Section Designated sites, Geological conservation; Chapter 5 and Appendix C	Hallsands – Beesands SSSI is located approximately 2km south along the coast from Torcross. This site is notified for its geological and geomorphological features is newly included.	Section 3.2.2 and 3.3.1
Update 6	Chapter 4 Ecology Baseline, Section 4.26	The description of the Geological Conservation Review site 1840: Slapton Sands is newly included. Features underpin the SSSI.	Section 3.2.1 and 3.3.2
Update 7	Chapter 4 Ecology Baseline, Broad Habitat Types and Species	By their nature, plants and animals are transient and populations can fluctuate due to natural causes but can also fluctuate as a result from contributing factors. The latest relevant understanding of the SCZMS topics in the recent years since the 2006 study is included. The marine environment is newly included.	Sections 3.2.4, 3.4.2, 3.4.3, 3.4.4 and 3.4.5
Update 8	Chapter 4 Ecology Baseline	New commercial and recreational fisheries baseline information is included.	Section 3.5

Update 9	Chapter 9 Transportation Baseline	Transportation baseline information within the marine environment (navigation) is newly included.	Section 3.6.2.
Update 10	Not covered	There are new designated sites within the study area relating to water quality and the WFD: WFD Estuarine and Coastal Water Bodies cycle 2 Designated Bathing Water Designated Shellfish Waters	Section 3.9.1 and 3.9.2
Update 11	Chapter 7 Landscape Character and Visual Receptor Baseline; Chapter 8 Socio-Economic Baseline	Updated and new information for the BMP topic Land Use is provided.	Section 3.10
Update 12	Chapter 7 Landscape Character and Visual Receptor Baseline	Updated and new information from the Devon's Landscape Character Assessment (DLCA) for the BMP topic Landscape Setting, sub-topic Landscape Character	Section 3.7.3
No Change to SCZMS			
Update Reference	***Reference to SCZMS***	***Update to Chapter 4 Ecological Baseline***	***Refer to Section in this report***
No Change	Chapter 9 Transportation Baseline	There are no changes or updates within this report to the SCZMS baseline on road and transport network within and connecting to the study area	Section 3.6.1.
No change	Chapter 7 Landscape Character and Visual Receptor Baseline	There are updates within this report to the SCZMS baseline on landscape setting. In relation to Landscape Character Types (updated 2010) and Devon Charcter Areas (updated 2015).	Section 3.7
No change	Chapter 6 Archaeology and Cultural Heritage Baseline	There are no changes or updates within this report to the SCZMS baseline on designated and non-designated archaeological and cultural heritage sites within the study area.	Section 3.8

2.2 Key Legislative Changes and Associated Outputs Since 2006

Key legislative and regulatory management changes since 2006*:*

- Marine and Coastal Access Act 2009 (see Section 4 Construction Licensed activities, and Section 9.6, Licences, Approval and Consents); and
- Water Framework Directive 2000. and the requirement of River Basin Management Plans, most recent being River Basin Management Plans v2 in 2015 (See Section 3.9.1 and 6.5 Water Framework Directive (WFD)).

This has resulted in several newly designated marine areas since the SCZMS.

Ecological changes since 2006:

Eleven years have passed since the SCZMS. By their nature, plants and animals are transient and populations can fluctuate due to natural causes but can also fluctuate as a result from contributing factors

SECTION 3

Environmental Setting

The following section provides an overview of the environmental features within the BMP study area, and includes a summary of:

- Physical setting;
- Environmental designations;
- Geology and geomorphology;
- Ecology;
- Fisheries;
- Navigation;
- Landscape setting;
- Archaeology and cultural heritage;
- Water quality; and
- Land use.

3.1 Physical Setting

Slapton Sands is a shingle barrier beach, known locally as 'the Line', which separates the freshwater lagoon of Slapton Ley from the open sea of Start Bay. The shingle barrier is located within an area of designated environmental, landscape, geological and geomorphological value. The Line is part of a Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). The area is nationally designated for vegetated shingle, freshwater lakes and wetlands, geomorphologic features and rare plants and birds. The area is located within the South Devon Area of Outstanding Natural Beauty (AONB), and forms part of the Heritage Coast. The South West Coastal footpath runs along the Line and the area has several local small businesses and settlements where tourism makes up a major source of income.

As well as separating the Slapton Ley from Start Bay, the shingle barrier also supports the route of the A379, which represents an important transport link between the local communities of Torcross and Strete and an alternative secondary route into Dartmouth (Scott Wilson, 2006). Devon County Council (DCC) are currently committed to maintaining the A379 whilst it is technically feasible and cost effective to do so (Halcrow, 2010).

3.2 Environmental Designations

The importance of the area in terms of its environmental, landscape, geological and geomorphological value are reflected by the number of designations that afford protection to Slapton Sands and the surrounding area. A summary of designated, non-designated, and details of the protected species relevant to the BMP study area are listed and described in more detail in the subsequent sections.

3.2.1 Environmental Designations within the BMP Study Area

The environmental and nature conservation designations within the BMP study area are listed and discussed in further detail below. These are central in the consideration of delivering BMP options along the frontage in context of the longer term SMP2 policy of managed realignment of the frontage:

- Nature and Geological Conservation

    - Slapton Ley SSSI (biological and geomorphological)
    - Slapton Ley NNR
    - Skerries Bank and Surrounds Marine Conservation Zone (MCZ)
    - Geological Conservation Review (GCR) site
- Historical and Cultural Heritage including:
    - Listed Buildings
- Landscape setting
    - South Devon AONB
    - South Devon Heritage Coast
- Water quality
    - Designated Bathing Water
    - Designated Shellfish Water

3.2.2 Environmental Designations near the BMP study area

The environmental designations listed below are near (within 3 km approximately) to the study area and will also require consideration of the BMP:

- Nature conservation
    - Lyme Bay and Torbay Site of Community Importance (SCI)
- Historical and Cultural Heritage
    - Scheduled Monuments, Listed buildings.
- Landscape designations
    - Conservation Areas

3.2.3 Relevant Non-Designated Environmental Sites

Further non-designated environmental considerations within the study area that require consideration of the BMP are:

- County wildlife sites
- Fish ecology
- Non-designated archaeology and cultural heritage features
- Commercial and recreational fishing areas

3.2.4 Protected Species

Recent records indicate there may be protected species within the BMP study area (in addition to those featured within the designations above and will require consideration of the BMP. These include:

- Dormouse
- Bat
- Otter
- Reptiles (Slow worm, grass snake, common lizard and adder)
- Birds (Cirl buntings)
- Badger

- Marine mammals (Whale, dolphin, porpoise and seal)

3.3 Geology and Geomorphology

3.3.1 Nationally Designated Geological Conservation Site

The BMP will need to consider designated geology within, and near the BMP study area.

Within the BMP Study Area

- Slapton Ley SSSI contains geological features (alongside biological features) as documented within the Geological Conservation Review information provided in Section 3.3.1.1.

Near the BMP Study Area

- Hallsands – Beesands SSSI is located approximately 2km south along the coast from Torcross. This site is notified for its geological and geomorphological features, including Variscan Structures of South West England and Coastal Geomorphology of England (Natural England, 1999).

3.3.1.1 Geological Conservation Review

'The Geological Conservation Review (GCR) was designed to identify those sites of national and international importance needed to show all the key scientific elements of the Earth heritage of Britain. These sites display sediments, rocks, fossils, and features of the landscape that make a special contribution to our understanding and appreciation of Earth science and the geological history of Britain, which stretches back over 2,800 million years' (JNCC, 2015).

Slapton Sands GCR site (1840) is within the study area. The GCR underpins the Slapton Ley SSSI designation (see Section 3.2.1):

- GCR 1840: Slapton Sands

  'A shingle barrier beach enclosing a lagoon, the beach ridge at Slapton Sands comprises mainly flint, chert and quartz shingle that extends some 5.6 km from Limpet Rocks, just south of Torcross, to Shiphill Rock at Strete. The beach at Torcross has been artificially strengthened by a wall to protect the hamlet against wave attack notably during north-easterly gales, but otherwise the beach remains little affected by human intervention although the A379 road runs along its crest. The southern 2.2 km separate the lagoon, Slapton Ley, from the sea, whereas to the north the ridge is backed first by an infilled former arm of the lagoon and then by cliffs of Lower Devonian slates and grits. Very little locally derived material is found in the beach sediments. In the English Channel, Slapton Sands is unusual in combining shingle material with an easterly aspect. It has been the focus of considerable research effort (Steers, 1946a; Hails and Carr, 1975; Morey, 1976, 1980, 1983) and is a major site for educational studies (May and Hanson, 2003; JNCC 2008)'.

3.3.1.2 Regionally Important Geological and Geomorphological Sites

There are Regionally Important Geological and Geomorphological Sites (Rigs). These are earth science sites that are of regional or local importance.

3.3.2 Geomorphology and Coastal Processes

For detailed information on the geomorphology and coastal processes within the BMP study area, please refer to the Coastal Process Baseline, which covers the following topics:

- Geomorphology
- Waves and Tides, and
- Sediment Dynamics.

3.4 Ecology

In 2007 Devon County Council gave planning permission for realignment of, what is thought to be, the most vulnerable stretch of the A379, a stretch largely to the north of Slapton Bridge. This permission will not be implemented until the road is subject to sudden damage or damage is seen as imminent. A number of management measures (largely for Cetti's warbler) have been put in place to provide advance wildlife mitigation for this planning permission. The line of the potential new road is managed to ensure that it is not suitable for dormice and that the road can therefore be built at short notice without harming wildlife. In 2015, following storms, the Slapton Line Partnership (comprising Natural England, Devon County Council, South Hams District Council, South Devon AONB, the Environment Agency and the Field Studies Council/Whitley Wildlife Trust) began discussing a range of resilience measures for the A379. In 2016, a vulnerability assessment of the stretch from Torcross to Slapton Bridge was produced. The Slapton Partnership requested an ecological assessment of moving the road towards the ley along this stretch (Boyce DC, 2016).

This baseline report should subsequently be used in collaboration with the ecological assessment to align the road should any future BMP options interact with the planned realignment.

3.4.1 Designated Nature Conservation Sites

Designated and non-designated nature conservation sites within the BMP study area (see Figure 3.1) include biological and geological (see Section 3.3, Geology and Geomorphology) protected features. These features are important in the consideration of options for the beach management plan.

