



Lochgair Natural & Historic Heritage Reserve Management Plan



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1 INTRODUCTION

This Management Plan (herein referred to as the ‘Plan’) details the proposed land management for the Lochgair Natural and Historic Heritage Reserve (herein referred to as the ‘site’) (Figure 1).

This Plan sets out in the following sections the:

- Habitat Management Area and Management Units;
- Aims, objectives and management prescriptions;
- Monitoring programme;
- Management and monitoring timetable.

The management recommendations within the Plan are based on the findings of a number of ecological surveys that have been conducted at the site. These include Phase 1 and National Vegetation Classification (NVC) surveys to determine the habitats on site, protected species surveys and peat depth surveys. These were conducted in October 2017.

2 FIELD AND DESK BASED SURVEYS

2.1 Ecology

A relatively small number of habitats account for the majority of the site (see Figures 1 and 2). Table 2.1.1 presents the area of each habitat type within the survey area.

Table 2.1.1, Habitat Abundance

Phase 1 Habitat Type	Area (ha)	%
Marsh/Marshy Grassland	28.01	53.94
Broad-Leaved Semi-Natural Woodland	6.52	12.56
Continuous Bracken	6.08	11.70
Wet Modified Bog	2.98	5.73
Blanket Bog	2.28	4.39
Broad-Leaved Plantation Woodland	1.44	2.78
Unimproved Acid Grassland	1.43	2.75
Dense Continuous Saltmarsh	1.04	2.00
Wet Dwarf Shrub Heath	0.68	1.31
Coniferous Plantation Woodland	0.50	0.97
Acid Neutral Flush	0.45	0.87
Dense/Continuous Scrub	0.44	0.85
Scattered Bracken	0.07	0.14
Total	51.93	100.00

The most common and widespread habitats are marshy grassland, broadleaved woodland, bracken and bog habitat.

There are areas of woodland and scrub scattered across the site, with larger islands present adjacent to the A83, and to the south and south-east of the site. Salt-marsh communities are present to the south of the site, along the shoreline.

Areas of peat were recorded to the west and centre of the site (see Figure 3). The peat in the centre of the site was approximately 1.5m in depth and increased to approximately 2m to 3m in depth moving west (see Figure 3). The deepest peat depth was recorded to the west of the site at a depth of 3.36m.

The protected species surveys (Figure 4 and 5) recorded trees and structures with potential for supporting roosting bats. These include 12 trees of high potential, four trees of moderate potential and one structure of high potential. A dead pine marten was found on the A83 which runs adjacent to the site, indicating that the species are using the habitats present in the area. A potential pine marten den was recorded in the south of the site. Two potential otter holts were recorded close to the shoreline. Five mammal holes were recorded during the survey, although it was not possible to confirm use given the lack of field signs. A common lizard was also sighted during the survey.

2.2 Historic

The site has a number of archaeological sites present. These include burial cairns and cup and ring marks. Figure 6, Table 2.2.1 and Plate 1 below outlines these features and their locations:

Table 2.2.1: Archaeological Features within the Site

Site Name	Feature Classification	Grid Reference
Pointhouse	Cairn (Period Unassigned)	NR 92583 89907
Pointhouse	Chambered Cairn (Neolithic)	NR 92494 89899
East Kames	Cup and Ring Marked Stone (Prehistoric)	NR 92172 89762
East Kames	Cup and Ring Marked Stone (Prehistoric)	NR 92102 89607
Dun Mor, East Kames	Natural Feature (period Unknown)	NR 92076 89544

