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APPENDIX 11-B NATIONAL VEGETATION CLASSIFICATION (NVC) SURVEY 2014





Aberdeen Harbour

NVC Survey Report

July 2014

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Comments

Comments



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1. Introduction

- 1.1. Highland Ecology and Development Ltd ('HEDL') was commissioned by Waterman Energy Environment and Design Ltd ('Waterman') to carry out a National Vegetation Classification (NVC) survey of land at Nigg Bay, Aberdeen (hereafter referred to as the 'the Site').
- 1.2. The Site (see Figure 1) is approximately 130 hectares (ha) in area and is centred on Ordnance Survey Grid Reference NJ 96563 04696. The Site is located within Nigg Bay, extending from the entrance to the existing harbour southwards to the northern edge of the Altens Industrial Estate.
- 1.3. Aberdeen Harbour Board have proposed the design and construction of a new harbour facility at Nigg Bay, immediately South of the existing harbour. The purpose of the new facility is to complement and expand the capabilities of the existing harbour, accommodate larger vessels, retain existing custom, and attract increased numbers of vessels and vessel types to Aberdeen.
- 1.4. The new harbour development shall include but is not limited to:
 - Dredging the existing bay to accommodate vessels up to 9m draft with additional dredge depth of 10.5m to the east quay and entrance channel;
 - Construction of new North and South breakwaters to form the harbour;
 - Provision of approximately 1500m of new quays and associated support infrastructure. The quay will be constructed with solid quay wall construction and suspended decks over open revetment;
 - Construction of areas for development by others to facilitate the provision of fuel, bulk commodities and potable water;
 - Land reclamation principally through using materials recovered from dredging operations and local sources, where possible;
 - Provision of ancillary accommodation for the facility;
 - Off-site highway works to the extent necessary to access the facility and to satisfy statutory obligations;
 - Diversions and enabling works necessary to permit the development.

Purpose and Scope

- 1.5. The purpose of this report is to provide a description of the vegetation types within the area outlined in Appendix A. The descriptions are related to those described in the British Plant Communities Volume 5¹, the maritime volume of the National Vegetation Classification (NVC) system.

Methodology

- 1.6. A Phase 1 Habitat Survey was undertaken of the Site on 16th April 2014. The Phase 1 Report (ref EED14221-100_R_2_2_4) stated that *'the Site features a variety of habitats, including habitats with a high species diversity and potential to support rare and protected species of plants. It has therefore been recommended that a National Vegetation Classification (NVC) survey is undertaken*

¹ Rodwell et al 2000

of habitats within the Site, to include the areas of grassland, coastal heathland and rocky shores. The results of this survey will identify recommendations and mitigation to reduce the impacts of the proposed development as well as provide detailed information to assess the ecological value of the Site'.

- 1.7. The National Vegetation Classification (NVC) provides a detailed classification and description of the plant communities of Britain, and is the standard method by which the character and value of plant communities are assessed. The results of the NVC survey are presented in a written report detailing the descriptions of the vegetation types recorded and their relative importance, supported with a detailed plant community map to identify areas of key plant interest so that they can be avoided and protected if possible, and/or subject to translocation as part of development planning.
- 1.8. Each area shown with a Phase 1 habitat type on the map (Figure reference EED 14221-100_GR_EC_1A) was visited and an NVC type assigned. All accessible areas were walked over and the vegetation communities were mapped onto an aerial photograph and appropriate notes of vegetation made. In each main vegetation community the dominant and most frequent associate species were noted. Between the main types, notes were made of significant variations.
- 1.9. Two areas were not accessed. In the south, an area occupied by an artificial body of water surrounded by tall ruderal herbs and grasses. In the north an area of ground surrounding the coast guard station predominantly managed as amenity grassland.