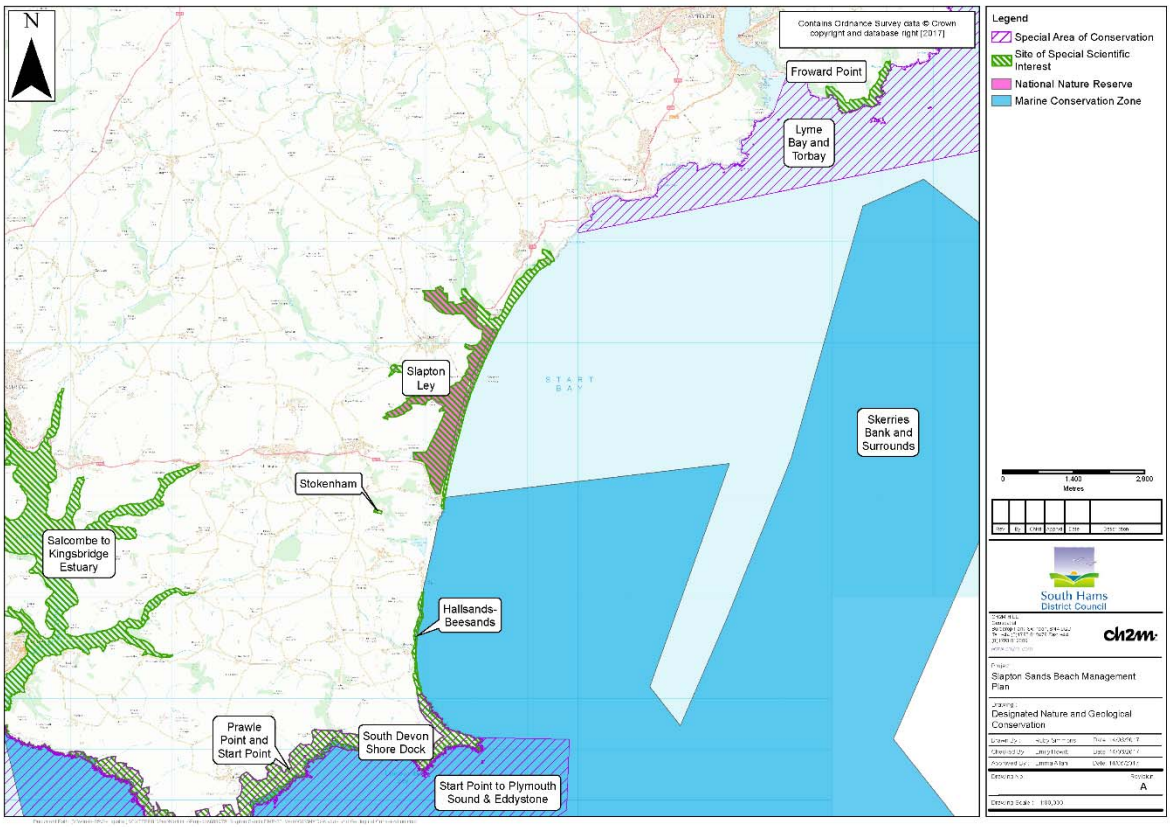

Figure 3.1 Slapton Sands BMP Nature Conservation Designations

3.4.1.1 Internationally Designated Sites

There are no internationally designated sites within the BMP study area however, there is one site within close proximity. **Lyme Bay and Torbay SCI is important in the consideration of options for the BMP. SCI features maybe present within the BMP study area:**

- **Lyme Bay and Torbay Site of Community Importance (SCI)** is located within 3km. The site was designated in 2010 under Annex 1 of the EC Habitats Directive for supporting Annex I habitats that are a primary reason for selection of this site:
  - 1170 Reefs
  - 8330 Submerged or partially submerged sea caves (Natural England, 2012)

  Natural England have recently published advice on potential pressures from marine activities and operations to the Lyme Bay and Torbay SCI. This advice extends to coastal development and flood and erosion risk management schemes and should be consulted during development of the Slapton Sands BMP (Natural England, 2017).

3.4.1.2 Nationally Designated Sites

There are nationally designated sites within the BMP study area. **Slapton Ley SSSI/NNR and Skerries Bank and Surrounds MCZ are important in the consideration of options for the BMP:**

- **Slapton Ley SSSI** covers an area of approximately 254.72 ha**.** The area is designated for its coastal geomorphology (shingle barrier beach enclosing a lagoon) and the following habitats: open water (the lagoon is the largest freshwater lake in southwest England); vegetated shingle (covering approximately 26 ha, the largest area of its kind in Devon); and approximately 50 ha of reed-bed, tall-herb fen and fen woodland mosaic habitat. The SSSI is an important area for birds and affords protection to a breeding bird assemblage of 'Lowland open waters and their margins' (with large populations of sedge warbler (*Acrocephalus schoenobaenus*) and reed warbler (*A.scirpaceus*), the most important in South Devon; breeding Cetti's warbler (nationally important numbers); and non-breeding passage birds (migrating swallows (*Hirundo rustica*) and sand martins (*Riparia riparia*) regurlary peaking at 10,000 and 500 individuals respectively. The site is also designated as a nationally important site for wintering bittern. Slapton Leys vascular plant assemblage includes the schedule 8 protected plant strapwort (*Corrigiola litoralis*) and only known location in the UK; and the nationally scarce plant toadflax-leaved St John's-wort (*Hypericum linariifolium*). The SSSI is also designated for its rich lichen assemblage (associated with the fen and woodland habitats) which includes IUCN Red List threatened species (Natural England, 2004).

  In 2016 Devon County Council compiled a report of all known ecological data and information for Slapton Ley SSSI, at that time.

  The mapped Slapton Ley SSSI units can be found in Figure A.1 in Appendix A, which is followed by Table A.2 in Appendix A containing information on the condition of each unit from recent condition surveys undertaken by natural England.

- **Slapton Ley NNR** comprises 192 ha of Slapton Ley SSSI. Managed by the Field Studies Council on behalf of the Whitley Wildlife Conservation Trust the NNR is designated for the largest natural freshwater lake in South West England; shingle barrier (a nationally important example of a bay bar); one of the best British sites to display the links between seabed features and shoreline landforms; reedbeds and rich fen and willow carr vegetation supporting highly diverse flora and fauna and one national rarity; 2000 species of macro and micro fungi including newly described species to science and its important staging post for wintering and in-passage birds (SCZMS, 2006).

- **Skerries Bank and Surrounds MCZ** was designated in November 2013**.** The MCZ is a large area that covers 24,969 ha of marine subtidal and intertidal habitat. Situated from mean high water at the southern tip of the BMP study area. The landward boundary runs along the mean high water mark from Torcross around the coast to Leek Cove at Limebury Point. The seaward boundary aligns with the boundaries of the eastern portion of the South Devon Trawling and Crabbing Chart, known locally as the Start Point Inshore Potting Agreement (IPA).

MCZ features include the following designated habitat: High energy intertidal and infralittoral rock, Moderate energy Intertidal, Infralittoral and Circalittoral rock, Intertidal and Subtidal coarse sediment, Intertidal mixed sediment, Intertidal sand and muddy sand; Subtidal sand, Subtidal Mud, and designated species: Pink sea-fan (*Eunicella verrucosa*) and Spiny lobster (*Palinurus elephas*) (Natural England, 2016)

Natural England have recently published advice on potential pressures from marine activities and operations to the Skerries Bank and Surrounds MCZ. This advice extends to coastal development and flood and erosion risk management schemes and should be consulted during development of the Slapton Sands BMP (Natural England, 2017).

There are nationally designated sites within close proximity of the study area:

- **Stokenham SSSI** The site is situated within the grounds of Widdicome House inland, west of the BMP study area. The site comprises a row of mature trees and an adjacent boundary wall which together support an exceptionally rich lichen flora which includes several nationally rare species (Natural England, 1986). The BMP is not likely to impact on these designated habitat features. The SSSI features are immobile habitats protected by physical barriers within the grounds of Widdicome house, and no potential to be impacted by BMP options

3.4.1.3 Non-Statutory Designated Sites

A number of non-statutory County Wildlife Sites (CWS), Regionally Important Geological and Geomorphological Sites (RIGS) Other Sites of Wildlife interest (OSWI, formerly known as Local Wildlife Sites (LWS)), and Unconfirmed Wildlife Sites (UWS, formerly known as potential County Wildlife Sites (pCWS) lie within, and nearby the BMP study area. These sites are presented in Table 4.1 and mapped on Figure 4.2 of the SCZMS. The geographical areas of these sites have not changed since reported in the 2006 SCZMS report, however additional CWS have been designated. These designations cover the coastal cliffs north of Strete, and south of Torcross towards Beesands. A current (2017) Devon Biodiversity Records Centre (DBRC) map, displaying statutory and non-statutory sites is provided in the Appendix (Figure A5).

3.4.2 Broad Habitat Types and Vegetation

Since the SCZMS, new studies have been undertaken in relation to the presence of habitat types and vegetation (including designated features) within the BMP study area.

3.4.2.1 2012 Phase 1 Habitat Survey

In 2012, a new Phase 1 habitat survey was undertaken (DCC, 2016). The mapped results of this survey can be found in Figure A.2 in Appendix A of this report. The 2012 Habitat survey map is now five years old, thus out of date but is a good indication of habitat distribution along the BMP study area.

3.4.2.2 DCC_2016_Wildlife and Ecological Report: DRAFT Wildlife Report for the A379

In 2016, the Slapton Line Partnership Steering Group commissioned an assessment of the vulnerability of the A379, between Torcross and Slapton Bridge, to storm damage. This included:

- an overview of the ecological interest of this stretch; and
- an assessment of the impacts of moving the road in the areas highlighted in the vulnerability report.

Details of this study have been captured within the Table A.2, Appendix A. DCC concluded that an annotated map of the current available ecological data within the study area will be produced in due course. Information from the study is current and useful to feed into the BMP for consideration of options but does cover the full length of the study area.

3.4.2.3 DCC Ecological Assessment: Proposed Realignment of the A379

As noted previously DCC are currently in the process of compiling new ecological survey data of the study area. The recent report carried out for DCC and SHDC 'An Invertebrate Survey of the Slapton Shingle Ridge' (Boyce DC, 2016) is one report that has been produced as part of ongoing ecological assessment. Details of the invertebrate study are provided in Table A.2.

Going forward, it is recommended that the full extent of the BMP study area is again mapped with current Phase 1 habitat survey data. This will fully establish the presence of designated habitats and species including the presence of priority habitats and protected species as described in Section 3.4.3 and 3.4.4 respectively. A DBRC wildlife records data request has been sought as part of the BMP ecological baseline information but was not available in time for this report. This report will be useful going forward to inform the BMP options appraisal stage.

3.4.2.4 Broadscale Marine Habitat Within the BMP Study Area

Using the government web based data search (www.magic.gov.uk), the following marine habitats make up the seaward edge of the BMP study area and are described as:

- Intertidal area at Torcross

  The intertidal area adjacent to Tocross is described as Littoral coarse sediment.

  (2013 survey data: Natural England Verification Survey of Intertidal Sediments within the Skerries Bank and Surrounds rMCZ).

- Subtidal area (adjacent to Slapton Sands BMP study area)

  The habitat of the intertidal area typically consists of calcareous tube worms such as *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles (EUNIS 2007 Biotope Habitat code A5.141). This habitat may also be defined as subtidal sands and gravels, which is a Habitat of Principal Importance (JNCC, 2016).

  (2010 Survey data: Devon Wildlife Trust (DWT) Lyme Bay Map and Special Areas of Conservation (SAC)).

- Subtidal area (further seaward within Start Bay)

  The habitat is typically consists of bivalve molluscs (*Abra alba*) and (*Nucula nitidosa*) in circalittoral muddy sand or slightly mixed sediment (EUNIS 2007 Biotope Habitat code A5.261). This habitat may also be defined as subtidal sands and gravels, which is a Habitat of Principal Importance (JNCC, 2016) and MCZ Habitat Feature of Conservation Importance (FOCI) (see Section 3.4.1.2 Skerries Bank and Surrounds MCZ).

  (2010 Survey data: Devon Wildlife Trust (DWT) Lyme Bay Map and Special Areas of Conservation (SAC))

3.4.3 Priority Habitats

Priority habitats will require consideration of options for the beach management plan. The following Priority Inventory habitats are likely present within the BMP study area or in close proximity:

- Coastal vegetated shingle (establishing/mapping the exact extent would be beneficial)
- subtidal sands and gravels (within Start Bay) - also an MCZ designated Habitat Feature of Conservation Importance (FOCI) (see Section 3.4.1.2 Skerries Bank and Surrounds MCZ)
- Maritime cliff and slope
- Reedbeds
- Ancient & Semi-Natural Woodland
- Deciduous woodland
- Good quality semi-improved grassland

It is understood that survey data is currently being collected within the Slapton Sands BMP extent. Going forward, it is recommended that any current survey data that may assist in locating priority habitats are mapped.

3.4.4 Protected Species

There are records of protected terrestrial and marine species within 3km of the BMP study area which will require consideration of Slapton Sands BMP options. These are further described below.

3.4.4.1 Terrestrial Species

There are a number of recent records of protected species within the BMP study area.

