

Tidal Lagoon Swansea Bay

Habitats Creation Strategy

DCO Requirement 29

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1.0	19/04/2017	Draft for submission to LPAs/NRW	GKL/JP	TW/FC/RH/AB	AH
2.0	07/05/2020	Final submission re Phase 1 works – including Works7a and associated construction	GKL/JP	TC	RH

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1 Introduction

1.1 The TLSB project

- 1.1.1 Tidal Lagoon Swansea Bay (TLSB) will be the world's first purpose built tidal energy lagoon. The generating station will have an installed capacity of 320 megawatts (MW) and will enclose part of Swansea Bay, from the eastern side of the River Tawe to the eastern edge of the new Swansea University Bay-Campus. In total the seawall will form an approximately 9.5km-long, U-shape which will encompass approximately 11.5km² of the seabed, foreshore and intertidal area of Swansea Bay.
- 1.1.2 TLSB made an application to the Planning Inspectorate on 7 February 2014 for a Development Consent Order (DCO) for a tidal lagoon (the TLSB Project) in Swansea Bay, South Wales. Examination of the application closed on 10 December 2014 and development consent was granted by the Secretary of State (SoS) on 9 June 2015.

1.2 DCO Requirement

- 1.2.1 Agreement of a Habitats Creation Strategy (the Strategy) is Requirement 29 of the DCO, and as such has been prepared by TLSB for approval by the relevant planning authorities in consultation with Natural Resources Wales (NRW) in accordance with the DCO. This submission only covers work that is proposed under Phase 1 (as detailed in the Construction Phasing Scheme DCO Requirement 03) i.e. works element 7a and in connection with Work 7a (with reference to Part 1A) a), temporary construction works, including workshops and stores, working areas, laydown areas, construction sites, and vehicle parking facilities; f) to the extent shown on the demolition plan, the alteration, removal, clearance, refurbishment, reconstruction, decommissioning and demolition of any buildings and structures within the Order limits; h) lighting columns and lighting; i) safety / emergency points. The sections of DCO Requirement 29 relevant to Phase 1 are highlighted in bold below.
- 1.2.2 DCO Requirement 29 - Habitats Creation Strategy states:

29.—(1) No phase of the authorised development is to commence until a written strategy for the creation, monitoring and management of onshore habitats in that phase has been submitted and approved by the relevant planning authorities in consultation with Natural Resources Wales.

(2) The habitats creation scheme is to provide for—

(a) creation of artificial dunescape at the base of existing coastal defences and management to reduce impact through public access;

(b) creation of an artificial sandy beach at eastern landfall of the authorised development;

(c) beach landscaping and design on the western side of the eastern landfall of the authorised development to reduce wind effect;

(d) vegetation management to create areas of bare sand and physical intervention to create blow-outs;

(e) retention of habitat strips of at least 3m in width associated with the grassland in the lee of existing seawalls south-east of Queen's Dock;

(f) creation of grassland along the landward side of the new saltmarsh area comprised in the authorised development following removal of the existing seawall;

(g) encouraging colonisation of existing rock armoured sea defences through infilling of large gaps with aggregate and localised topping with sandy spoil/topsoil;

(h) creation of a dedicated coastal grassland plot to the seaward side at the south-eastern end of the docks estate with a transition to saltmarsh habitat as well as connectivity to dune habitat towards the east;

(i) creation of grassland at the periphery of parking bays at the western end of the authorised development;

(j) translocation of grassland turves and reuse of topsoil from areas of species-rich sward to encourage the establishment of coastal grassland habitat in the newly created areas with plants of local provenance;

(k) translocation of robust plants or substrates containing target species seeds to holding areas where they can be relocated to newly created habitats on new seawalls; and

(l) creation of purpose-designed artificial rocky shore habitat on new seawalls.

(3) The approved habitats creation strategy and any measures under it are to be implemented in their entirety and maintained during the entirety operation of the authorised development.

- 1.2.3 DCO Requirement 29 for Phase 1 only includes elements that are relevant to the City and County of Swansea Council (CCSC) therefore, this Habitats Creation Strategy is provided to CCSC for approval.
- 1.2.4 The Habitats Creation Strategy has been produced to satisfy the criteria of DCO Requirement 29 in accordance with the Construction Phasing Scheme (DCO Requirement 3). This document will be updated, as appropriate, to include details relevant to later phases of the DCO Works.