Vegetation Descriptions

- 1.10. The area surveyed has largely previously been modified and many of the vegetation communities are not semi-natural. The area around the beach is made up of old building stone and the eroding remains of hand-standings and tarred road ways (Photo 1, Appendix B). Inland from the beach (west of the road) there is a golf course to the north and a country park to the south. The top of the peninsula in the south of the area is improved grassland, one field of which had been cut for silage. The beach and ground immediately behind and the steep cliff areas to the north and south of the beach support a semi-natural plant communities, albeit modified to some extent by naturalized non-native plants or past management.
- 1.11. The steep ground at either end of the bay fit within the 'Maritime Cliffs and Slopes' category of UK habitats. Maritime cliffs are characterised by 12 plant communities in the NVC (MC1 to MC12), depending on their plant species components.
- 1.12. Shingle, strandline and sand-dune communities are characterised by 19 plant communities under NVC, SD1 to SD19. At this site SD2 *Honkenya peploides* - *Cakile maritime* Strandline community was found. This very mobile community exists along the short area of sandy shore at the heart of the beach area. Sea sandwort *Honkenya peploides* and sea rocket *Cakile maritime* are constant in scattered single species/plant patches, with spear-leaved orache *Atriplex glabriuscula* and few other species.
- 1.13. In the more stable area immediately inland the vegetation is sparse with large patches of marram grass *Ammophila arenaria* and Japanese rose *Rosa rugosa* (a shrub rose, naturalised from planted shrubs) scattered through the thin *H. peploides*, silverweed *Potentilla anserina*, colt's-foot *Tussilago farfar*, sand couch *Elymus farctus*, dandelion *Taraxacum officinale*, tending towards SD4 sand couch grass *Elymus farctus* foredune community (Photo 2, Appendix B).

- 1.14. The vegetation of the cliffs is composed of a mosaic of different communities which overlap. The dominance of red fescue *Festuca rubra* and Yorkshire fog *Holcus lanatus* suggest strong affinities to MC9 *Festuca rubra* - *Holcus lanatus* maritime grassland. But dwarf shrubs are locally abundant, particularly crowberry *Empetrum nigrum*, heather *Calluna vulgaris*, bell heather *Erica cinerea*, and more locally, cross-leaved heath *Erica tetralix* suggesting MC10 *Festuca rubra* - *Plantago lanceolata* maritime grassland, tending towards H7² *Calluna vulgaris* - *Scilla verna* heath on the seaward end of the southern cliff. Here the community lacks wild thyme *Thymus polytrichus* and evidence of spring squill *Scilla verna* was not seen, although sea pink *Armeria maritima* is scattered but generally constant. Northern marsh orchid *Dactylorhiza purpurella*, described from MC9, and kidney vetch *Anthyllis vulneraria*, described from both MC9 and MC10, are scattered through much of the grassland/heath areas but are absent from the dense patches of dwarf shrubs. The height of the sward varies with the dominants and location. Close to, but south of the beach tall hogweed *Heracleum spondylium*, meadow thistle *Cirsium dissectum*, black knapweed *Centaurea nigra* and bramble *Rubus fruticosus* dominate, while in more exposed locations the shorter dwarf shrubs or grasses dominate.
- 1.15. A species poor version of MC9 has developed at the bottom of the cliff over the previous hardstand (Photo 3, Appendix B) towards the southern end of the site on the seaward side of the railway.
- 1.16. On the north cliff the MC9 community is generally shorter and more exposed and here there are several patches of common rock-rose *Helianthemum nummularium*.
- 1.17. Behind the coastal strip the level areas are dominated by amenity grasslands which are regularly mown. Around the golf-course the vegetation has close affinities to OV23³ *Lolium perenne* - *Dactylis glomerata* grassland where the mowing is less frequent. This tends to grade into coarser vegetation on the slopes with nettle *Urtica dioica* (OV 25 *Urtica dioica* - *Cirsium arvense*), rosebay willowherb *Chamerion angustifolium* and then gorse *Ulex europaeus* on the steeper slopes, tending to OV27 (*Epilobium*) *Chamerion angustifolium* community.
- 1.18. The country park has been planted with belts of broadleaved and conifer trees from a range of origins, not necessarily British, and does not match any British vegetation type. Similar to the golf course the sward is a sown mix of amenity grasses.
- 1.19. At the top of the cliffs at the southern end of the site are two grass lay fields of improved grass for fodder. While on the west of the road there is a further field which is 'reverting' improved grassland, with close similarities to OV23 *Lolium perenne* - *Dactylis glomerata* grassland.
- 1.20. There are two areas of 'not accessed' land. In the south of the area, an area occupied by an artificial body of water surrounded by tall ruderal herbs and grasses was not accessed. In the north, an area of ground surrounding the coast guard station predominantly managed as amenity grassland was not accessed.

