Natural England Commissioned Report NECR141

New Forest SSSI Ecohydrological Survey Overview

Annex L: Long Beech

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Contents

1 Long Beech

1.1 Introduction

This Ecohydrological Assessment Area (EcoHAA) covers 43.6 ha and is contained within SSSI Unit 112 with its centre at National Grid Reference (NGR) 425368, 112487 (see Figure 1-1).

Figure 1-1: Location Map

This site occupies a valley side. Within the main valley side are two small incised valleys which intersect the plateau river terrace gravels. Two flushed dominated wetlands have formed in these incised valleys supplied by water from the river terrace gravels.

Table 1-1: Long Beech Ecohydrological Assessment Area Summary Table

Eco-hydrological Assessment Area		**M**
Name		Long Beech
Relative Geomorphology Assessment		
Size (ha)		43.6
SSSI Units		112
Valley Side Wetland	Present	Y
	Wetland Type	Flush Dominated Wetland
	Main Source of water	Seepage from River terrace Gravels and associated head deposits at join with Barton Clay (aquitard)
	Indicative NVC communities	M21a, M9a, M23, MG6
	Wetland Types	Mire, Wet Grassland

	Drainage Damage	N
	Scrub/Tree Encroachment Damage	Y (Minor)
	Poaching and Grazing Pressures Damage	Y (Minor)
Valley Basin Wetland	Present	Y
	Wetland Type	Flush Dominated Wetland
	Main Source of water	Seepage from River terrace Gravels and associated head deposits
	Indicative NVC communities	M21a, M29, M23a, M24c
	Wetland Types	Mire
	Drainage	Y (moderate)
	Scrub/Tree Encroachment Damage	N
	Poaching and Grazing Pressures	N
Additional Comments		Intersection of valley side with River Terrace head deposit only occurs in narrow sections which limits the distribution of the wetlands into two small areas which cut into the plateau. Valley basin mires narrow and steep - they are drained once they enter the woodland and disappear

The SSSI unit is classified as a Mire Transition unit. A Geomorphological unit survey report has been produced for the unit. Although the site is described as a transition site there is not a continuum between the small mires in the east of the site and the stream which was the focus of the geomorphological survey, as they are separated by an area of woodland from each other. As a result there is limited cross over between the two surveys.

It should be noted that although this is a standalone report, it is strongly reliant upon the background information provided in section 3 of the JBA (2013) Ecohydrology Survey Overview report, which provides general geology, ecology, hydrogeology, wetland mechanisms and restoration information for the New Forest wetlands surveyed. At the end of the report is a series of maps which support the assessment and indicate the spatial distribution of the features described.

1.2 Topography and Wetland Distribution

The site occupies the eastern side of a plateau. The wetlands in the site are limited to two small narrow incision valleys high up the main valley side. Within these wetlands there is some peat accumulation (Figure 1-2). These wetlands stop abruptly as they enter the woodland that occupies the lower slopes as water is channelled into drains. These drains appear stable (i.e. no headward erosion) so the extent of the valley side wetlands is not reducing.