Table A.2 in Appendix A provides a summary studies undertaken of recent protected species within the study area since the SCZMS, which are relevant to this BMP.

Birds

Figure A.3 in Appendix A displays the location of key protected breeding bird species within the BMP study area (FSC, 2015). These are:

- Cetti's Warbler (SSSI feature)
- Cirl Bunting (UK and Devon BAP priority species)
- Linnet (UK and Devon BAP priority species)

Mammals

- Badger (badger sett location maps (FSC, 2015, Figure A.4 in Appendix A)
- Bat (foraging habitat, no bat roost habitat has been identified)
- Dormouse (Dormouse habitat has been identified, and recent dormouse sightings within the back slope of the A379 (FSC, 2015)
- Otter (there are recent DBRC wildlife data search records (2014) from within or close proximity to the study area).
- The SCZMS described old records of Water Vole within the NNR, however there are no available DBRC records to support this.

Invertebrates

Within the BMP study area (sourced from Boyce, 2016 for DCC and SHDC):

- 39 key species that have been noted on Slapton shingle beach to date. Of these, 11 were recorded in 2016, with these including four beetles of particularly high conservation status:
  - Rove beetle *Actocharis readingii* (RDBK) and
  - *Ocypus fortunatarum* (IUCN Near Threatened),
  - Malachite beetle *Clanoptilus marginellus* (IUCN Near Threatened) and
  - Pollen beetle *Brachypterolus antirrhini* (RDBK).

  The most important areas of the site for invertebrates are the stands of short-sward shingle grassland with patches of bare substrate.

  Further details are provided in Appendix A2.

Notable Plants

Within the BMP study area (sourced from DCC, 2016):

- SSSI Shingle ridge community species
  - yellow horned poppy (*Glaucium flavum*)

- Sea kale (*Crambe maritima*)
- Viper's bugloss (*Echium vulgare*)
- Sea radish (*Raphanus maritimus*)

– Coastal Species
- Sea spurge (*Euphorbia paralias*)

Within close proximity to the study area (sourced from DCC, 2016):

– Wildlife and Countryside Act Schedule 8 protected species
- Strapwort (*Corrigiola littoralis*) (western shore of the Lower Ley)
- Bluebell (*Hyacinthoides nonscripta*) (thought to be common throughout the reserve)
- Toadflax-leaved St John's-wort (*Hypericum linariifolium*) is present on cliff tops

Other notable plants listed as features within the SSSI/NNR designations have potential to be present within the BMP study area. Going forward, it is recommended that the presence of notable plants within, and in close proximity, to the BMP study area are mapped.

Reptiles

Within the BMP study area:

– Slow worm, grass snake, common lizard and adder are known to occur in suitable habitat within the BMP area. Includes winter and breeding habitat. Mapping reptile habitat within the BMP study area would be beneficial (DCC, 2016).

Fungi, mosses liverworts

– There are thought to be some 2,344 featured SSSI/NNR species of fungi, important slime molds, 195 species of mosses and liverworts within the Slapton Ley area (DCC, 2016). It is unknown if any of these are Wildlife and Countryside Act Schedule 8 protected species may be present, or if any notable species are present with the BMP study area. It is recommended that the presence of notable fungi, mosses liverworts within the BMP study area are mapped going forward.

3.4.4.2 Marine Species

Marine Mammals

Several species of dolphin and porpoise frequent Start Bay from time to time (Brereton *et al.*, 2010), there are no seal colonies within Start Bay, however it is thought they may forage within the vacuity of the shellfish beds (see Section 3.4.5.2 and 3.5.1)from time to time (CEFAS, 2015). During spring 2017 a humpback whale was present within Start Bay over a few days. The well documented event (by national and local media) is thought to be a rare event.

3.4.5 Fish Ecology

3.4.5.1 Freshwater

The Slapton Ley Fisheries Assessment Phase 2 (Fishtek Consulting, 2015) reported that the Ley is currently dominated by perch at the expense of the roach and rudd populations, with pike and eel found at reasonable densities.

3.4.5.2 Marine

Fish nursey and spawning areas are within the BMP study area and will require consideration of future options for the BMP frontage.

The Centre for Environment Fisheries and Aquaculture Science (CEFAS – UK) report 'Spawning and nursery grounds of selected fish species in UK waters' (Ellis *et al.*, 2012) reported the following species in the surrounding waters of the BMP study area:

Spurdog *Squalus acanthias*	Low intensity nursery area
Thornback ray *Raja clavata*	Low intensity nursery area
Spotted ray *Raja montagui*	Low intensity nursery area
Whiting *Merlangius merlangus*	Low intensity spawning area Low intensity nursery area
Anglerfish *Lophius piscatorius*	Low intensity nursery area
Sandeels *Ammodytidae*	Low intensity spawning area
Mackerel *Scomber scombrus*	High intensity nursery area
Sole *Solea solea*	Low intensity spawning area

Start Bay is designated Shellfish Waters under the Shellfish Directive a Classified Bivalve Mollusc Harvesting Area for the wild grown production and harvesting of surf clams (*S. solida*) (see Section 3.5.1).

3.5 Fisheries

3.5.1 Commercial Fishing

Start Bay is Designated Shellfish Waters and a Classified Bivalve Mollusc Harvesting Area. These will require consideration by the BMP options.

Start Bay is designated Shellfish Waters under the Shellfish Directive (for protection from pollution) and a Classified Bivalve Mollusc Harvesting Area under EC regulation No. 854/2004 (hygiene legislation of live food for human consumption). The exact location of these areas are presented in section 3.9, Figure 3.6 (Water Quality Designations). The following are important in the consideration of options for the Slapton Sands BMP:

- Designated Shellfish Waters are situated from mean high water within the intertidal/subtidal area off Torcross; and
- Classified Bivalve Mollusc Harvesting Area are situated within across the entire BMP frontage of Slapton Sands within the intertidal/subtidal area from Torcross to Forest Cove at Strete.

Both areas are protected under the Shellfish Directive for the wild grown production of surf clams (*S. solida*).

Start bay is shallow, with a maximum depth of about 16 m relative to chart datum. The naturally occurring stocks of surf clams are present along a narrow subtidal strip between the 5 and 10 m depth bands (see Figure 3.2). These stocks are thought to be exploited by one harvester on a part time basis. The areas fished are rotated on a four year cycle with animals of four years or older retained in the bay to ensure that the fishery remains sustainable. There is no closed season for harvesting. The clams are harvested by dredging methods. The use of mobile demersal gear (bottom trawling of the seabed) is permitted within the waters off Slapton Sands, and permanently closed to dredging within the southern half and top northern section of Start Bay. (CEFAS, 2015).

The main boating centre near the shellfishery is the Dart Estuary. Fishing fleets operate from Dartmouth and Salcombe, which between them have 47 resident fishing vessels (CEFAS, 2015).

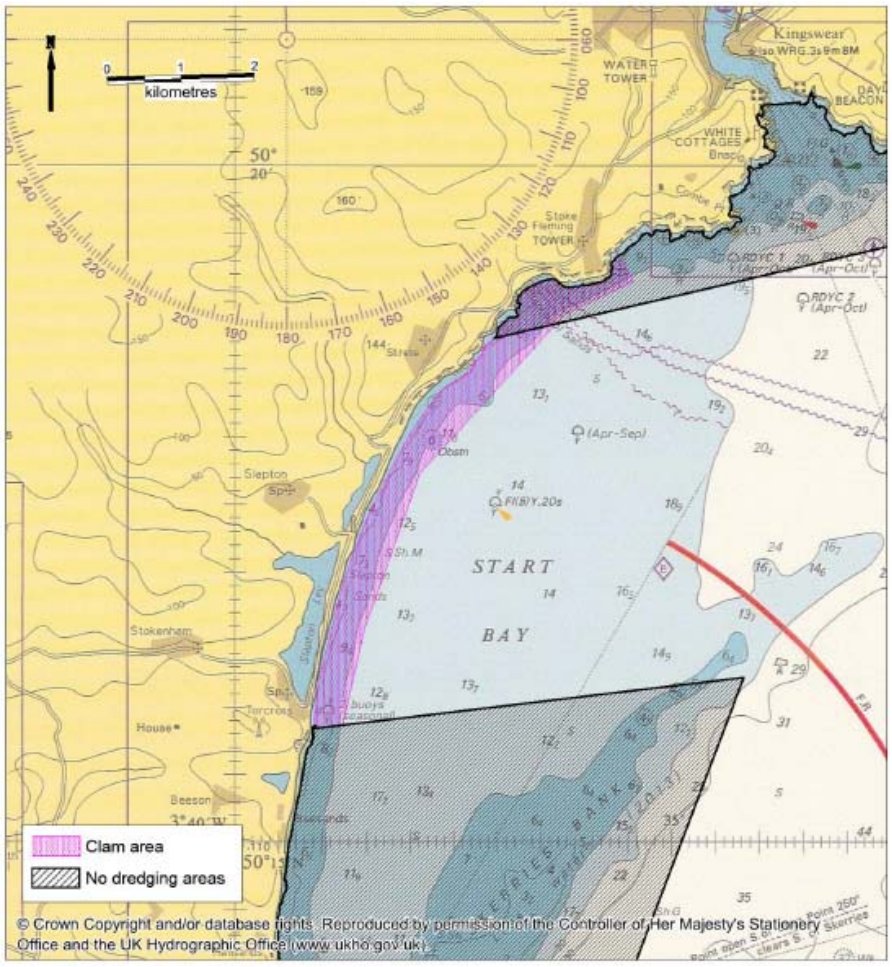

Figure 3.2 Approximate Extent of the Surf Clam Fishery and Prohibited Dredging Areas (CEFAS, 2015)

3.5.2 Recreational Fishing

The Ley has been fished since medieval times, but fishing has not been allowed within the Ley since 2005 to prevent the potential of disturbance to birds and breeding birds afforded protection under the Slapton Ley SSSI designation (SLFC, 2012).

Beach fishing is popular across the entire frontage of the BMP study area. Fish caught ranges from Cod, Lesser Spotted Dog fish and whiting in the winter to bass, mackerel, pollack and flat fish from spring to autumn (Devon Angling Centre, 2017).

3.6 Navigation

3.6.1 Road Transportation

The midway section of the A379 is set along the line of the Slapton BMP study area, and links with Kingsbridge and Dartmouth. Several local villages including Torcross, Strete, Frogmore, Chillington, Stokenham and Stoke Fleming run along from the A379 section of the BMP study area and Slapton, Hallsands and Beesands are accessed via local roads from it.

Public and private transport companies operate along the A379, serving local communities and the tourist industry. Carpark facilities within the BMP study area serve cars and coaches.

Further information regarding highways is presented in Section 3.10.4.

3.6.2 Marine Navigation

There is significant boat traffic within the Start Bay area, including yachts and fishing vessels, but there are no harbours, marinas or ports. Boat traffic in the area consists of potentially large numbers

of pleasure craft on transit to and from the Dart Estuary, and smaller numbers on the anchorages at the northern and southern ends of Start Bay. (CEFAS, 2015).

Within the BMP study area, there are slipways and lifting areas utilised by pleasure craft. These access areas will require consideration by the BMP options.

3.7 Landscape Setting

The importance of landscape to the Slapton Sands Area is recognised by the following nationally and regionally important designations. These are important in the consideration of options for the beach management plan (see Figure 3.3).