2 Creation – Coastal habitats

2.1 Introduction

2.1.1 Habitat creation involves the manipulation of the physical, chemical, or biological characteristics of an area to develop a habitat that did not exist previously. Creation of these new habitats for colonisation or use by species may have the potential to result in measurable biodiversity gains. This Section provides details of the following coastal creation measures relevant to the initial Phase 1 works:

- Grassland and coastal grassland.

2.1.2 Table 2.1 at the end of this section, summarises the coastal habitat creation features relevant to the Phase 1 works, along with the associated DCO reference and the area/extent or quantities proposed.

2.2 Grassland and Coastal Grassland - DCO Requirements 29 (2)(e) and (j)

2.2.1 The onshore works associated with the TLSB Project will result in the loss of small areas of existing grassland habitat which, in some areas, support species listed under Section 7 of the Environment (Wales) Act 2016 (superceding the Section 42 list of the Natural Environment and Rural Communities (NERC) Act 2006 (invertebrates and reptiles), as set out in the TLSB ES (2014)).

2.2.2 During Phase 1 works it is not proposed to create additional coastal grassland as it is likely that any areas created would be disturbed or destroyed by future phases of construction. Phase 1 works will not affect the existing coastal grassland between the existing docks access road and the sea wall south of the Queens Dock. However, habitat around the entrance will be disturbed by the creation of the new site entrance/security area as shown on Atkins Extent of 7a Drawing - TLSB-ATK-03-XX-SK-D-00006_P01 – see Appendix Z.2.

2.2.3 In order to enhance habitat connectivity locally, grassland will be created in later phases to the south of the Queen's Dock as well as at other locations within the TLSB Project footprint. Details for proposed habitat creation will be provided for approval in advance of Phase 2 works.

2.2.4 Grassland will be created using substrates which are likely to encourage the development of coastal grassland sward similar to that existing within the Swansea Docks Estate. The creation of grassland habitat has a number of objectives including:

- Ensuring that there is no net loss of the brownfield coastal grassland found within the Docks Estate as a result of the TLSB Project;
- Maintaining the invertebrate population associated with the grassland community wherever possible;
- Enhancing habitat connectivity within the local area and particularly between the Docks Estate and habitats to the east (including Crymlyn Burrows SSSI); and
- Visually softening the existing artificial hard engineered coastal fringe.

2.2.5 Parts (2)(e) and (j) of DCO Requirement 29, relate directly to grassland as set out below:

(e) retention of habitat strips of at least 3 metres in width associated with the grassland in the lee of existing seawall(s) south east of Queen's Dock;

(j) translocation of grassland turves and reuse of topsoil from areas of species-rich sward to encourage the establishment of coastal grassland habitat in the newly created areas with plants of local provenance.

Outline grassland and coastal grassland design and creation methodology

DCO Requirement 29 (2)(e) - retention of habitat strips of at least 3m in width associated with the grassland in the lee of existing seawall(s) south east of Queen's Dock

- 2.2.6 The grassland habitat located south of the existing port road and north of the port seawall will not be affected by construction associated with Works 7(a) (construction of a new permanent internal access road) under Phase 1. Some areas will be affected by the proposed site entrance and through the construction of entrance splays.
- 2.2.7 During surveys undertaken in 2013 as part of the TLSB Environmental Statement (ES) the strip of grassland habitat (10-12m in width) was found not to be particularly species rich. Since then, it has been observed that some of the more diverse areas are becoming covered in scrub or have been disturbed.
- 2.2.8 A further survey of the grassland south of the existing port road and north of the seawall will be carried out in May/June prior to construction of DCO Works 7a and associated work to confirm species rich areas that could be retained or where, for example, brush harvesting or the reuse of existing substrates (including their seed bank) could be undertaken to aid the establishment of new areas of grassland (as per Requirement 29(j)).
- 2.2.9 During Phase 2 at least two habitat strips with a minimum width of 3m associated with the grassland in the lee of existing seawall(s) south east of Queen's Dock will be retained throughout the construction period. The final locations will be defined following the site survey(s), however, they will be at least 5m away from the sea wall as grassland habitat is sparse in close proximity to the wall due, to shading and lack of substrate.
- 2.2.10 Although direct impacts on the grassland in lee of Queens Dock sea wall are not anticipated until the Works 7(a) are completed in full (beyond Phase 1), the grassland strips to be retained will be demarcated with temporary fencing measures to ensure that there is no inadvertent damage during general construction activities in the area.
- 2.2.11 The temporary fencing will be inspected at regular intervals by the Tier One Environmental Liaison Officer (ELO) and maintenance of the fence will be undertaken as necessary. It is not anticipated that intensive management of the grassland within the strips will be required, however, scrub encroachment will be managed and controlled by hand if necessary by the Tier One Contractor.
- 2.2.12 Prior to operation, all temporary construction fencing will be removed from the TLSB Project and the grassland will be managed alongside surrounding habitats.