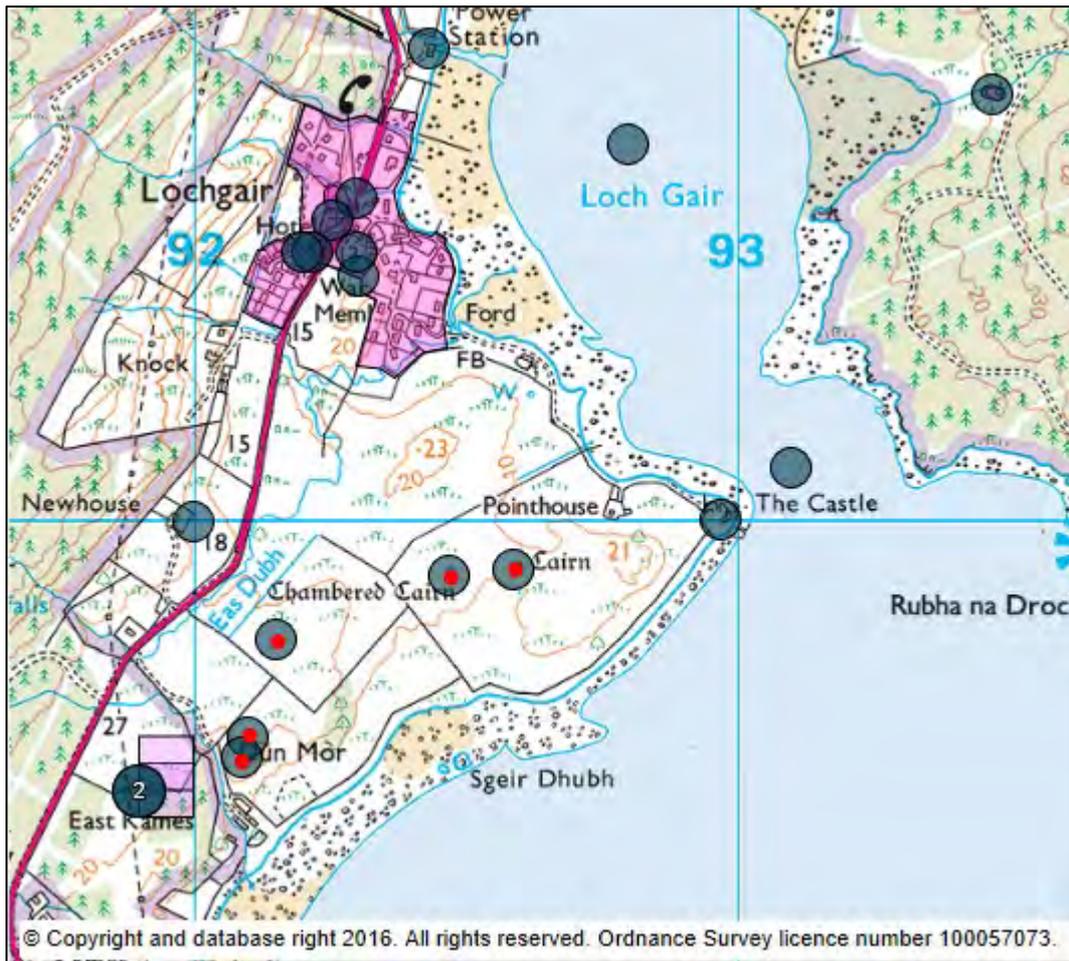


Plate 1: Map of Archaeological Features within the Site (marked with red). Source: Canmore, 2019.

3 HABITAT MANAGEMENT UNITS

The Plan comprises five management units within the site (Figure 6), within which management and monitoring works will be implemented.

3.1 Management Unit A – Existing Native Woodland

Management Unit A comprises the area of native woodland habitats which is already existing within the site. These areas are located to the west of the site, adjacent to the A83, as well as to the south and south-east. The woodland is predominantly made up of oak (*Quercus* spp.) and birch (*Betula* spp.) species in these areas. The aim within Management Unit A will be focussed on improving the natural regeneration rates within the woodland and removing invasive species.

3.2 Management Unit B1 and B2 – New Native Woodland

Management Unit B comprises the area of new native woodland that is proposed for the site. This management unit is split into B1 and B2, which will relate to areas of dry native woodland and wet native woodland respectively. The wet native woodland areas will be planted with species including birch species (*Betula*), alder (*Alnus glutinosa*) and willow species (*Salix* spp.). The dry native woodland areas will be planted with species including sessile oak (*Quercus petraea*), birch species, aspen (*Populus tremula*), Scots pine (*Pinus sylvestris*), wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and holly (*Ilex aquifolium*). As well as planting within Management Units B1 and B2, the aim will also be to link these areas with those in Management Unit A to improve connectivity between habitats.