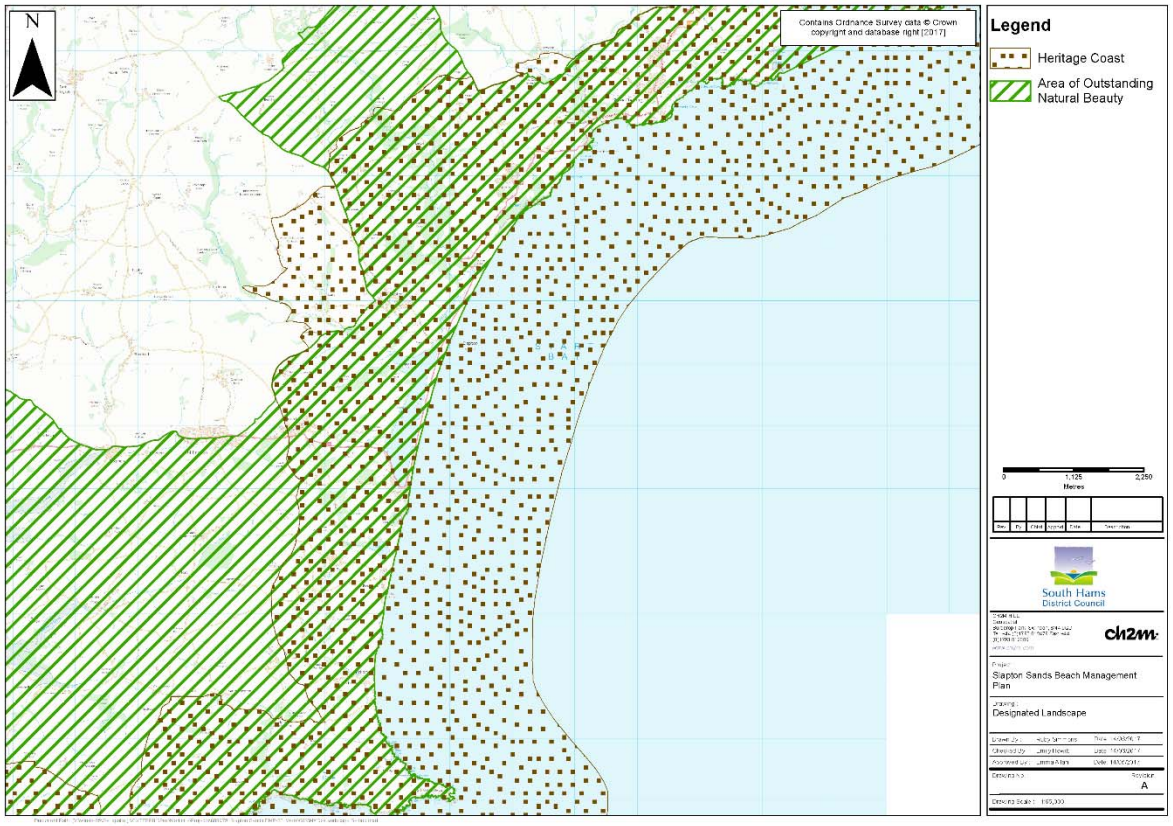

Figure 3.3 Slapton BMP study area: Landscape Designations

3.7.1 National Landscape Designations

3.7.1.1 South Devon Area of Outstanding Natural Beauty

South Devon Area of Outstanding Natural Beauty (AONB) is one of several protected landscapes in the UK.

3.7.1.2 South Devon Heritage Coast

Heritage coasts are 'defined' rather than designated, established to conserve the best stretches of undeveloped coast in England. A heritage coast is defined by agreement between the relevant maritime local authorities and Natural England (Natural England, 2015).

3.7.2 Regional Landscape Designations

3.7.2.1 Conservation Areas

Conservation Areas (CA) are areas of special architectural or historic interest which the Local Planning Authority designates under the Listed Buildings and Conservation Areas Act 1990 with aim to preserve or enhance. Slapton CA and Stokenham CA are located in close proximity to the BMP study area.

3.7.3 Landscape Character

The Devon County Council Landscape Character Planning Strategy affords the Start Bay Coastal Hinterland to protect the high scenic quality associated with the South Devon AONB. From this strategy, the Slapton BMP study area and surrounds are described below:

- National Character Area 151: South Devon
- Landscape Character Types of Devon (updated 2010)
    - 4B: Marine Levels
    - 3B: Lower Rolling Farmed and Settled Valley Slopes
    - 5A: Inland Elevated Undulating Plateau
    - 4D: Coastal Slopes and Combes.
- Distinctive Character Areas (updated 2015):
    - Elevated land with a rolling topography underlain by Meadfoot Beds dropping gently to the coast with its distinctive open shingle bay.
    - Inland plateau that slopes eastwards towards the sea and is drained by series of small steams creating shallow combes.
    - Higher ground sparsely wooded with grown-out wind-sculpted beech hedge-banks and some pine shelterbelts.
    - Small woodland copses on valley sides, often emphasising landform; tree-lined streams and wet woodlands common in valleys and combes.
    - Mixture of regular modern and Parliamentary fields of small to medium scale, with smaller curving fields of medieval origin remaining on valley slopes.
    - Mixed farming on plateau and areas of pasture on steeper slopes within valleys.
    - Extensive freshwater lake, swamp and coastal grassland and scrub habitats; farmland with bird interest; ancient semi-natural and broadleaved woodlands; and areas of neutral grassland and wet woodland fringing streams.
    - Iron Age hillfort, castle and Civil War features on promontories and elevated locations in commanding positions; ancient settlement remains also lend strong time-depth.
    - Historic villages clustered at road crossings and bridging points; often centred on a square-towered church; farmsteads scattered throughout, nestled in dips with shelterbelts.
    - Strong local vernacular of stone buildings with slate roofs and red brick detailing, with some cream cob/ render cottages, often thatched.
    - Strong overarching perceptions of tranquillity and remoteness in many areas.

Special Qualities and Features:

- High scenic quality reflected in the inclusion of coastal areas and the Gara valley and combe in the South Devon AONB.
- Outstanding open views along the length of Slapton Sands – sometimes bleak depending on weather conditions – and notable views out to sea with large skies.
- Sense of isolation, remoteness, enhanced by natural qualities of the coast; tranquillity that is higher than many other coastal areas of South Devon.
- Slapton Ley – largest natural freshwater lagoon in south-west England and important habitat for migratory and wintering birds – SSSI and NNR

- Slapton Sands associated with Second World War – used to practice the D-Day landings, now commemorated by a Torcross Tank which sits at the southern end of the beach.

Overall Start Bay Coastal Hinterland Strategy:

To protect the high scenic quality associated with the South Devon AONB, and to sustain the area's important nature conservation sites, and historic settlement. The shingle beach, and freshwater lagoon are well managed and their resilience to climate change is enhanced where feasible. Recreation is encouraged, but a good balance between recreation and conservation is retained.

Specific guidelines relevant to the Slapton BMP are noted as:

- Protect the open character of the inland plateau and Slapton sands and Views to and along the sea
- Protect the undeveloped character of Slapton Bay (beach, and freshwater lagoon and surrounding combes and hills) ensuring that any limited new development in the area respects the scale and horizontal emphasis of the landscape.
- Plan for future impacts of climate change (particularly the effects of sea level rise and coastal erosion), allowing natural process to take place where possible, whilst ensuring that local communities are involved in making decisions about their future landscape.

3.8 Archaeology and Cultural Heritage

The importance of historic and cultural heritage to the Slapton Sands and the surrounding area is recognised by the following national and regional designations.

3.8.1 Designated Archaeology and Cultural Heritage

The BMP will need to consider the following archaeology and cultural heritage designations (refer to Figure 3.4).

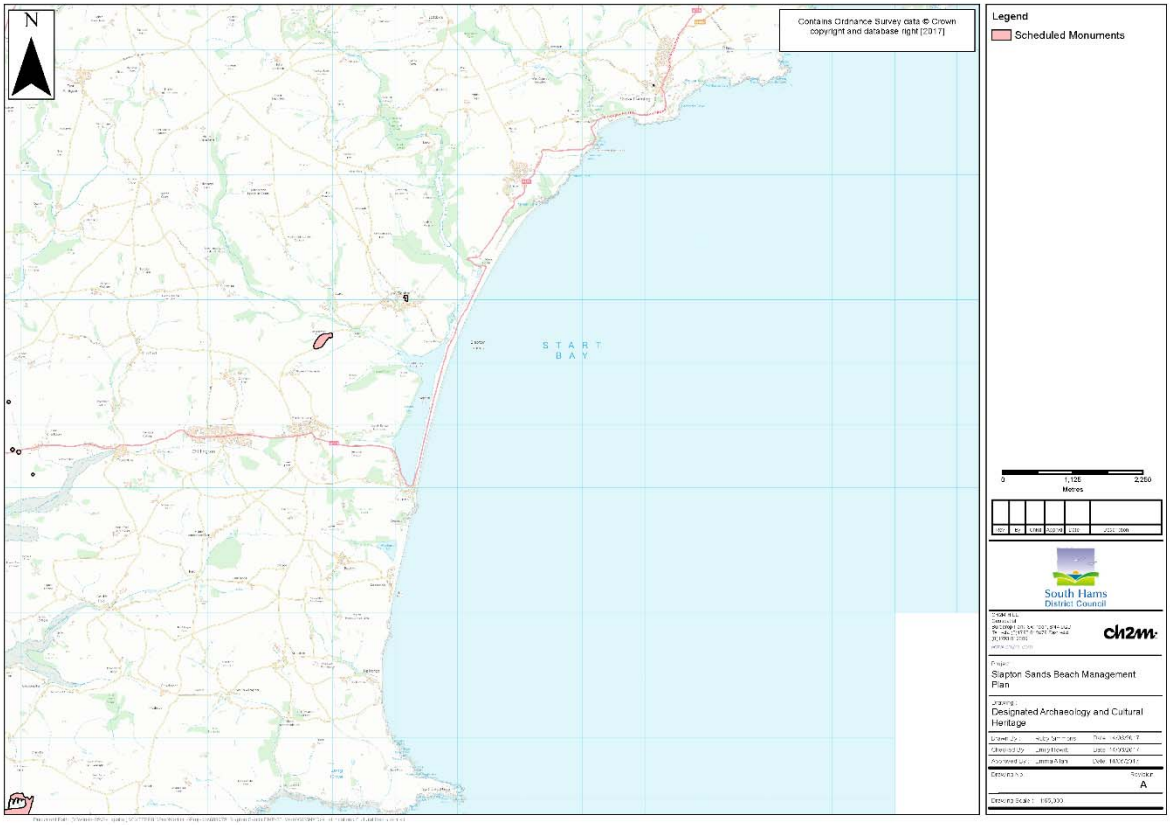

Figure 3.4 Designated Historical and Cultural Heritage in the BMP Study Area

3.8.1.1 Scheduled Monument

There are two designated scheduled monuments within close proximity of the BMP study area. Slapton chantry college, is present within Slapton Village; and Slapton Castle Hillfort further inland southwest.

3.8.1.2 Listed Buildings

Listed buildings are present within, and in close proximity of the BMP study area at Torcross, Strete Gate (see Figure 3.5).