- 2.2.13 Ground conditions will be important in order to create grassland with a suitable species composition and structure. The existing grassland is of interest because it has developed on mixed substrates, e.g. slag, crushed aggregate and sand. It is therefore considered that establishment of a diverse sward will be more likely if the planting substrate is nutrient poor.
- 2.2.14 As set out in DCO Requirement 7 (Provision of Landscaping), natural colonisation of substrate from the seed source provided by the topsoil/substrate, any translocated turf and also from nearby habitats is the preferred method to ensure vegetation cover. As noted in DCO Requirement 7, if natural colonisation is not successful it may be necessary to seed areas using a commercial seed mix of native coastal grassland species to stabilise some areas.
- 2.2.15 Topsoil will be stripped and transferred to a demarcated holding area within the construction compound/storage area. Any areas that area to be disturbed during Phase 1 where turf can be lifted will also be identified and turf moved to the demarcated holding area (if required). Maintaining these resources and removing ruderal and weed species will be the responsibility of the Tier One ELO.

Surveillance and management of coastal grassland

- 2.2.16 When created during Phase 2, surveillance and ongoing management of coastal grassland creation areas will be covered by AEMP Objective CE3: 'Surveillance of habitat creation areas within the lagoon'.
- 2.2.17 Coastal grassland surveillance and management is relatively simple, as the indicators of success (vegetation cover, species diversity, structure to support invertebrates) are well documented and the management actions required to enhance the biodiversity resource are well established e.g. weed and scrub control, no fertiliser input, seed sources of local provenance to encourage further colonisation, localised mowing to create a varied structure.
- 2.2.18 The feedback mechanism provided in Appendix Z.1 will be used to help evaluate the success of the habitat creation measures and inform management decisions in a holistic way. The adaptive element of the AEMP process means that management can be adjusted as and when required throughout the lifetime of the TLSB Project.

2.3 Summary of coastal habitat creation areas

- 2.3.1 Table 2.1 provides a summary of the coastal habitat creation features relevant to Phase 1 described above and the associated DCO references. All surveillance and management of the created habitats as stipulated under DCO Requirement 29 is set out within the AEMP process. The adaptive element of the AEMP process means that management can be adjusted as and when required throughout the lifetime of the TLSB Project, aided by the feedback mechanism provided in Appendix Z.1, which will be used to help evaluate the success of the habitat creation measures and inform management decisions in a holistic way.

- 2.3.2 Details of each measure will be provided prior to the relevant DCO Works and, where required, in the relevant section of the Landscaping Scheme DCO Requirement 7, in line with the construction phasing scheme (DCO Requirement 3).