² H – heath NVC communities, H1 to H22

³ OV – vegetation of open habitat communities OV1 to OV42

2. Assessment of Vegetation Communities

- 2.1. 'Maritime cliffs and slopes' are a UK Biodiversity Action Plan priority habitat and are found on the Scottish Biodiversity List as a priority habitat. MC9, MC10 and H7 fit within the European classification as the non-priority Vegetated Sea Cliffs of the Atlantic and Baltic coasts (1230). The SD4 foredune community fits within the European non-priority Embryonic shifting dunes (2110) category.
- 2.2. The feature supporting the NVC Shingle, strandline and sand dune community SD2 (strandline) found at this site is not the priority vegetated shingle habitat as included in both the UK BAP and Scottish Biodiversity List.
- 2.3. No plants of botanical interest were found during the survey. It should be noted that the nationally scarce oyster plant *Mertensia maritima*, and sea pea *Lathyrus japonicas* were both found on the site in 2013. The sea pea is included in the North East Scotland Local Biodiversity Action Plan. (A list of species seen is in Appendix C)

3. Impact of Proposed Development

- 3.1. Appendix A shows a map of the NVC communities at Nigg Bay. The red line boundary for the development currently includes:
- The MC9/ MC10 Maritime Cliffs and Slopes priority habitat on the south side of Girdle Ness;
 - The SD2/ SD4 strandline and foredune communities in the centre of Nigg Bay. The development boundary here also includes the area where sea pea and oyster plant have previously been recorded;
 - The priority MC9/ MC10 communities and H7 heath communities on Greg Ness to the south of Nigg Bay.
- 3.2. The priority MC 9 & 10 vegetation on the seaward side of the red line boundary is either on very steep ground, such as the slopes of Greg Ness and Girdle Ness, or has recolonized areas which have been previously modified, for example the level area around the inside of Nigg Bay.
- 3.3. Any impact on these priority habitats located within the Development red line boundary will be dependent on the final scheme design.

4. Conclusions and Recommendations

- 4.1. The NVC survey identified a range of NVC communities to be present at Nigg Bay. Of particular note are the areas of Maritime Cliffs and Slopes (classified as MC communities in the NVC), a priority habitat on the Scottish Biodiversity list. MC communities were found on the south side of Girdle Ness, in the centre of Nigg Bay and on Greg Ness to the south. The majority of these MC communities lie within the development red line boundary: any impact on the priority habitats will be dependent on the final scheme design. The examples of this vegetation along the steep slopes of Greg Ness and Girdle Ness are semi-natural and, where possible, should remain undisturbed by the development.
- 4.2. 'Shingle, strandline and sand-dune communities' (SD communities under NVC) occur in the centre of Nigg Bay, again within the development red line boundary. The SD4 foredune community fits within the European non-priority Embryonic shifting dunes (2110) category. These areas are relatively small and constrained by the made up boulder shore immediately to the south and by the rocky coast line below the steep slopes of Girdle Ness and Greg Ness.