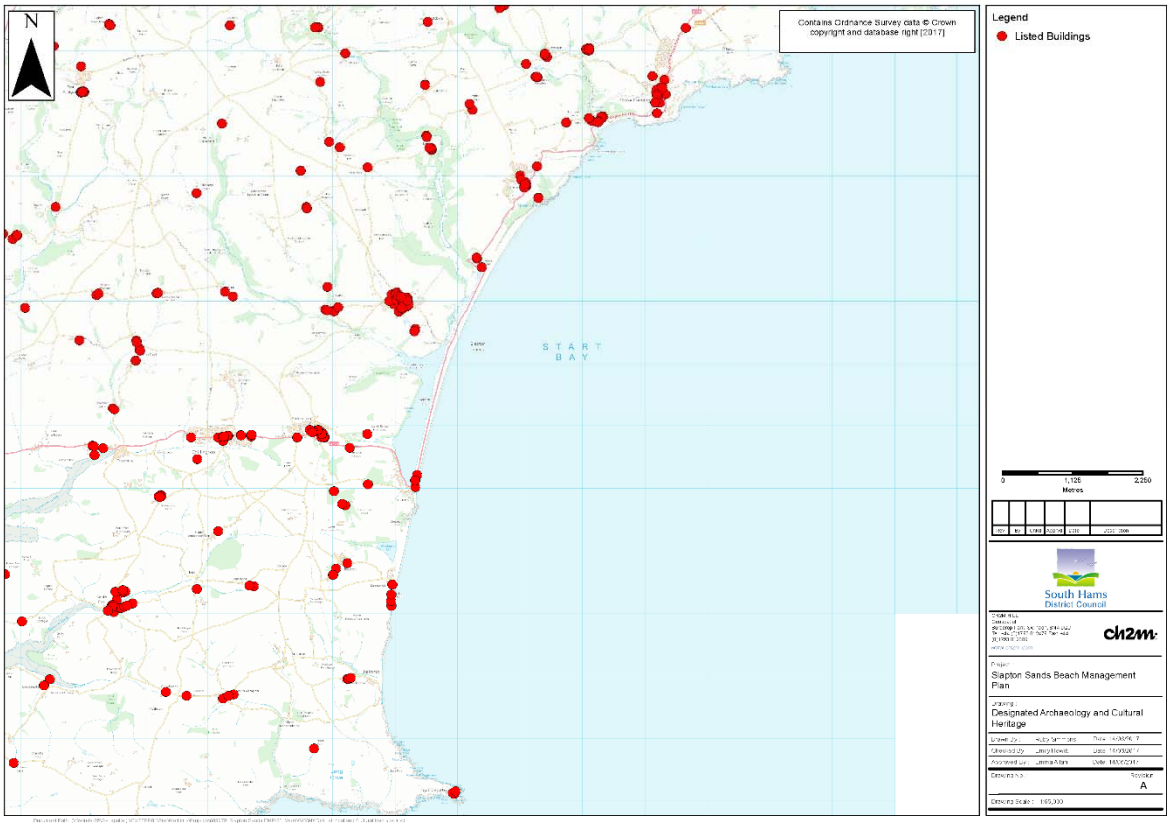

Figure 3.5 Listed Buildings in the BMP Study Area

3.8.2 Non-Designated Archaeology and Cultural Heritage

The BMP will need to consider the following non-designated archaeology and cultural heritage:

- Within the study area are a number of WWII coastal defensive structures. A Tank and War Memorial at Slapton and Torcross bears testament to the part that Slapton played in the War including the large numbers of lives lost during one beach landing exercise.
- The SCZMS, Chapter 6 Archaeology and Cultural Heritage Baseline provides a comprehensive baseline search of the non-designated archaeological and cultural heritage sites within a 3km radius of the centre of the study area

3.9 Water Quality

There are important water quality designations within the BMP study area (see Figure 3.6). These will require consideration during development of the BMP options.

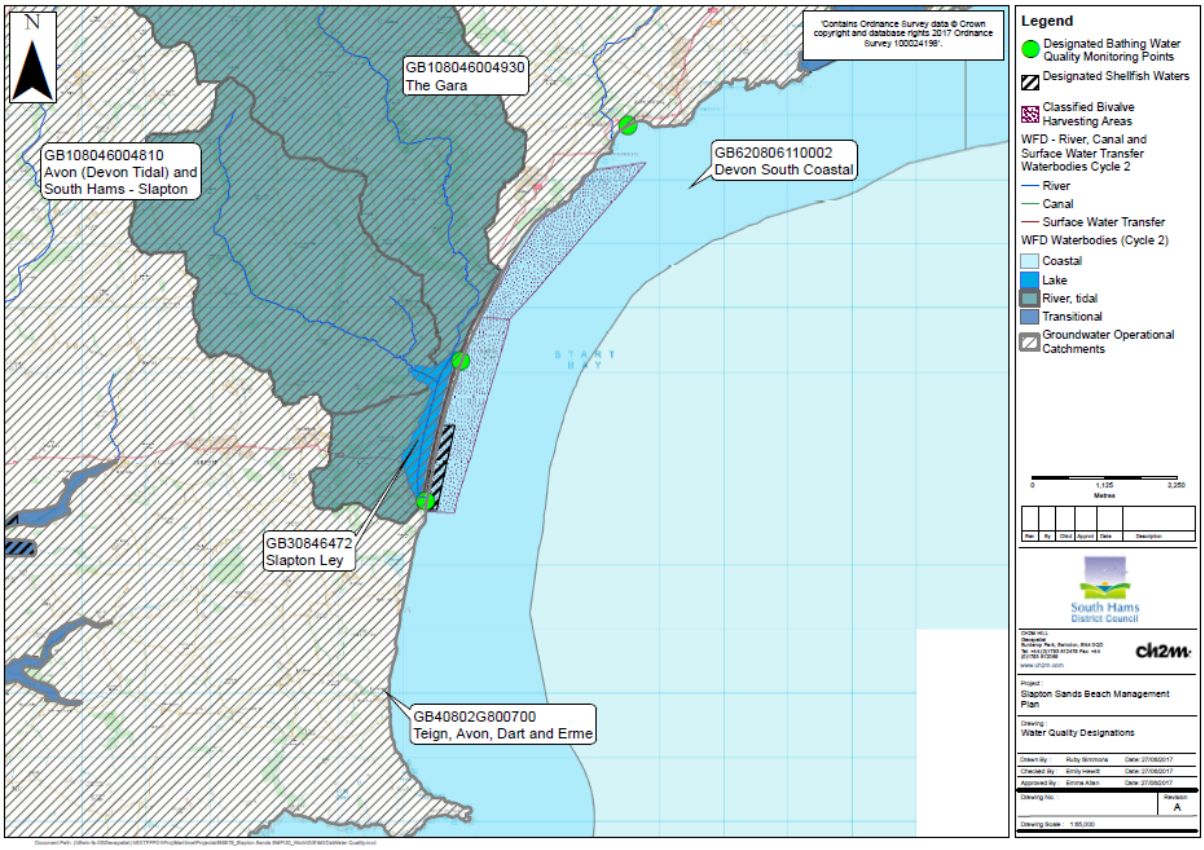

Figure 3.6 Water Quality Designations in the BMP Study Area

3.9.1 WFD Estuarine and Coastal Water Bodies Cycle 2

The are five WFD designated waterbodies (South West river basin district) within the BMP study area:

1. Unique Waterbody ID: GB620806110002
   Waterbody Name: Devon South Coastal
   River Basin District Name: South West
   Waterbody Category: Coastal
   Waterbody Type: Exposed, Mesotidal

2. Unique Waterbody ID: GB30846472
   Waterbody Name: Slapton Ley
   River Basin District Name: South West
   Waterbody Category: Lake
   Waterbody Type: Lake

3. Unique Waterbody ID: GB108046004810
   Waterbody Name: Avon (Devon Tidal) and South Hams - Slapton
   River Basin District Name: South West
   Waterbody Category: River
   Waterbody Type: River, Tidal

4. Unique Waterbody ID: GB108046004930
   Waterbody Name: The Gara
   River Basin District Name: South West
   Waterbody Category: River
   Waterbody Type: River, Tidal

5. Unique Waterbody ID: GB40802G800700
   Waterbody Name: Teign, Avon, Dart and Erme
   River Basin District Name: South West
   Waterbody Category: Coastal
   Waterbody Type: Exposed, Mesotidal

The BMP options will need to consider the South West river basin district (see section 6.5) management plan objectives for protecting and improving these water bodies (under the Water Framework Directive) which includes, but not limited to, economically significant designated shellfish waters (see section 3.5.1) and recreational bathing waters (see Section 3.9.1) within the Slapton sands BMP area.

3.9.2 Designated Bathing Water

The Slapton Sands BMP is situated within the South Hams Designated Bathing Waters area. These will require consideration during development of the BMP options.

The Bathing Water quality profile is tested from two different Environment Agency sampling stations within the BMP study area. The results of which are presented within Table 3.1 below, displaying results from 2013 to 2016.

Table 3.1. Environment Agency Bathing Water Profile and Water Quality Classification Description within the BMP Study Area

Environment Agency Water sampling point Environment Agency Bathing Beach Profile (2017)	Water Quality Classification			
	2013	2014	2015	2016
Slapton Sands Monument It is a shingle beach, approximately one kilometre wide, backed by Slapton Ley Nature Reserve:	Excellent	Excellent	Excellent	Excellent
Slapton Sands Torcross A remote shingle beach, approximately one kilometre wide, backed by Slapton Ley Nature Reserve. There is a River/stream intersection at Torcross Point and an emergency or storm overflow	Excellent	Excellent	Excellent	Excellent

3.10 Land Use

3.10.1 Amenity Value

Tourism is a key industry within the Slapton Sands and Start Bay area.

It is a picturesque and popular area noted for its high-quality landscape and natural heritage. As an important tourism designation, there are several established local businesses servicing the area.

These include self-catering holiday accommodation, guest houses, touring caravan and campsites, a seafront with defences, and dining options (pubs, cafes and restaurants) and shops selling local produce.

A major draw to the area is the South West Coastal Path. The South West National Trail (SWCP) runs through the area from Start Point and onwards to Dartmouth attracting walkers and ramblers. Slapton Sands in this section is a draw, one of a series of shingle barrier beaches, the barrier protects two important wetland areas and freshwater lagoons.. This is a major tourist attraction for bird watchers, wildlife enthusiast and naturalists.

Slapton Ley Field Study Centre was set up in the 1950's to manage the 214 hectares' nature reserve as an "outdoor laboratory" for education and conservation. The is a base for educational courses and research, which integrate with the reserve management. The centre caters wildlife courses and events for amateur day trippers and holiday visitors as well as residential field courses for professionals, and large groups of university, college and school students. Facilities include accommodation, dining facilities, leisure facilities and class rooms.

The long wide beach of Slapton Sands provides recreational opportunities for families, walkers and dog walkers, wildlife watching, geology, beach fishing and naturism (north Strete section within the summer months) whilst slipways and beach access provide local sea going activities and water sports such as boating and sea fishing, canoeing, sailing, surfing and windsurfing. There is disabled access to the beach and lifeguards during the summer (May – September) and a small number of privately owned boat lifts present. Several tourist businesses are present along the Torcross promenade (recent emergency repair works (2016/17) have been completed to its sea defences), including a, pub, café, chip shop, restaurant and holiday accommodation (many are historic, listed buildings see Section 3.8.1.2). Other village businesses are located nearby in easy access from the beach via the A379.

The Slapton Line Partnership Tourism Strategy, is aimed at enhancing the sustainable tourism potential of the Slapton Line Area.

3.10.2 Land Ownership

The land ownership along the BMP frontage varies from that owned by the Local Authority to private land ownership. It is understood the key land ownership

- Slapton Ley is leased from the owner Whitley Wildlife Conservation Trust which promotes education and conservation through its ownership of Slapton Ley and Paignton Zoo Environmental Park.
- Slapton Ley National Nature Reserve is managed by the Field Studies Council in partnership with the owners Whitley Wildlife Conservation Trust, Natural England and South Hams District Council.
- Slapton Ley is a Site of Special Scientific Interest (SSSI) and was declared a National Nature Reserve (NNR) in 1993. Natural England is the government body responsible for managing advising on the management of SSSIs and NNRs.
- The shingle ridge, including beach and car parks, is sub-leased to the South Hams District Council.
- The four partners meet twice a year at a spring and autumn Land Management and Education & Science Sub-Committees. These committees report to the Slapton Committee in the last Sunday in April.
- There are a small number of privately owned boat lifts at Torcross promenade and along the line to Strete Gate.

3.10.3 Contaminated Land

From environment agency records, there are no known authorised or historic landfill sites situated along the coastal frontage or within close proximity to the BMP study area (Environment Agency, 2016).