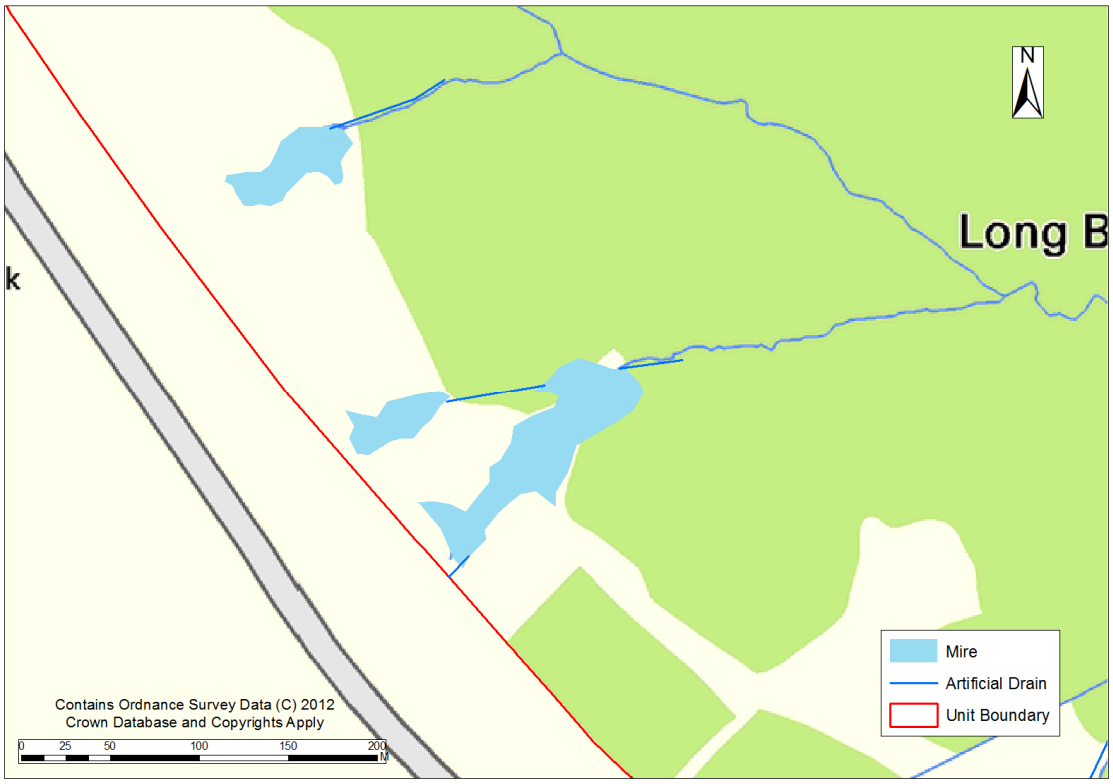
Figure 1-2: Northern Mire at Long Beech - the slight dome indicates the build up of peat deposits (NGR 424960, 112525)

1.3 Ecology

The unit sits to the east of the Stony Cross plain and the WWII airfield. For the most part the unit is extensively planted woodland with large Beeches *Fagus sylvatica*, Pines *Pinus sylvestris* and Holly *Ilex aquifolium* as a sub-canopy tree. The mire vegetation is restricted to a number of small seepage faces above (to the northeast) the Inclosure boundary. Once within the woodland (downstream), the nature of the seepages change, entering deeply incised streams, surrounded on all sides by high forest habitat.

The grassland across the top of the slope is very closely-cropped by grazing animals, ponies and cattle and there is a scalloped edge to the woodland, where trees have developed on the drier ridges above the wetter swales. There are three main mires within these swales between the wooded spurs. The central mire drains into a woodland block, where a ditch then carries the water into a corner of the southernmost mire from whence it flows eastwards into the Coalmeer Gutter.

Figure 1-3 Long Beech mires



These three mire areas are broadly similar in character, with both M23a (*Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus acutiflorus* sub-community) and M24c (*Molinia caerulea-Cirsium dissectum* fen-meadow, *Juncus acutiflorus-Erica tetralix* sub-community) NVC communities surrounding wetter areas of M21a (*Narthecium ossifragum-Sphagnum papillosum* valley mire, *Rhynchospora alba-Sphagnum auriculatum* sub-community). Surface drainage is mostly unrestrained, except towards the base of the slopes, where defined M29 (*Hypericum elodes-Potamogeton polygonifolius* soakway) shallow channels begin to develop. The southernmost mire has an in-flow stream entering via a pipe. It is assumed that this pipe dates from the airfield construction. Despite this input this mire retains a natural appearance and the water quickly spreads across the mire surface within 2-3 metres of the outlet.