3.3 Management Unit C – Mire Habitat

Management Unit C comprises the areas of mire habitat present within the site. The areas of mire within the site are currently considered to be in unfavourable condition due to deer browsing and encroachment by Sitka spruce (*Picea sitchensis*) and rhododendrons (*Rhododendron ponticum*).

Within Unit C, the aim is to enhance the mire, via the removal of Rhododendron and Sitka spruce removal of deer from the site.

3.4 Management Unit D – Burial Cairns and Cup and Ring Marks

Management Unit D encompasses the area within which the burial cairns and cup and ring marks are located (see Section 2.2 for further information).

3.5 Management Unit E – Public Access

Management Unit E comprises the proposed route for a path to be created across the site for the use of the local communities of Lochgair and East Kames. This route has been designed into the woodland creation plan.

To allow the path to be installed, it is hoped that the local community can source funding from A'Chruach wind farm's community fund.

4 AIMS, OBJECTIVES AND MANAGEMENT PRESCRIPTIONS

The Aims define the general Plan's goals and the related Objectives further define the Aims into quantifiable targets. The Prescriptions detail the management works to be implemented to achieve these Aims and Objectives. Annex 1 provides an indicative timetable for the implementation of the various prescriptions.

4.1 Management Unit A – Existing Native Woodland

Aim 1: Maintain and enhance 7.84 ha of existing native woodland within Management Unit A.

- | | |
|-------------------|---|
| Objective 1.1) | Encourage the natural regeneration of the existing native woodland from baseline levels. |
| Prescription 1.1) | Construct deer fencing around the proximity of the native woodland to protect it from grazing pressures. |
| Prescription 1.2) | Manage deer densities to allow successful regeneration of native woodland. |
| Prescription 1.3) | Removal of <i>Rhododendron</i> from the native woodland stands to encourage regeneration of trees and shrubs and help to prevent suppression of ground flora. |
| Prescription 1.4) | Control bracken within the areas of native woodland. |
| Prescription 1.5) | Install a range of bird (passerine and owl), bat and pine marten boxes to enhance nesting and denning habitat. |

4.2 Management Unit B1 and B2 – New Native Woodland

Aim 2: Create 18.95 ha of new native woodland within Management Unit B1 (dry) and B2 (wet), incorporating links to existing native woodland areas (Management Unit A).

- | | |
|-------------------|---|
| Objective 2.1) | Plant and establish 29,700 native trees in appropriate locations within Management Units B1 and B2, creating links to existing woodland habitats. |
| Prescription 2.1) | As per prescription 1.2 above. |
| Prescription 2.2) | As per prescription 1.3 above. |
| Prescription 2.3) | As per prescription 1.4 above. |

4.3 Management Unit C – Mire Habitat

Aim 3: Maintain and enhance 5.91 ha mire habitat present within Management Unit C.

- Objective 3.1) Maintain and enhance the mire habitat
- Prescription 3.1) Removal of *Rhododendron* and Sitka spruce to encourage enhancement of mire habitat.
- Prescription 3.2) Manage deer densities to allow diverse bog communities to develop.

4.4 Management Unit D – Burial Cairns, and Cup and Ring Marks

Aim 4: Maintain cultural heritage of the burial cairns and cup and ring marks within Management Unit D.

- Objective 4.1) Improve the areas within the immediate vicinity of the historic features, through vegetation removal and making their presence aware to any works being conducted on site to prevent damage.
- Prescription 4.1) Removal of the *Rhododendron* which is encroaching over the heritage features.
- Prescription 4.2) Avoidance of damaging operations being conducted within the vicinity of the heritage features to ensure they are conserved.