3.10.4 Highways, Services and Utilities

Highways, services and utilities within the BMP study area are:

The A379

Along the shingle barrier ridge runs the A379. Built in 1854, the road connects the surrounding historic villages of Frogmore, Chillington, Stokenham, Tocross, Strete, and Stoke Fleming along the road and Slapton, Hallsands and Beesands by rural lanes linked to it. The road is vulnerable to the impacts of coastal erosion along a few critical sections. The road has a history of suffering erosion and storm damage, as such long-term maintenance of the road is now felt to be unsustainable. For now, Devon County Council are committed to maintaining the highway whilst it is technically feasible and cost effective to do so. Longer term, recommendations of the South Devon and Dorset Shoreline Management Plan (SMP2) for the Slapton Sands frontage is for Managed Realignment. The recommendations allow the beach-barrier to evolve naturally and thereby ensure its integrity and geomorphological and environmental value is maintained through to the next century. There is community wide acceptance that maintaining the route will not be possible indefinitely and small inland routes will require to be upgraded where possible. However socio-economic issues remain a concern for example loss of carparking, isolated communities, and new wildlife habitats.

There are public car parks with toilet facilities at Torcross, Street Gate and the Memorial Car Park (midway along the line at Slapton Bridge). With 600 car parking spaces available, it is thought that up to 40,000 people use these carparks during the year (Slapton Line Partnership, 2009).

Further information is provided regarding road Transportation in the area, see Section 3.6.1.

Services and Utilities

There is a River/stream intersection at Torcross Point and an emergency or storm overflow. These should be considered within the BMP options.

SECTION 4

Sediment Quality

Sediment quality data for beach locations is not readily available unless dredge material has been sourced from a location for capital or maintenance dredging, as noted in Rogers *et al* (2010).

Due to the importance of Slapton during WWII. There is a high risk of unexploded ordnance (UXO) that may be encountered within the BMP study area. As part of the Pre-Construction Information for the emergency works to repair the seawall at Torcross over 2016 - 2017, BMMJV undertook a Preliminary and Detailed Unexploded Ordnance Risk Assessment. The report concluded that the likelihood that a UXO may be found on site to be high.

SECTION 5

Air Quality

There are no Air Quality Management Areas in the Study Area.

SECTION 6

Noise

No baseline data on existing background noise level has been sourced for this baseline report. This may be required prior to any BMP activities depending on their scale and scope to produce elevated noise. The 2016 - 2017 Tocross emergency works to repair the seawall required piling works and heavy plant movement, by which a risk assessment was undertaken to mitigate construction noise and vibration, included monitoring at the start and during the works. It is recommended that this approach is taken should the scale and scope of any BMP option activities be deemed to produce elevated noise.

SECTION 7

Recommendations

7.1 Unexploded Ordnance (UXO)

UXO risk will require upmost consideration by BMP options, particularly if options require any deep excavation or whereby storms damage to the road may result in the requirement for emergency works and the potential to expose UXO's.

7.2 Construction Licensed Activities

- Construction works above the Mean High Water Spring (MHWS) require planning authority permission to be sought. Construction works proposed below the MHWS mark will require an application for a marine licence. See section 9.6.
- In regards to any alterations that may be required to the highway culvert from the lake into the sea by Torcross Point, anything that would require Land Drainage Consent from Devon County Council would require consent alongside or following planning permission.

7.3 Ecological information gaps

Important ecological features require consideration by the BMP.

It would be beneficial for any new and current survey data to be collectively mapped (as mentioned in section 3.4). This mapped information will provide a firm basis for location of the following important ecological features within the BMP study area, of which the BMP options must consider:

- Designated and priority habitats (see section 3.4.3); and
- Designated and protected species (see section 3.4.4).

A recent wildlife data search within 1km of the Slapton Sands BMP study area has been undertaken by DBRC (www.dbrc.org). The data search is provided as a separate searchable and usable excel file as an addition to this report). The displays tables of wildlife data records and grid referenced data collection points of protected, notable and rare species recorded from within the search area covering dates from 1957 to 2016. It is recommended that recent DBRC records are also plotted and mapped. DBRC data is sourced from following: the Botanical Society for the British Isles (BSBI); British Dragonfly society; Butterfly Conservation; Cetacean recording network; Devon Bird Watching and Preservation Society (only 2001, 2006 records at moment), Devon Mammal Group; Devon Reptile and Amphibian Group; Devon Moth group; Devon Wildlife Trust nature reserves; Environment Agency (fish and invertebrate records); Natural England (bat records); Seasearch and the MNCR database; Seawatch foundation.

It is also recommended that this baseline report is used in collaboration with the ecological assessment to align the road should any future BMP options interact with the planned road realignment.

SECTION 8

Environmental Monitoring

Environmental monitoring requirements will be considered further following the assessment of beach management options.

SECTION 9

Links to Other Relevant Documents

9.1 Durlston Head to Rame Head Shoreline Management Plan (SMP2)

The Shoreline Management Plan covering the BMP frontage (Halcrow, 2010) is a coastal management document formally approved by DEFRA. The SMP policy recommended for this section of coast is defined by the following policy units 6b75 and 6b76 - Strete to Limpet Rocks. A summary of the recommendations from the SMP2 for these units are presented in Table 9.1 below:

Table 9.1. Summary of the SMP Policies that Apply to the BMP Study Area

Policy Unit	Short Term (to 2025)	Medium Term (to 2055)	Long-term (to 2105)
6b75 - Strete to Torcross North (Slapton Sands)	Allow the barrier to retreat, through **Managed Realignment**, with local beach management as necessary to support localised realignment of the A379.	Allow the barrier to retreat, through **Managed Realignment**, with local beach management as necessary to support localised realignment of the A379. Studies to investigate implementation of **No Active Intervention**.	Allow the barrier to retreat, with localised beach management as necessary through **Managed Realignment**, with **No Active Intervention** once the road is abandoned.
6b76 Torcross North to Limpet Rocks	Continue to maintain existing defences through a **Hold the Line** policy.	Maintain the existing defences for as long as technically possible, through a **Hold the Line** policy.	*Build new defences in a more sustainable set-back position, through **Managed Realignment**.*

9.2 Plymouth and South West Devon Joint Local Plan 2017 to 2034

A new Joint Local Plan, which has recently (April 2017) been submitted by Plymouth, West Devon and South Hams District Councils is currently undergoing an independent Government Planning Inspector approval process. The Plan sets out the aim to guide where development will occur in the region and how its natural assets will be conserved and enhanced. Pertinent policies relevant to the BMP are identified below:

- Policy DEV25: South Hams / West Devon Undeveloped Coast

9.3 South Devon Catchment Flood Management Plan

The South Devon Catchment Flood Management Plan (CFMP) acknowledges sources of flooding from rivers in the South Devon Catchment. There is no reference to issues from river flooding within the BMP study area.

9.4 South West Inshore Marine Plan

The BMP area lies within the South West Inshore Marine Plan area. This Marine Plan is currently being developed by the Marine Management Organisation (MMO) in parallel to the South West Offshore Marine Area. Once published and adopted, the Marine Plan will be a statutory planning document used to guide licence and consent decisions within the marine environment up to the

MHW mark including beach management activities. Marine planning for the south west began spring 2016; finalisation, adoption and publication of the plans are expected winter 2019.

9.5 River Basin Management Plan

The South West River Basin Management Plan (Environment Agency, 2016) was prepared under the Water Framework Directive (WFD) as an update to the original programme produced in 2009 as part of a series of six-year planning cycles. It contains actions to improve the ecological status of water bodies in river basin catchments, including coastal waters from mean low water up to 1 nautical mile from shore. The BMP area lies within one such protected WFD Coastal Water Body and so activities need to comply with the requirements of this plan. Under the WFD the BMP options will need ensure that they do not 'cause or contribute to deterioration in water body status' or 'jeopardise the water body achieving good status'.

During the consideration of options the BMP must consider the potential risks to:

- Hydromorphology
- biology – habitats
- biology – fish
- water quality
- protected areas

9.6 Licences, Approval and Consents

In November 2016 to February 2017, emergency works were granted and undertaken by the Environment Agency to repair the Torcross sea wall. The sea wall was viewed to be at imminent risk of failure should a large storm hit the area in future. These works are now complete, and there are no other activities currently licensed for coastal flood and erosion risk management purposes along the BMP frontage.

Above the MHWS the planning authority would act as the Competent Authority and planning permission would be sought. An application under these circumstances may require consideration under the Town and County Planning (Environmental Impact Assessment) regulations 2017. In this regard, SHDC would likely act as the Competent Authority.

Any construction works determined by the options of the BMP that are proposed below the Mean High Water Spring (MHWS) mark will require the application of a marine license under the Marine and Coastal Access Act 2011.

As such, as part of any future options development to implement for along the BMP frontage, the Marine Management Organisation (MMO) will need to be engaged to seek a Marine Licence to facilitate this.

As part of the process of obtaining a Marine Licence for any works, consideration of The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2015 will also be needed to determine whether an environmental impact assessment is required.

When working with other authorities, MMO will follow the principles of the coastal concordat. If a project requires both a marine licence and planning permission from the local planning authority, MMO may defer to their decision. In these situations, MMO would not be able to make a marine licence decision until the local planning authority had made their decision regarding EIA. It is unknown if the SHDC have signed up the Coastal Concordat. If they have then the SHDC would most likely act as the Competent Authority in this regards.

The MMO will also assess the licence application for any impacts on the MCZ (there is an MCZ within the study area, see section 3.2.1 and 3.4.1.2) to determine if an MCZ assessment may be required.

The MMO will also ensure that the marine licence decision is compatible with the WFD and the river basin management plan (there is a WFD water body within the BMP study area, see section 3.9.2).

SECTION 10

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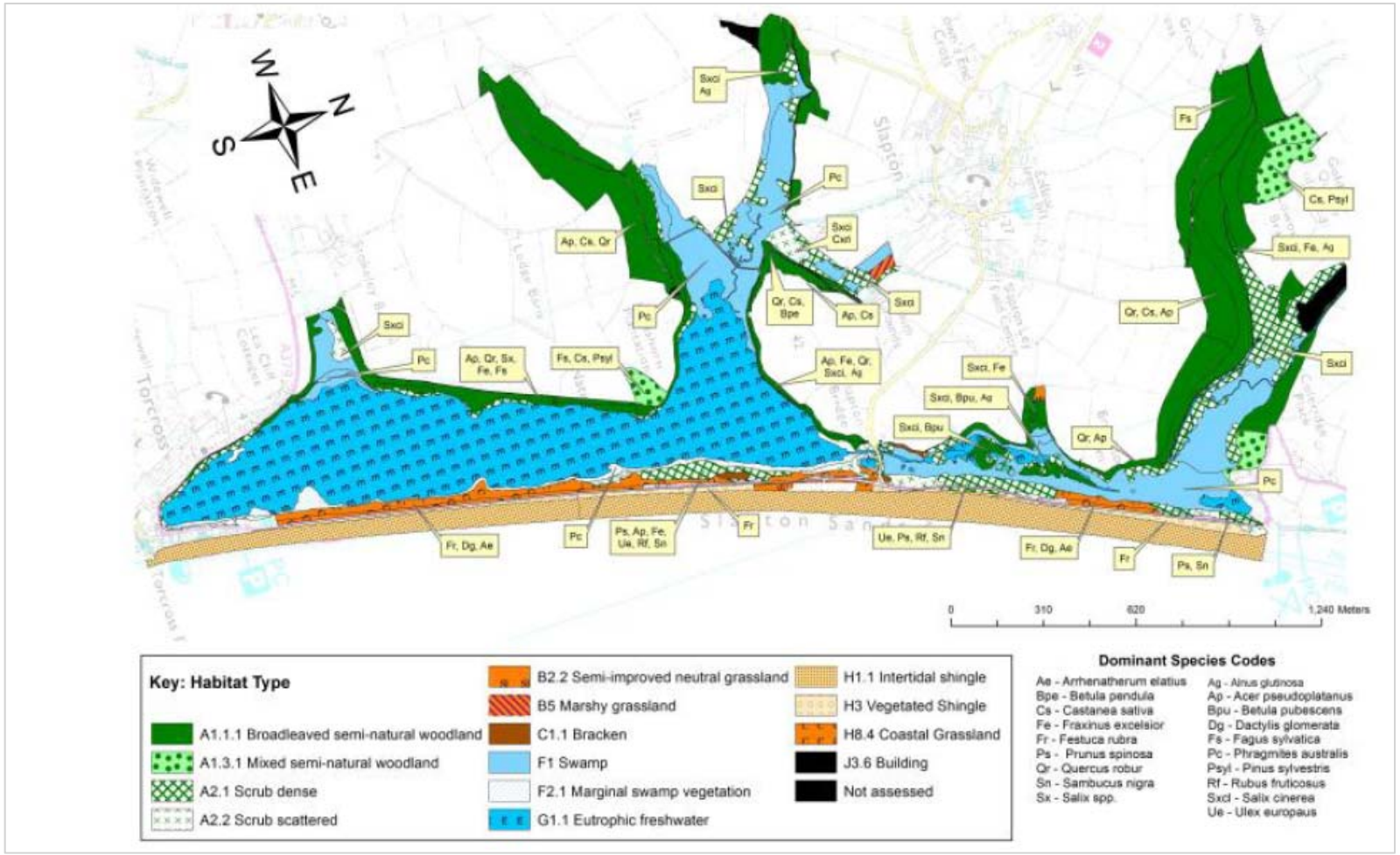
Appendix A – Supporting Ecological Information

Figure A.1 Slapton Ley SSSI Management Units Map

Source: www.magic.gov.uk.