All of the mires are grazed and this, along with their wet nature, has kept them open whereas the surrounding spurs have colonising trees and shrubs on them covering what were heathland and grassland habitats in the recent past. Any increase in drainage here, if combined with a decrease in the grazing intensity, will encourage colonisation of the mires and associated species rich wet grassland lawns by woody shrubs and trees.

1.4 Geology and Hydrogeology

Table 1-2 shows the geology at Long Beech. River Terrace Deposits or head (from river terrace gravels) are intersected along the ridge by two narrow incision valleys. Underlying this is the Barton Clay, which forms the valley sides.

Table 1-2: Geology and Hydrogeology

Age	Group	Formation - member	Description	Thickness	Hydrogeological Role	Water Resources
Quaternary		Alluvium		Up to 10 m	Aquifer / Aquitard	Yields from alluvium and terrace gravels are often

						obtained from the adjacent rivers.
		River terrace deposits	CLAY, SILT, SAND and GRAVEL.		Aquifer / Aquitard - Spring lines may be present at the base of high level river terraces.	
Tertiary (Eocene)	Barton Group	Barton Clay Formation	Greenish grey to olive grey, glauconitic CLAY; may contain fine-grained sand and shells (mainly bivalves and gastropods).	26 – 80 m	Aquitard	Little useable groundwater

Local BGS borehole logs (available at http://www.bgs.ac.uk/GeoIndex/) describe the River Terrace Deposits as gravel or sandy gravel (likely to be relatively permeable and to act as an aquifer) and the Barton Clay as a blue-green laminated silty clay (likely to act as an aquitard).