5 MONITORING

5.1 Existing and New Native Woodland

Carbon stocks with management unit B (woodland creation area) will be managed in accordance with the woodland carbon code methodology in years 5 and 15¹.

A monitoring programme to monitor biodiversity (species richness) within management units A and B. It is likely this will employ the Shanon-Weaver index or similar methodology².

5.2 Mire Habitat

A sample of 20 fixed point 1m² quadrats will be established to monitor improvements in blanket bog condition. Indicators of reduced grazing pressure such as higher % cover of dwarf shrubs will be recorded.

5.3 Burial Cairns and Cup and Ring Marks

These sites will be monitored approximately every 5 years, and any colonising invasive species removed, or excessive bracken grown controlled.

¹https://www.woodlandcarboncode.org.uk/images/PDFs/WCC_Year5_SurveyProtocol_Version2.o_o8March2018.pdf

² https://en.wikipedia.org/wiki/Diversity_index

6 REFERENCES

Canmore (2019). Map Search. Available at:

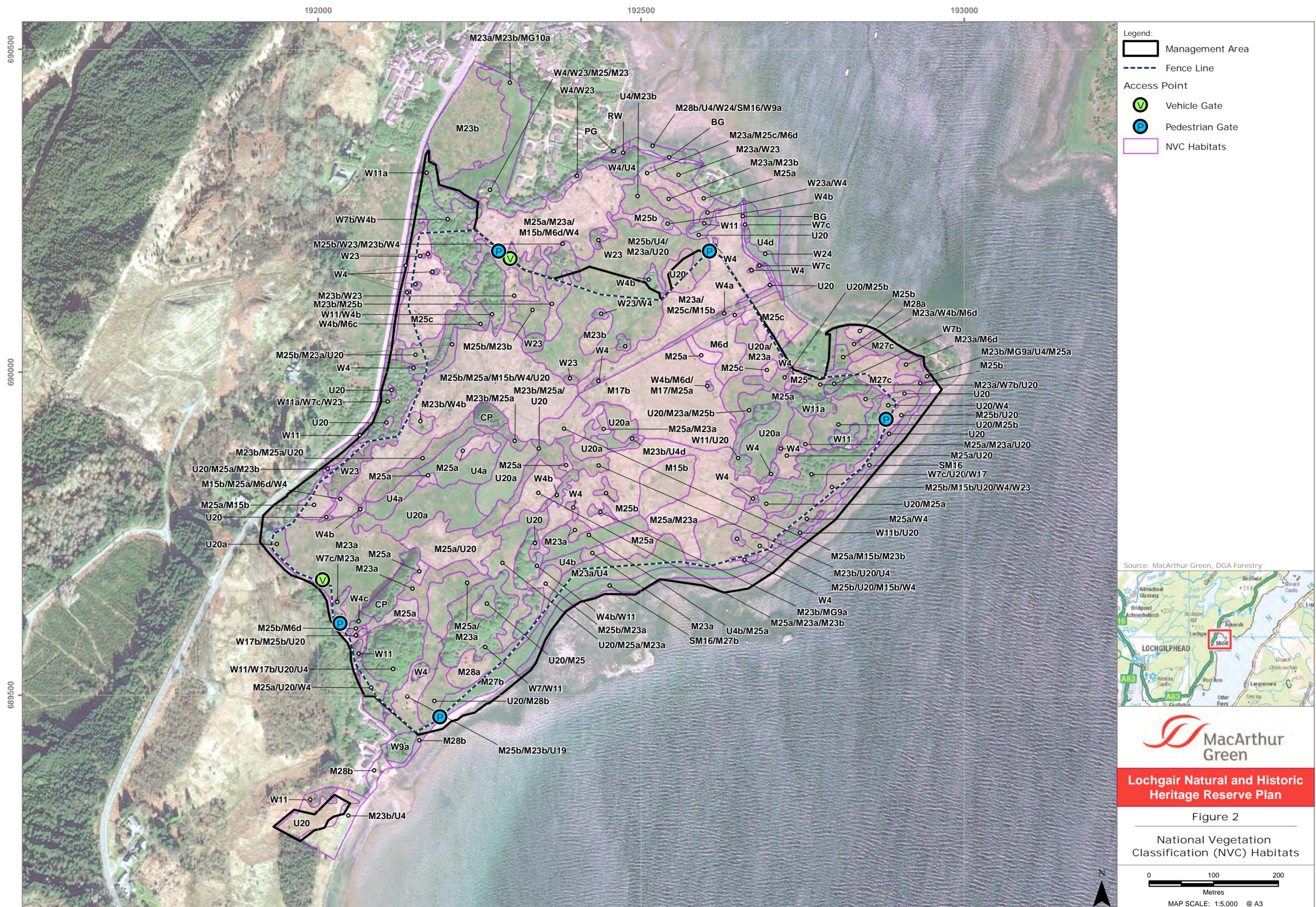
<https://canmore.org.uk/site/search/result?SITECOUNTRY=0&view=map>