TABLES

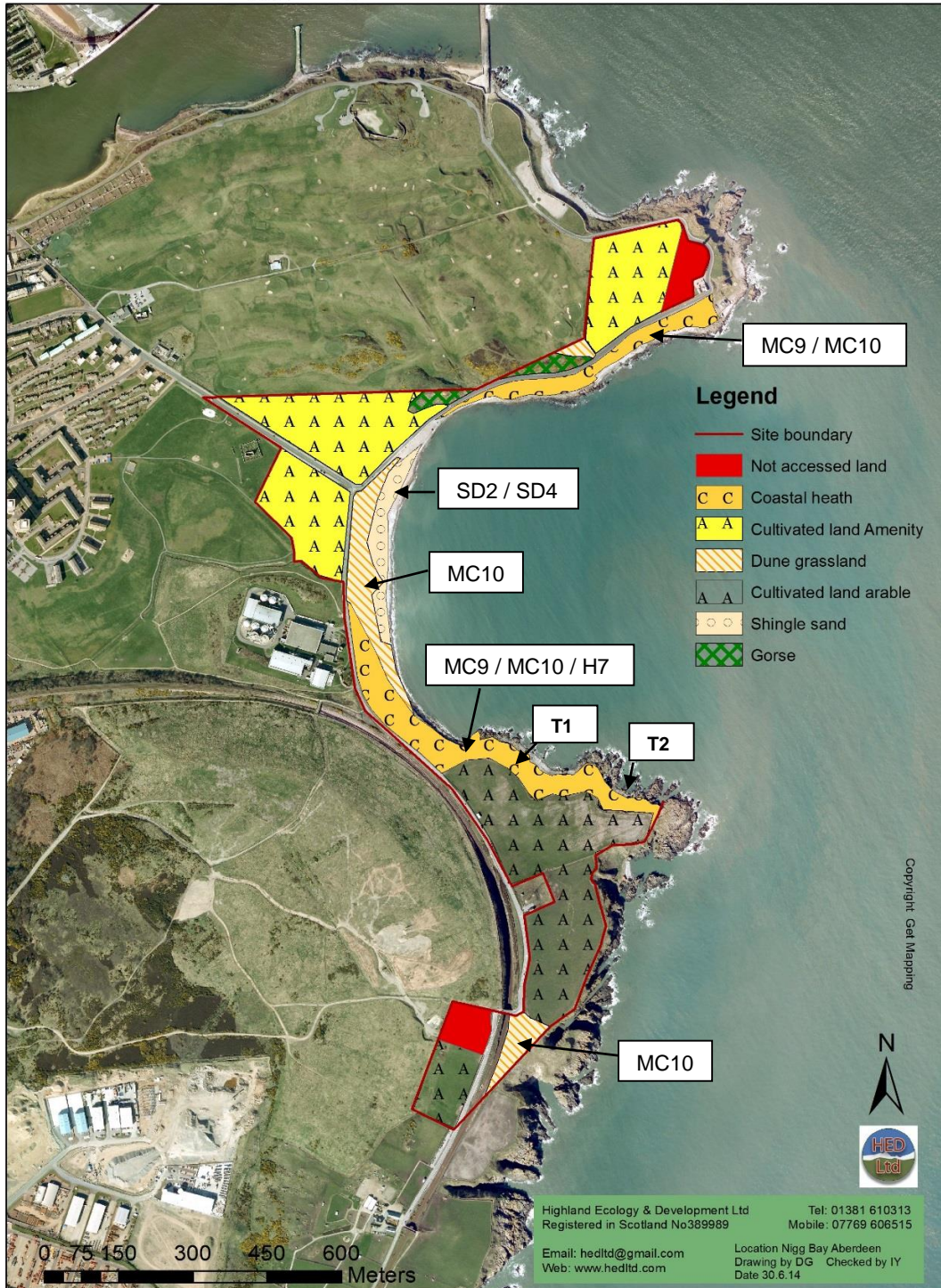
Table 1: Target notes (as shown on NVC Map Appendix A)

No.	Grid Ref	Target
T1	NJ 96793 04360	A triangular flush dominated by articulated rush (<i>Juncus articulatus</i>) and <i>Carex otrubae</i> .
T2	NJ 97041 04253	A rock with bladder campion (<i>Silene vulgaris</i>), hoary plantain (<i>Plantago media</i>), sheep's fescue, sea pink and grey green cladonid lichens



APPENDICES

A.

Nigg Bay NVC and Phase 1 Map



B. Photographs illustrating text

Photo no.	Grid reference	Description	Photo
1	NJ 96667 04517	View looking west (290 deg) along beach and land above showing tar surface and weathered building stone on the beach	
2		Example of sparse vegetation of similar to SD4 <i>Elymus farctus</i> foredune	

3

Example of
Maritime grassland
below cliffs but
with close affinities
to MC10 *Festuca
rubra* - *Plantago*
spp maritime
grassland.



C. Species found during NVC survey, by vegetation community

Key: Domin scale: D = dominant, A = abundant, F = frequent, O = occasional, R = rare, p = present. A prefix of L means the plant has a patchy distribution and is locally abundant, frequent etc.

Species		NV Community							
Latin	English	SD 2	SD 4	MC1 0	MC9/ 10	H7	OV 23	OV 25	OV 27
<i>Calluna vulgaris</i>	heather			D	LD	LD			
<i>Empetrum nigrum</i>	crowberry			F		LF			
<i>Erica cinerea</i>	bell heather			F		LF			
<i>Erica tetralix</i>	cross-leaved heath					LF			
<i>Ulex europaeus</i>	gorse			p	p		O-D	O-D	O-D
<i>Rubus fruticosus</i>	bramble					LF		LF	LF
<i>Rosa rugosa</i>	Japanese rose		O						
<i>Equisetum arvense</i>	field horsetail				p				
<i>Dryopteris dilatata</i>	broad buckler fern				p				
<i>Dryopteris filix-mas</i>	male fern				p				
<i>Agrostis canina</i>	velvet bent				p		F		
<i>Agrostis stolonifera</i>	creeping bent						p		
<i>Aira praecox</i>	early hair-grass				p				
<i>Ammophila arenaria</i>	marram grass		LA						
<i>Antoxanthum odoratum</i>	sweet woodruff			F					
<i>Arrhenatherum elatius</i>	false oat-grass					LF			
<i>Dactylis glomerata</i>	cock's-foot			p	LF			p	p
<i>Elymus farctus</i>	sand couch		O						
<i>Festuca rubra</i>	red fescue				O		F		
<i>Holcus lanatus</i>	Yorkshire fog			p	A	F	D	p	p