Table 2.1 Summary of coastal habitat creation features

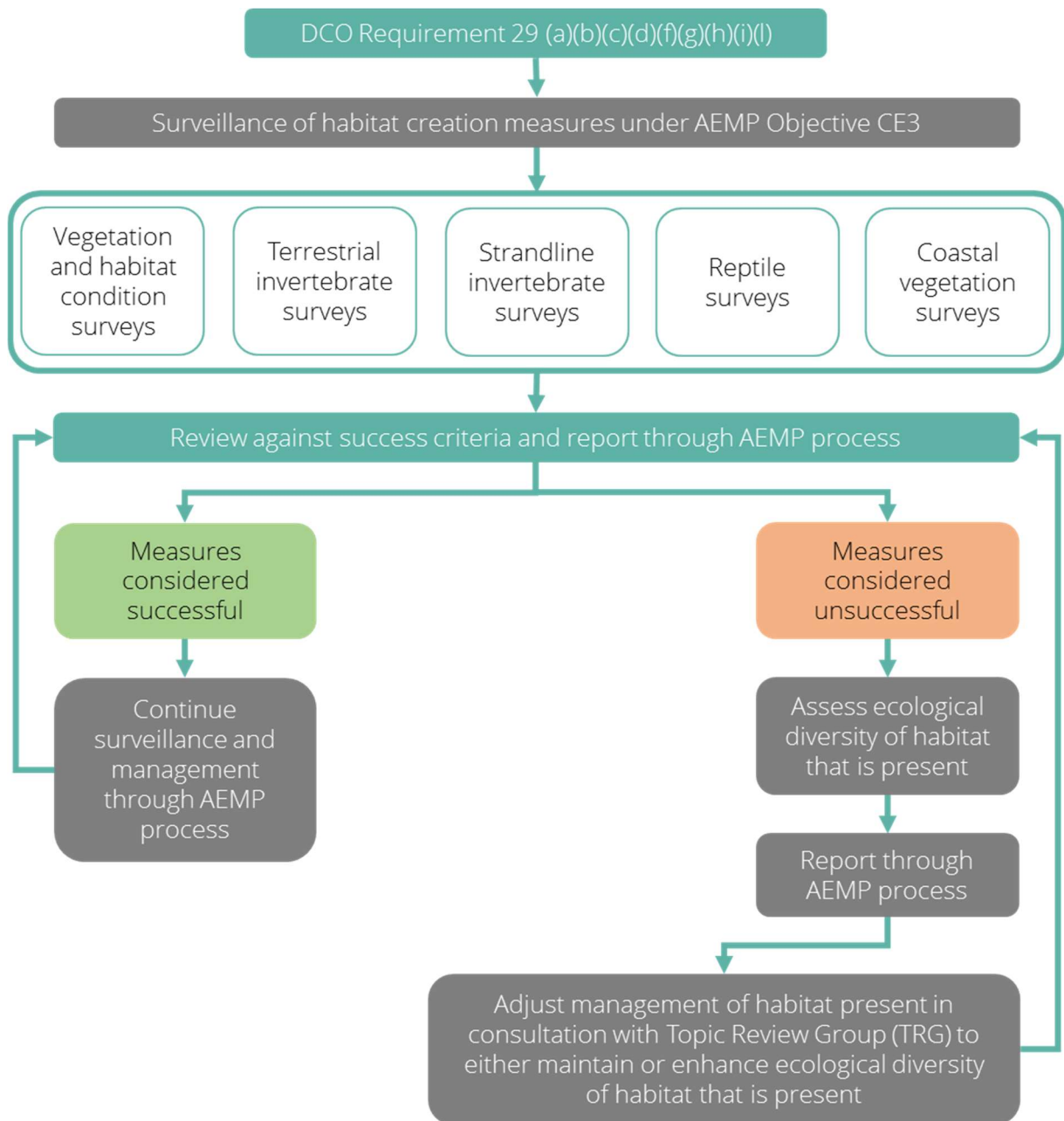
Feature/DCO Requirement	Associated DCO Works / link to Landscaping Scheme where relevant	Comment	Approximate area	Surveillance and management
Grassland and coastal grassland				
Retention grassland strips DCO 29 (2)(e)	DCO Works 7(a)	An area of grassland in lee of existing port splash wall will be retained and protected during construction.	Minimum width retained 3m.	Tier One Contractor ELO during construction, fence removed and managed with associated habitats during operation.
Translocation and re-use of topsoil DCO 29 (2)(j)	DCO Works 1(a) and 1(b)	Re-use of topsoil and translocation of turves (if required) from relevant construction areas will be undertaken to facilitate colonisation of grassland creation areas.	N/A	Tier One Contractor ELO during construction only.

3 References

Nottage, A.S. and Robertson, P.A. (2005). The saltmarsh creation handbook: a project manager's guide to the creation of saltmarsh and intertidal mudflat. RSPB and CIWEM, London.

Toft, A.R. and Madrell, R.J. (1995) A Guide to Understanding and Management of Saltmarshes. National Rivers Authority, R&D Note 324.

Appendix Z.1 Feedback mechanism



Appendix Z.2 Drawing - TLSB-ATK-03-XX-SK-D-00006 P01