Woodland Carbon Code (08 March 2018) Survey Protocol for WCC projects at year 5 Version 2.0

ANNEX 1. MANAGEMENT AND MONITORING TIMETABLE

Activity	Year														
	1*	2	3	4	5	6	7	8	9	10	11	12	13	14	15...
Deer fencing	✓														
Deer management (All units)	✓	✓													
Tree planting and beat up (Unit B1 and B2)	✓	✓	✓	✓	✓	✓									
Bracken management (Units A, B, D)	✓	✓	✓	✓	✓	✓									
Removal of Invasive (Units A, B, C and D)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bird, Bat and Pine Marten Box Installation & Maintenance (Unit A and Conifer blocks)	✓				✓					✓					✓
Carbon Stock Monitoring				✓											✓
Cairns and Cup and Ring Locations (Unit D)	✓				✓					✓					✓
Habitat Monitoring – Mire (Unit C)		✓				✓					✓				✓
Habitat Monitoring – Woodland (A and B)		✓				✓					✓				✓

* Year 1 = 2019

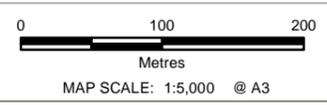


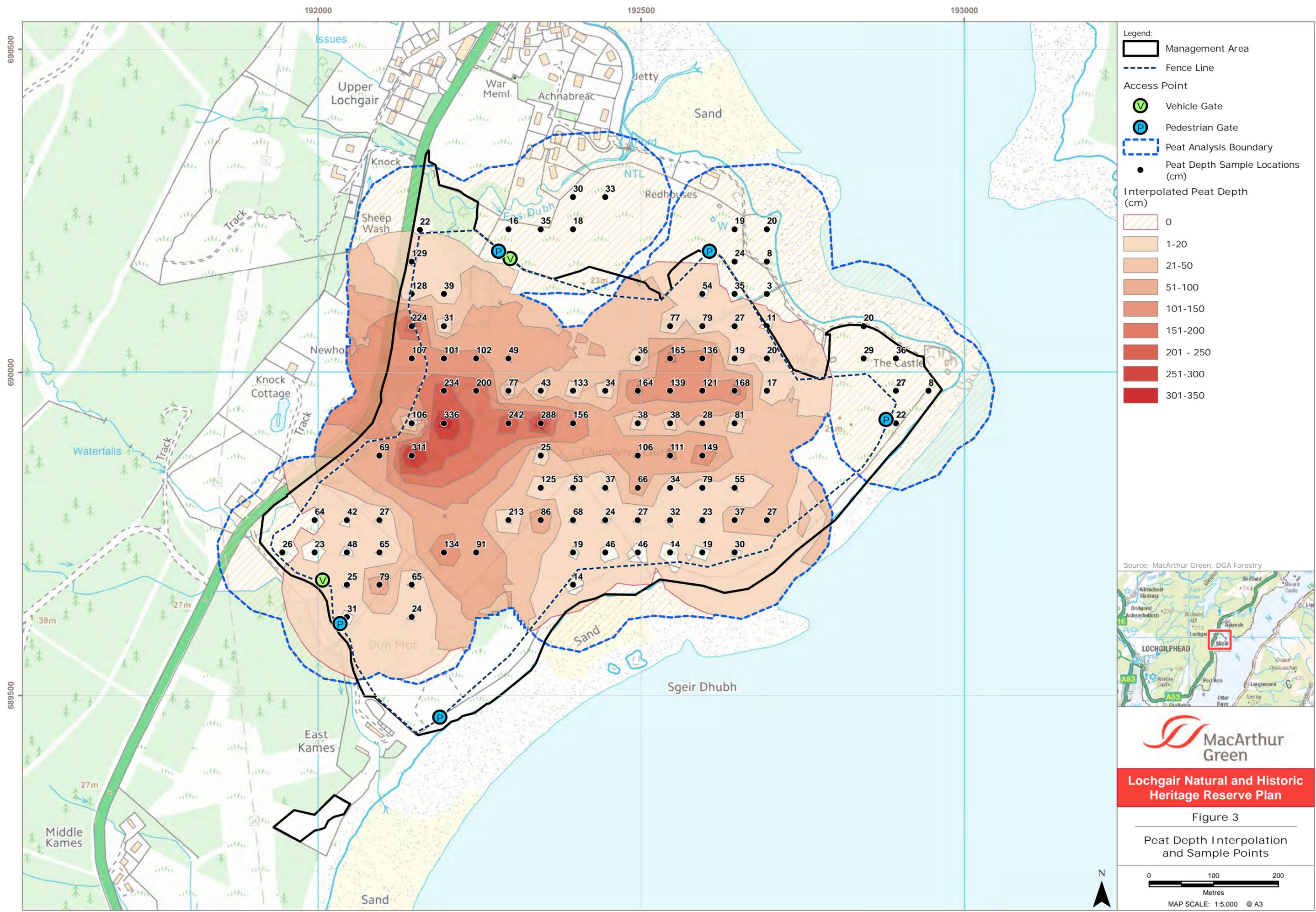
- Legend:
- Management Area
 - Fence Line
- Access Point
- Vehicle Gate
 - Pedestrian Gate
 - NVC Habitats



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Figure 2
National Vegetation Classification (NVC) Habitats