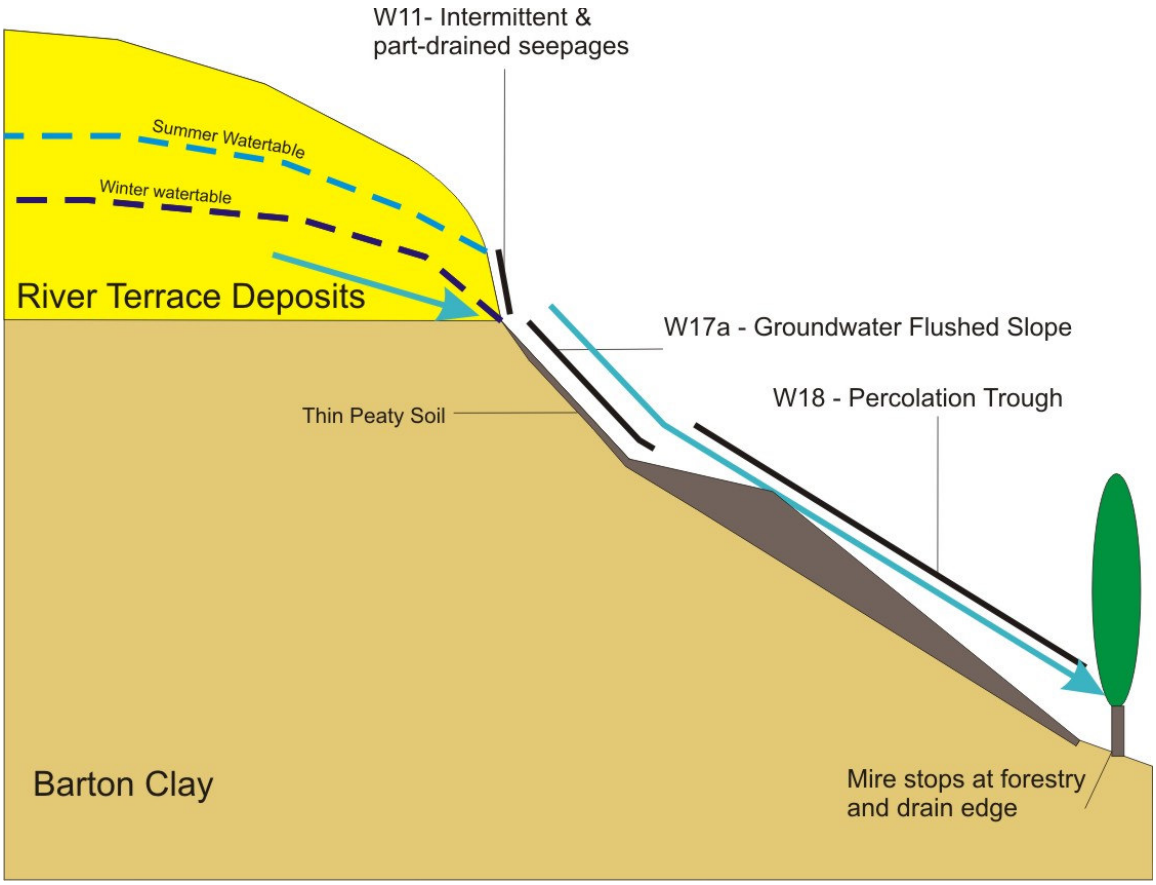
1.5 Water Supply Mechanisms

The wetlands on site are flush dominated (see Figure 1-4). They receive water from a seepage face at the junction between river terrace deposits or head deposits (aquifer) and the underlying Barton Clay (aquitard). The water runs over the surface of the low permeability Barton Clay, forming narrow flushed slopes. Their limited lateral extent over the valley side could be due to the River Terrace Gravels (and head) wedging out before it reaches the valley sides. The only two places where this does not occur are where the two incision valleys have eroded into the River Terrace Gravels (and head).

The calcicole species present in these seepage faces are likely to be supported from base-rich nutrients from the Barton Clay. This input is unlikely to be from groundwater input but from the soils that formed on the Barton Clay, or a shallow upper weathered layer.

On this site there is not a clear distinction between valley side and valley bottom wetlands. The incision valleys have bottoms, however they are narrow and steep and form part of a wider slope. There are however some peat deposits forming in these valley bottom areas.

Figure 1-4: Conceptual Model Diagram



1.5.1 WETMECS identified

WETMECs are ecohydrological classifications of how water can be supplied to a wetland to create distinguishable habitats WETMECS were developed in partnership between the Wetland Research Group at the University of Sheffield, the Environment Agency, English Nature (now Natural England) and Countryside Council for Wales (now Natural Resources Wales). For each Ecohydrological Assessment Area WETMECS have been identified.

The WETMECS identified include:

Valley side wetlands - W17a with small areas of W11 above.

Valley bottom basins - W18 surrounded by W19.

1.6 Damage and Restoration

1.6.1 Damage

There are no areas of significant hydrological damage. The drains that occur at the bottom of the mires, at the forestry boundary, show no evidence of headward erosion and thus the current extent of the mires appears to be stable.

Outside of the Inclosure woodland the mires appear to be broadly undamaged. Grazing pressures are most evident higher up the slope where dry lawns are extremely tightly-grazed. However the availability of good grazing outside of the mire area restricts the disturbance to the mire themselves considerably.

1.7 Monitoring requirements

1.7.1 Water Monitoring

The site contains flush dominated wetlands with thin peats - groundwater monitoring is unlikely to be appropriate for such a site.

1.7.2 Vegetation

Overall mire surfaces should be subject to monitoring to ensure no loss of extent through encroachment by other vegetation. The isolated nature of these mires could allow tree development to have a significant impact on overall size.