Species		NV Community							
Latin	English	SD 2	SD 4	MC1 0	MC9/ 10	H7	OV 23	OV 25	OV 27
<i>Lolium perenne</i>	perennial rye-grass						F		
<i>Nardus stricta</i>	mat-grass				p				
<i>Poa</i> sp.	meadow grass						F		
<i>Juncus conglomerata</i>	compact rush				p				
<i>Juncus bulbosus</i>	bulbous rush				R				
<i>Carex otrubae</i>	false fox sedge				LF				
<i>Carex flacca</i>	glaucous sedge				LF				
<i>Achillea millefolium</i>	yarrow						p		
<i>Alchemilla vulgaris</i>	lady's-mantle				p				
<i>Anthyllis vulneraria</i>	kidney vetch			O	p				
<i>Armeria maritima</i>	thrift				R				
<i>Atriplex glabriuscula</i>	spear-leaved orache	O							
<i>Bellis perennis</i>	daisy						p		
<i>Cakile maritima</i>	sea kale	O							
<i>Campanula rotundifolia</i>	harebell				p				
<i>Centaurea nigra</i>	black knapweed			p					
<i>Cerastium fontanum</i>	common mouse-ear				p				
<i>Chamerion angustifolium</i>	rosebay willowherb				LF		p		D
<i>Cirsium arvense</i>	creeping thistle			p	p				
<i>Cirsium dissectum</i>	meadow thistle			p	p				
<i>Cochleria officinale</i>	common scurvygrass				p				

Species		NV Community							
Latin	English	SD 2	SD 4	MC1 0	MC9/ 10	H7	OV 23	OV 25	OV 27
<i>Dactylorhiza purpurella</i>	northern marsh orchid			O	O-F			p	p
<i>Digitalis purpurea</i>	foxglove				LF				
<i>Euphrasia sp</i>	eyebright						p		
<i>Galium aparine</i>	goosegrass				p				p
<i>Galium verum</i>	lady's bedstraw				p				
<i>Helianthemum nummularia</i>	common rock-rose				LA	LA			
<i>Heraclium spondylium</i>	hogweed			p	LA			O	O
<i>Honkenkya peploides</i>	sea sandwort	O	O						
<i>Hypochaeris radicata</i>	cat's-ear						p		
<i>Lathyrus pratense</i>	meadow vetchling				p				
<i>Leontodon autumnalis</i>	autumn hawkbit			p					
<i>Ligustrum scotticum</i>	Scot's lovage		O		O				
<i>Lotus corniculatus</i>	bird's-foot trefoil				O-F				
<i>Medicago lupulina</i>	black medick				p				
<i>Plantago coronopus</i>	buck's-horn plantain				O				
<i>Plantago lanceolata</i>	ribwort plantain			p			F	p	p
<i>Plantago maritima</i>	sea plantain		O	p	O				
<i>Plantago media</i>	hoary plantain				p		p		
<i>Potentilla anserina</i>	silverweed	O	O	p					
<i>Potentilla erecta</i>	tormentil				p				
<i>Rhinanthus minor</i>	yellow-rattle				p				
<i>Rumex acetosa</i>	sheep's sorrel			p	p		p		

Species		NV Community							
Latin	English	SD 2	SD 4	MC1 0	MC9/ 10	H7	OV 23	OV 25	OV 27
<i>Rumex obtusifolia</i>	broad leaved dock				p				
<i>Senecio vulgaris</i>	ragwort				p			O	O
<i>Silene vulgaris</i>	bladder campion				p				
<i>Succisa pratense</i>	devil's-bit scabious				p				
<i>Taraxacum officinale</i>	dandelion		O		p				
<i>Trifolium pratense</i>	red clover				p				
<i>Trifolium repens</i>	white clover						p	p	p
<i>Tussilago farfar</i>	colt's foot		O	p	LA				
<i>Urtica dioica</i>	nettle							p	F