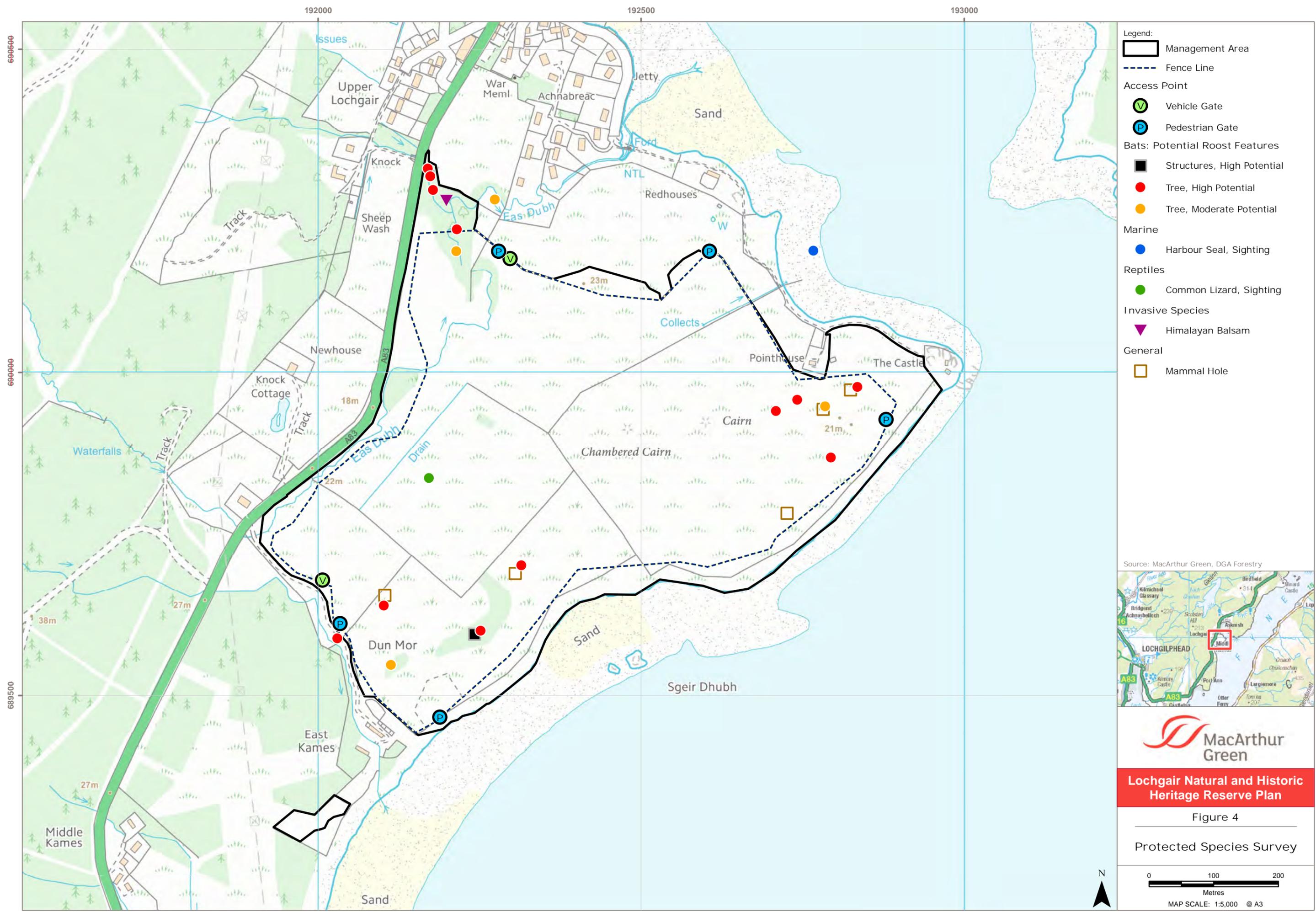
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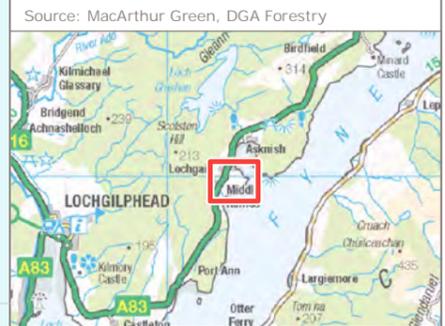
Figure 3

Peat Depth Interpolation and Sample Points

0 100 200 Metres
MAP SCALE: 1:5,000 @ A3



- Legend:
- Management Area
 - Fence Line
 - Access Point
 - Vehicle Gate
 - Pedestrian Gate
 - Bats: Potential Roost Features
 - Structures, High Potential
 - Tree, High Potential
 - Tree, Moderate Potential
 - Marine
 - Harbour Seal, Sighting
 - Reptiles
 - Common Lizard, Sighting
 - Invasive Species
 - ▼ Himalayan Balsam
 - General
 - Mammal Hole



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Figure 4

Protected Species Survey

0 100 200
Metres
MAP SCALE: 1:5,000 @ A3

Figure 5 removed (confidential)