Table 1-3: Monitoring Requirements

Eco-hydrological Assessment Area	SSSI Units	Site Names	Requirements for monitoring: ecology	Requirements for monitoring: hydrology (number of installations estimated)
M	112	Long Beech	Fixed point camera survey Fixed point quadrat survey	Flush dominated wetland – little peat – no monitoring recommended

2 Maps

Map 1: Location

Map 2: Aerial Photography

Map 3: Topography, Hydrology and Wetland Distribution

Map 4: Phase One Habitat

Map 5: Drift Geology

Map 6: Bedrock Geology

Map 7: Eco-Hydrology Map

Map 8: Restoration Plan

LEGEND

Ecohydrological Assessment Area

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MAP 1

Site Location

North

220 110 0 220 Metres

Scale 1:4,357

LEGEND

Ecohydrological Assessment Area

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MAP 2

Aerial Photography

North

LEGEND

Ecohydrological Assessment Area

Seepage face

Drainage

Valley Bottom Wetland

Valley Side Wetland

LIDAR

mAOD

High : 65

Low : 115

240 120 0 240 Metres

Scale 1:4,357

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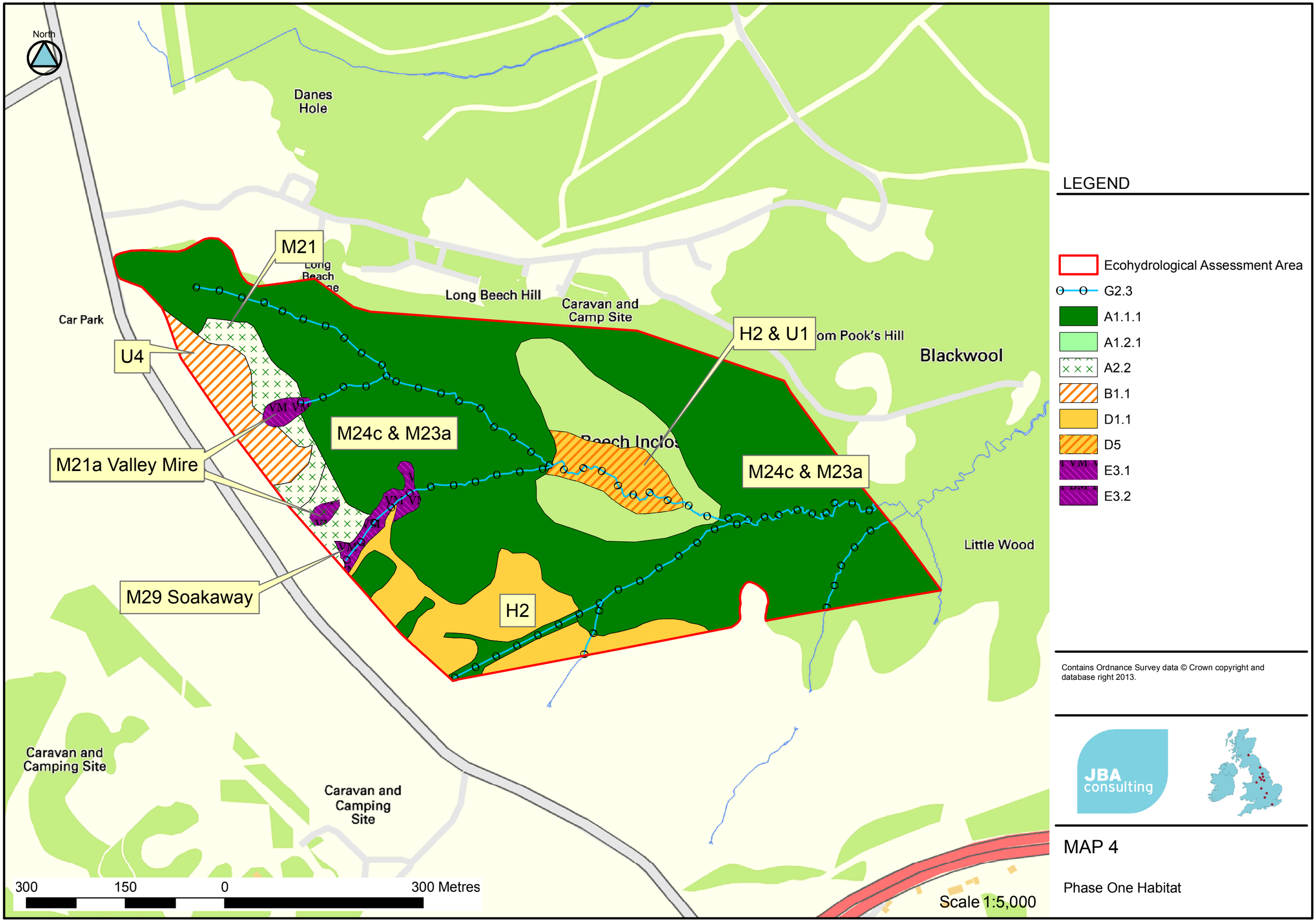
MAP 3