Figure A.2 Slapton Ley NNR Phase 1 Habitat Survey 2012

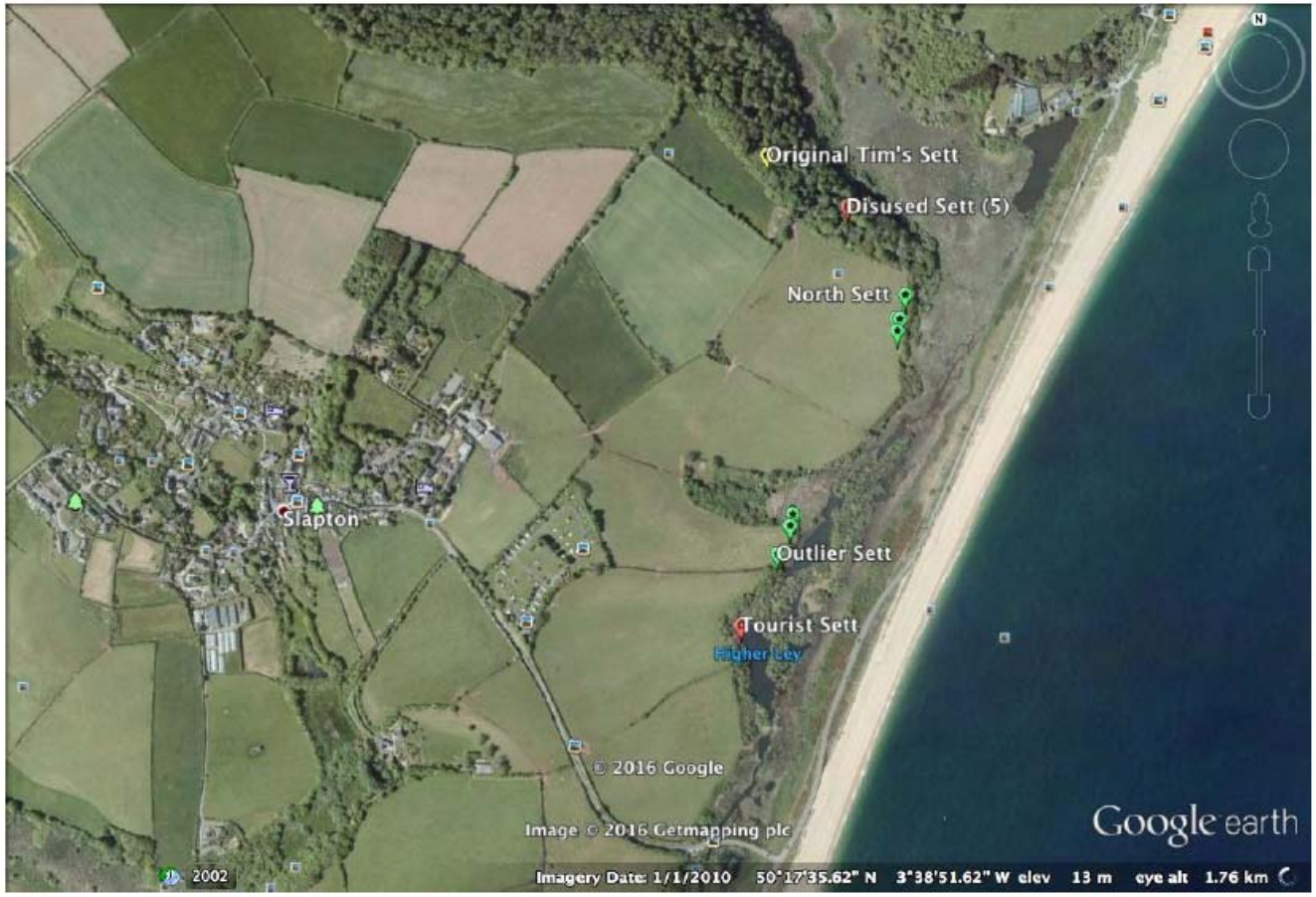


Source: DCC, 2016.

Figure A.3 Locations of Key Bird Species: Breeding Pairs/Territories

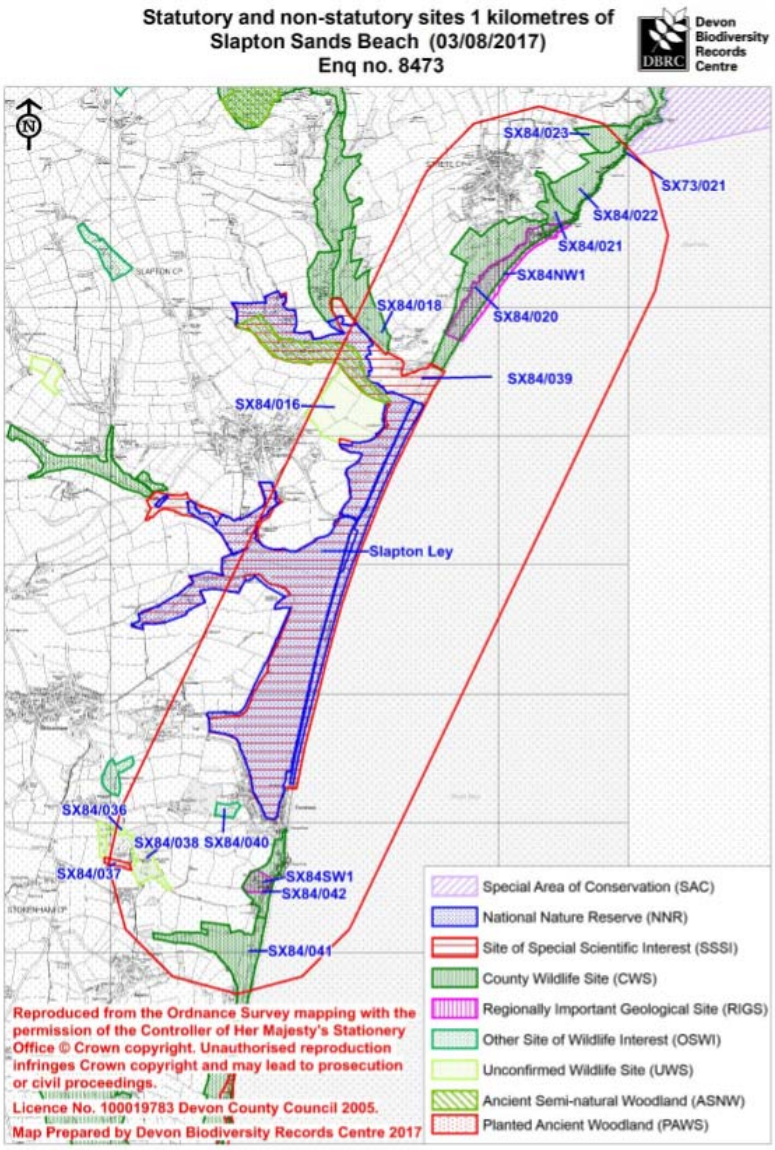
Source: Slapton Ley Field Studies Centre, 2015.

Figure A.4 Badger Sett Locations within the BMP Study Area



Source: FSC, 2016.

Figure A.5 Statutory and non-statutory sites within 1km of Slapton Sands



Source: Devon Biodiversity Records Centre, 2017

Table A.1. Slapton Sands SSSI Management Unit Site Condition Report (Source: Natural England, 2011)

SSSI Unit	Main habitat	Condition status	Reason for adverse condition	Condition assessment comment (Natural England, 2010)
001 Shingle Bar	Supralittoral Sediment 60.71 ha	Unfavourable – Recovering	Medium condition threat	*'Supralittoral sediment (coastal vegetated shingle): UNF (road); Supralittoral rock (MC community): UNF (road); Geology UNF (road); VPA (St. Johns Wort): FAV; Cettis Warbler: FAV; Non-breeding bird assemblage; FAV. Vegetation along the shingle ridge includes positive indicator species all along. Restoration of areas damaged by trampling is working although visitor pressure is very high along most of the unit and will probably require similar management into the future. The road and its maintenance remains an issue in this unit as it prevents natural processes from occurring.'*
002 Upper Ley	Standing open water and canals	Unfavourable – Recovering	Medium condition threat	*'DWPP plan in place and agreed by Natural England and Environment Agency Lichen Management Plan in place and to be implemented'.*
003 Upper Ley	Standing open water and canals	Unfavourable – Recovering	Medium condition threat	*'DWPP completed - needed to maintain recovering status, review in 2011. Lichen management plan to remove Ivy - needed to maintain recovering status, review in 2011'*

Table A.2 Recent Ecological Surveys Produced Since the SCZMS and within the BMP Study Area

Table A.2 Summarised Conclusions and Updates from New Ecological Studies of the SSSI/NNR, Relevant to the BMP.