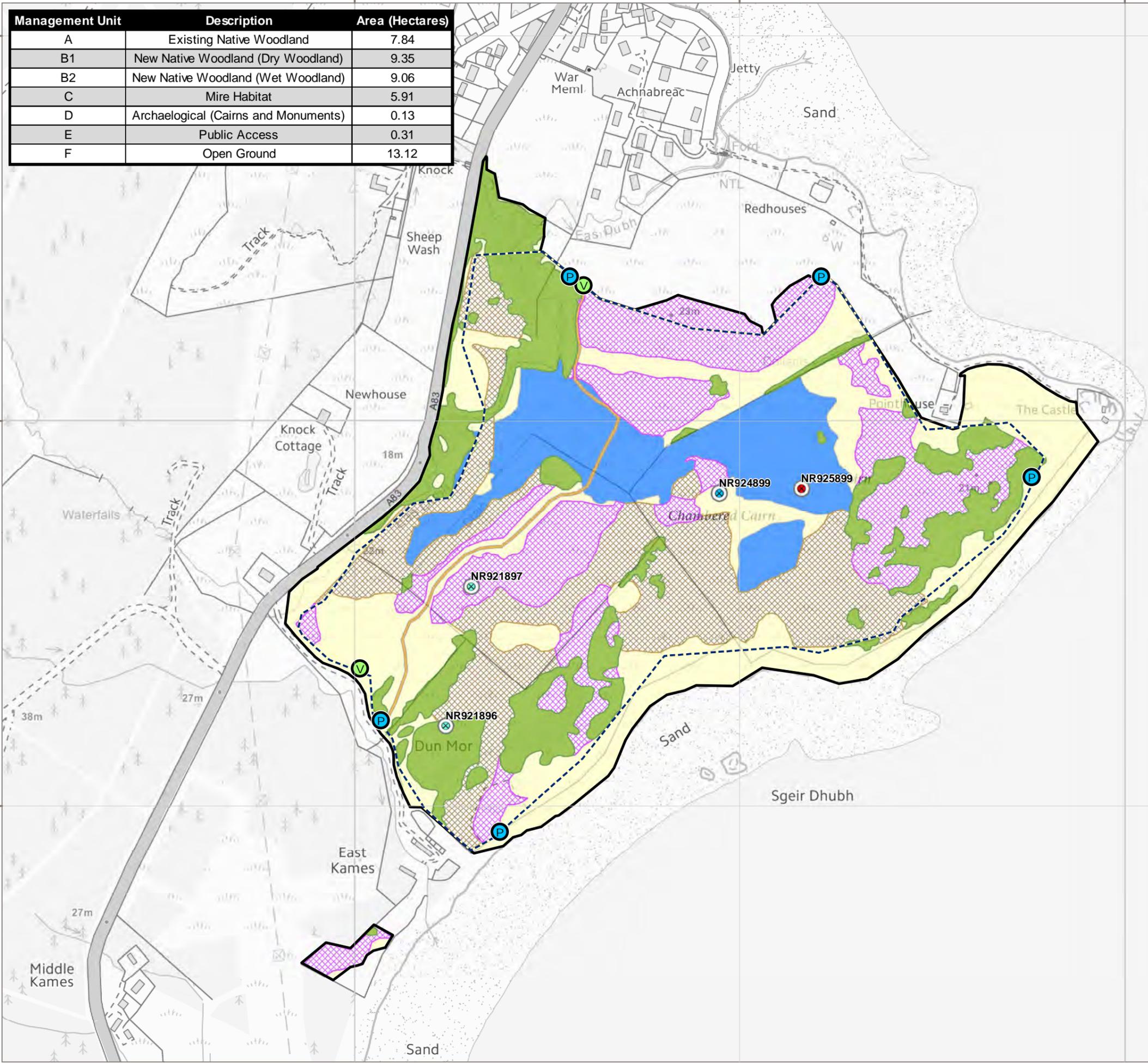
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Management Unit	Description	Area (Hectares)
A	Existing Native Woodland	7.84
B1	New Native Woodland (Dry Woodland)	9.35
B2	New Native Woodland (Wet Woodland)	9.06
C	Mire Habitat	5.91
D	Archaeological (Cairns and Monuments)	0.13
E	Public Access	0.31
F	Open Ground	13.12



Legend:

- Management Area
- Fence Line
- Access Point
 - Vehicle Gate
 - Pedestrian Gate
- Management Unit
 - A
 - B1
 - B2
 - C
 - D
 - E
 - F



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Figure 6

Management Units

MAP SCALE: 1:5,000 @ A3

Map Author: LNF Checked: DM Approved: DM Status: Rev1
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