Topography, Hydrology and Wetland Distribution


North
Danes Hole
M21
Long Beach Hill
Caravan and Camp Site
Car Park
U4
H2 & U1
Blackwool
M24c & M23a
M21a Valley Mire
M24c & M23a
Little Wood
M29 Soakaway
H2
Caravan and Camping Site
Caravan and Camping Site
300 150 0 300 Metres
Scale 1:5,000
LEGEND
Ecohydrological Assessment Area
G2.3
A1.1.1
A1.2.1
A2.2
B1.1
D1.1
D5
E3.1
E3.2
Contains Ordnance Survey data © Crown copyright and database right 2013.
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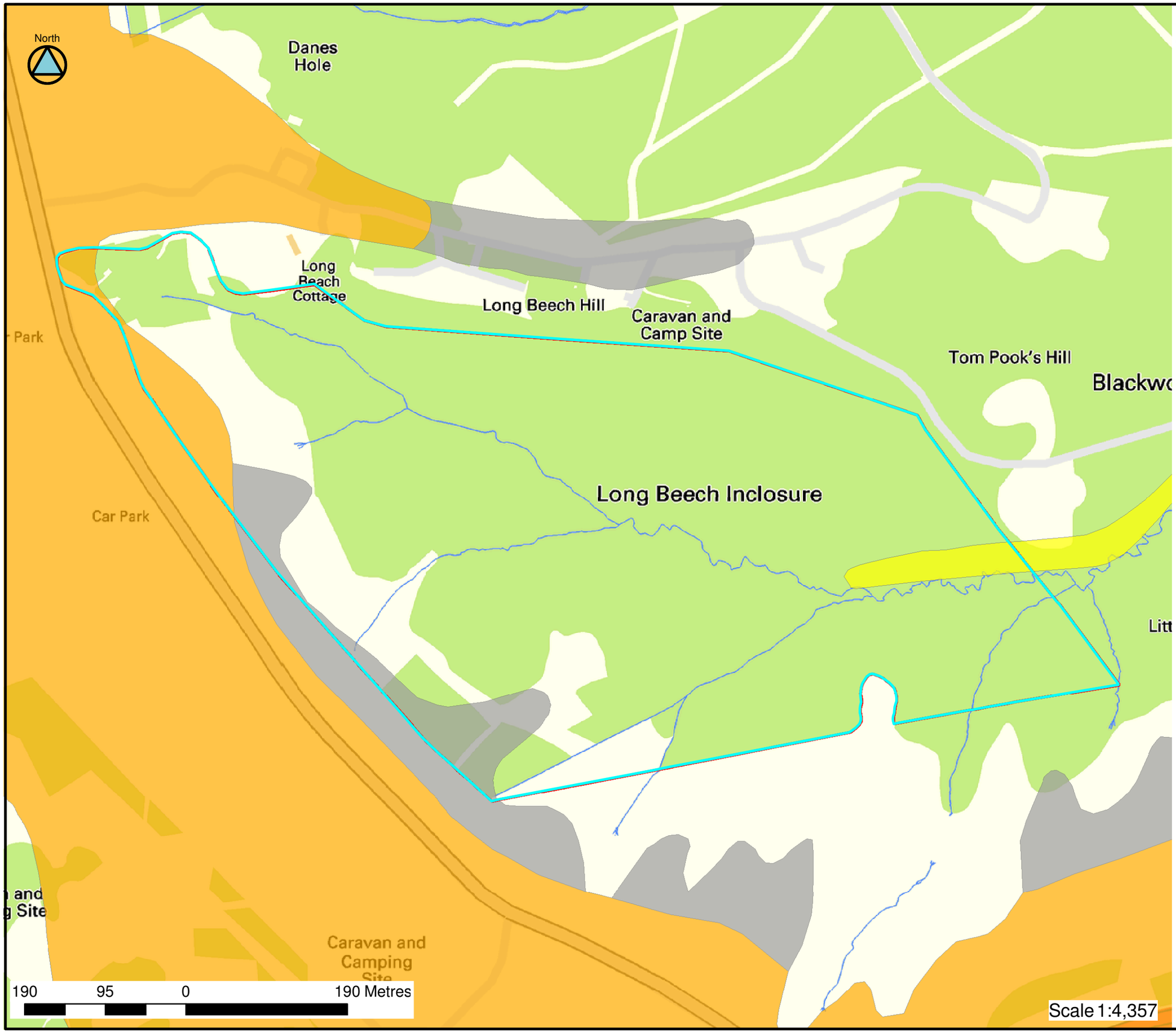
MAP 4
Phase One Habitat