Sub-Receptor	New and/or Existing Studies consulted, and study detail	New and/or Existing Studies - Conclusions	Recommended Next Step or updates required to the Ecology Baseline	Section in BMP Environmental Baseline Report
Habitats				
3.3.2 Broad Habitat Types and Vegetation **Scott Wilson 2006 CZM Study area**	**Phase 1 Habitat survey 2004, Scott Wilson CZM Study (2006)** The study mapped and described the following SSSI/NNR habitats: • Shingle bar • Open water – freshwater lagoon • Rich fen reedbed • Grazed marsh • Wet woodland – Willow Carr • Semi natural broadleaved woodland Within the study area, outside the SSSI/NNNR designations: • Farmland Mosaic	Concluded the presence of these habitats	A new Phase 1 habitat map was produced in 2012 (DCC, 2016) see Figure A.2, Appendix A. It is recommended that an up to date Phase 1 Habitat survey is undertaken to map and describe the presence of the SSSI/NNR features within the BMP study area.	Yes
Slapton Ley SSSI/NNR habitat interest features: **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report: DRAFT Wildlife Report for the A379** In 2016, the Slapton Line Partnership Steering Group commissioned an assessment of the vulnerability of the A379, between Torcross and Slapton Bridge, to storm damage (SHDC< 2016)**.** The results of the desk study were based on the 2002 Wilson report (Slapton Line Shingle Vegetation Survey) and based on the road being moved inland, and works to the Slapton Bridge Carpark .The A379 is thought to be particularly vulnerable to failure in two sections 1) Torcross and 2) Slapton Bridge The report describes the NVC species of the following habitats within the SSSI/NNR of the Torcross to Slapton Bridge study area: • Shingle shore, Shingle Ridge, Back Slope, Scrub • Freshwater habitats (SSSI citiation)	**Moving the A379 landward at Torcross** Potential direct impact by to: • Coastal vegetated shingle (shingle shore, shingle ridge), clarity required. Discuss with Natural England No direct impact but potential for pollution impacts (during and post construction) to: • Freshwater habitats (pollution prevention measures required) No direct impact thought likely to: • Back slope (little botanical interest, not priority habitat) • No scrub present **A379 works (seaward) at Slapton Bridge carpark** Potential impacts from works at to: • vegetated shingle (shingle shore, shingle ridge), clarity required. Discuss with Natural England No direct impacts to: • Freshwater habitats (pollution prevention measures required – potmial)	• A Phase 1 habitat survey was undertaken in 2012 (DCC, 2012), in order to accurately map the presence of SSSI/NNR habitat features within the study area a new Phase 1 Habitat survey is recommended. • Recent emergency works to repair the Torcross seawall (BAM Mott MacDonald JV, on behalf of Environment Agency, 2016) concluded no vegetated shingle to be present within the southern section of the BMP area at Torcross. **It is recommended that the BMP area is mapped fully to establish the presence of coastal vegetated shingle along the BMP frontage**	Yes
Priority Habitats: **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report: DRAFT Wildlife Report for the A379** • Coastal vegetated shingle (shingle bar) • Eutrophic standing water (fresh water lagoon)	**Moving the A379 landward at Torcross** Potential impact by works to: • Coastal vegetated shingle No direct impact thought likely to: • Eutrophic standing water. Pollution control measures are required.	• It is recommended that the BMP area is mapped fully to establish the current presence of coastal vegetated shingle along the BMP frontage.	Yes

Protected Species				
Scott Wilson 2006 CZM Study area	**Scott Wilson CZM Study (2006)** The study reported the following protected mammal species records from within the BMP study area: • Badger • Birds • Bats • Otter • Dormouse • Water vole	The report concluded that these protected species have the potential to be present	It is recommended that up to date protected species surveys are undertaken	Yes
Slapton Ley SSSI features/species **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** Between Torcross and Slapton Bridge the desk based study reports on the following designated features/species: • Breeding bird assemblage - Cetti's warbler • Non breeding passage and wintering birds • Fungi, mosses liverworts (SSSI citation • Mammals – breeding dormice and otter	**Moving the A379 landward at Torcross** No likely impact by works to: • Breeding bird assemblage – associated with the mosaic of freshwater habitats (water rail, cuckoo, kingfisher, reed warbler, sedge warbler, reed bunting, mute swan, great crested grebe, gadwall, pochard, tufted duck. Heronry in Hartshorn Plantation). Freshwater breeding habitat is not thought to be present in this location, and far away from works • Vascular plant assemblage (mud on edge of the Lower Lee contains Strapwort, Toad flaxed leaved St John's –wort present on Cliff tops). Not present • Lichen assemblage (upper and lower ley). FSC confirmed not present. • Fungi, mosses liverworts o Assume not present, clarify with FSC • Breeding birds Cetti's warbler. An A379 monitoring survey was undertaken 2007-2010 but no maps were produced. However, Fen woodland habitat is not thought to be present. **A379 works (seaward) at Slapton Bridge carpark** No direct impact thought likely to: • Breeding bird assemblage incl Cetti's warbler (no habitat present) • Non breeding passage and wintering birds (no habitat present) • Fungi, mosses liverworts (no habitat present) • Mammals – breeding dormice and otter (no habitat present)	It is recommended data is sought for the SSSI feature: • Breeding birds – Cetti's warbler Recent breeding bird surveys may inform of the current population presence within the fen woodland fringing the ley. Mapping of potential habitat areas would be particularly beneficial. • Clarify presence of Fungi, mosses liverworts assemblage in vicinity of the BMP area	Yes
Slapton Ley SSSI features/species **Slapton Ley Field Centre data**	**Slapton Ley Field Centre survey data** Survey records of: • Breeding bird assemblage - Cetti's warbler (survey data 1996-2016) • Fungi, mosses liverworts	**Breeding bird assemblage - Cetti's warbler** • Surveys undertaken within the Slapton Ley NNR over the period 1996 to 2016 possible territories are now at their highest since they	**Breeding bird assemblage - Cetti's warbler** • Highlights potential impact to Cetti's warbler should sections the A379 fail (in particular at Slapton Bridge)	Yes

	Hawksworth 1976. The natural history of Slapton Ley Nature Reserve. X Fungi. Field studies Report (1976) 4, 391-439:	colonised the site in the 1970's (Burton, 2016) • The 2016 survey (April-May) noted territories present around the Lower Ley /Start valley and Higher Ley/Slapton Bridge (Burton, 2016) **Fungi, mosses liverworts** • According to the Slapton, the shingle ridge is largely too unstable to support larger fungi but some species may colonise vegetated shingle, and debri within the strandline (e.g dritwood and seaweed). The low botanical interest within the back slope is thought to attract typical associated species.	• Highlights possible impact to Cetti's warbler from the potential BMP options. • A Map of the territories may be useful to identify exact locations and should be sought from SLFC. **Fungi, mosses liverworts** • The 1976 Hawksworth report is out of date, however it does highlight the potential for the presence of potentially important fungi species to be present within BMP study area, in particular, the shingle ridge and strandline.	
Mammals: **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** • Dormice (FSC surveys) • Bats (Scott Wilson, 2006) • Otters (FSC surveys)	**Moving the A379 landward at Torcross:** No likely direct impact to**:** • **Bats.** No suitable habitat for bat roosts but foraging potential over the reedbeds is assumed **– potential minor loss of foraging habitat** • Dormice and Otter. No habitat thought to be present.	• A bat survey is recommended • FSC data has identified dormouse habitat within the back slope of the BMP study area. • It is unknown if there is FSC otter data of within the study area • Mapped locations of the above would be beneficial	Yes
Mammals: **Slapton Ley Field Centre data**	**Slapton Ley Field Centre survey data** Records of: • Badger • Dormouse No data provided for: • bat • otter • water vole	**Recent recordings of:** • Dormice (surveys undertaken of the back slope of the A379 (north and south) 2009 – 2015 • Badger. There are three known setts positioned in the northern section of the BMP study area, protected on the western side of the Higher Ley.	• Badger sett location maps have been provided (See appendix) • There is not thought to be any bat roost habitat, disturbance of foraging habitat may be possible. • It is unknown if there are any recent FSC records of otter or watervole within or in close proximity to the BMP study area	Yes
Other protected species: **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** • Slow worm, grass snake, common lizard and adder (suitable habitat) • Badger (no known setts) • Cirl buntings	**Moving the A379 landward at Torcross**: **Potential impact to:** • **breeding and wintering reptiles (slow worm, grass snake, common lizard and adder habitat).** Reptiles are also known to occur in shingle. Mitigation methods/advice sought (e.g habitat manipulation, carry out works under a method statement when reptiles are active (spring to autumn). • Badger. Impacts currently unknown, further investigation required • Cirl buntings (check breeding bird survey data) – no habitat is thought to be present	• A Phase 1 habitat survey to establish presence of: o reptile habitat o badger	Yes
Other protected species: **Slapton Ley Field Centre data**	**Slapton Ley Field Centre survey data** Records of: • **Cirl buntings**	**Recent recordings of:** • **Cirl bunting.** Most recent records (SLFC, April – August 2016) suggest core territories within the BMP area. Records suggest these territories are present within the northern section of the	• Cirl bunting location maps have been provided (see appendix)	Yes

		study area betwen the A379 and the eastern seaward side of the Higher Ley, Lower Ley (north section).		
Priority /rare species				
Invertebrates	**Boyce, DC (2016) An Invertebrate Survey Of The Slapton Shingle Ridge. A report for DCC and SHDC.** Describes the results of an invertebrate survey carried out on the Slapton shingle ridge to inform the proposed realignment of the A379 road.	Key Species at Slapton shingle beach Table 2.1 of the report lists 39 key species that have been noted on Slapton shingle beach to date. Of these, 11 (Nationally Scarce species except for the great green bush-cricket, which is included in the Devon BAP) were recorded in 2016, with these including four beetles of particularly high conservation status: the rove beetles *Actocharis readingii* (RDBK) and *Ocypus fortunatarum* (IUCN Near Threatened), the Malachite beetle *Clanoptilus marginellus* (IUCN Near Threatened) and the pollen beetle *Brachypterolus antirrhini* (RDBK). – the most important areas of the site for invertebrates are the stands of short-sward shingle grassland with patches of bare substrate. – The restoration of short-sward shingle grassland with patches of bare substrate should be the key goal of any mitigation works arising out of the A379 realignment.	• It may be useful to map areas where short-sward shingle grassland is present • Ensure short sward shingle is considered during BMP options, and suggestion of mitigation fed through to BMP options	YES
Invertebrates **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** The Slapton Line Shingle Invertebrate Survey, (Alexander, 2004) highlighted from the 2003 survey, the regional (possibly national) importance of the shingle bar for invertebrates with a range of Red Data List and Nationally Scarce species recorded.	Moving the A379 landward at Torcross: Potential impacts, though not thought to be significant due to habitat loss largely containing little botanical interest (back slope) and non priority habitat (scrub). There is potential within the shingle ridge	• The Slapton Line Shingle Invertebrate Survey (Alexander, 2004) is currently being updated by Dave Boyce) and will highlight any changes over the last 15 years since the original survey was undertaken (DCC, 2016).	Yes
Invertebrates **Slapton Ley Field Centre data**	**Slapton Ley Field Centre survey data** Alexander, 2004. Slapton Line Shingle Invertebrate Survey: A report the Slapton Line Partnership The report findings are taken from surveys undertaken during 2003 to 2004. This report is thought to be currently being updated.	The vegetation of the shingle bar is subject to a wide range of changes, the most significant being global climate change, increased visitor usage with consequent trampling and compaction, continued succession towards scrub and secondary woodland on the back slope in the absence of an active management programme, and road maintenance.	• Invertebrates are present within the BMP study area which include Red Data List and nationally Scare species. There is potential for impact to invertebrates from the BMP, and should be considered during appraisal of options. • Beetle records from Beetles – Serving the Ecosystem (July 2015). 16 species were recorded on the shingle ridge, One • species of darkling beetle (Opatrum sabulosum) located on the shingle ridge is considered nationally scarce (DCC, 2016.	Yes

Notable plants **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** Regionally important populations of yellow horned poppy (*Glaucium flavum*), sea radish (*Raphanus maritimus*) Scarce Sea kale (*Crambe maritima*), the scarce Sea spurge (*Euphorbia paralias*) and Viper's bugloss (*Echium vulgare*) (Scott Wilson, 2006)	Not thought to be within the area of the vulnerability study.	• The report doesn't refer to notable plants within the remander of the BMP study area. • Going forward, it is recommended that notable plants within, or close proximity to the Slapton Sands study area are mapped	Yes
Reptiles **A379 areas of vulnerability: Torcross and Slapton Bridge**	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** Slow worm, grass snake, common lizard and adder known to occur in suitable habitat in this area.	Potential impact on breeding and wintering reptiles.	• Going forward a map displaying suitable reptile habitat within the BMP area would be beneficial	Yes
Fungi, mosses liverworts	**DCC_2016_Wildlife and Ecological Report DRAFT Wildlife Report for the A379:** 2,344 SSSI/NNR species of fungi, important slime molds, 195 species of mosses and liverworts are present at Slapton Ley	The presence of these species within the vulnerability report study area is unknown.	• It is recommended that further data is sought in regards to the presence of notable species within the BMP study area, and proximity	Yes