LEGEND

- Ecohydrological Assessment Area
- No Drift
- Other Deposits
- Alluvium - Clay, Silt, Sand and Grave
- Head - Clay, Silt, Sand and Gravel
- Head - Gravel, Sand, Silt and Clay
- Head - Silty Clay
- Head - Gravelly Sand
- Peat
- River Terrace Deposits - Clay and Silt
- River Terrace Deposits - Sand and Gravel
- River Terrace Deposits - Sand, Silt and Clay

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MAP 5

Drift Geology

North

Danes Hole

SELSEY SAND FORMATION - SAND, SILT AND CLAY

Long Beach Cottage

Long Beech Hill

Caravan and Camp Site

Tom Pook's Hill

Park

Long Beech Inclosure

BARTON CLAY FORMATION - CLAY

Car Park

Caravan and Camping Site

CHAMA SAND FORMATION - SAND, SILT AND CLAY

190 95 0 190 Metres

Scale 1:4,357

LEGEND

- Ecohydrological Assessment Area
- Other Rock Types
- Headon and Osbourne Beds - Clay, Silt and Sand
- Headon Formation - Clay, Silt and Sand
- Lyndhurst Member - Sand, Silt and Clay
- Becton Sand Formation - Sand
- Becton and Chama Sand Formation - Sand, Silt and Clay
- Becton Bunny Member - Clay
- Chama Sand Formation - Sand
- Chama Sand Formation - Sand, Silt and Clay
- Chama Sand Formation - Silty Clay
- Barton Clay Formation - Clay
- Barton Clay Formation - Sand
- Selsey Sand Formation - Sand, Silt and Clay
- Marsh Farm Formation - Clay, Silt and Sand
- Poole Formation - Sand, Silt and Clay
- London Clay Formation - Clay, Silt and Sand

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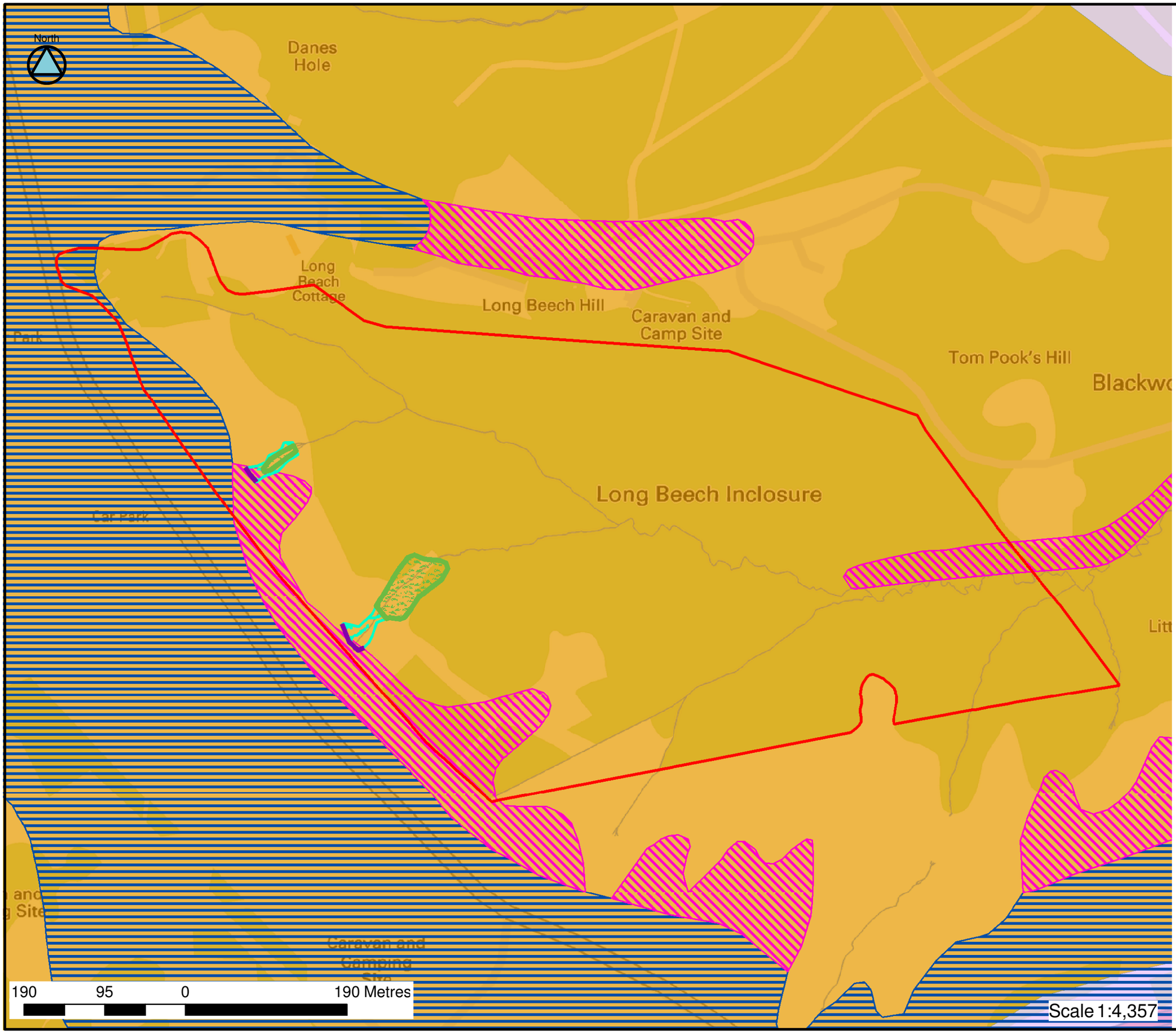
MAP 6

Bedrock Geology



LEGEND

- Ecohydrological Assessment Area
- Seepage face
- Drainage
- Valley Bottom Wetland
- Valley Side Wetland

Drift Hydrogeology

- Aquifer
- Aquifer/Aquitard
- Aquitard

Bedrock Hydrogeology

- Aquifer
- Aquifer/Aquitard
- Aquitard

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MAP 7

Eco-hydrology

North

Danes Hole

Long Beach Cottage

Long Beech Hill

Caravan and Camp Site

Tom Pook's Hill

Blackwo

Park

Long Beech Inclosure

Car Park

Litt

and Site

Caravan and Camping Site

240 120 0 240 Metres

Scale 1:4,357

LEGEND

- Ecohydrological Assessment Area
- Drainage
- Restoration Areas

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MAP 8

Restoration Plan