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Latchmore Wetland Restoration

Environmental Impact Assessment: Scoping Report

Final

Prepared on behalf of the Forestry Commission by LUC

in association with Cascade Consulting, Oxford Archaeology, Transport Planning Associates, Footprint Ecology, Turnpenny Horsfield Associates and Hampshire and Isle of Wight Wildlife Trust.

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1 Introduction

Background to the Project

1.1 This Scoping Report has been prepared by LUC on behalf of the Forestry Commission (Forest Enterprise England). It sets out the proposed methodology for undertaking an Environmental Impact Assessment (EIA) of a proposed wetland restoration known as the Latchmore Wetland Restoration project. The site of the proposed restoration works is located in the northwest of New Forest National Park, near the villages of Hyde and Frogham. The location of Latchmore Brook catchment is shown on **Figure 1.1**.

1.2 The restoration works are being proposed by the Forestry Commission (FC) because the Latchmore Brook was artificially deepened and widened in the early 20th century. This in turn is adversely affecting the ecology of the catchment. As a result many of the Sites of Special Scientific Interest (SSSIs) units in the catchment are currently classed by Natural England as being in an 'unfavourable recovering condition'[1]. The FC has a legal responsibility under the EU Habitats Directive/ Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) to restore habitats in a SAC/ SSSI where the habitat has been assessed by Natural England as being in an unfavourable condition.

1.3 A request for an EIA screening opinion was submitted to the New Forest National Park Authority (NFNPA). The requirement for an EIA was not deemed necessary by the NFNPA, who gave a negative screening opinion. However, Natural England requested that an EIA was undertaken. The FC is therefore volunteering an EIA for the proposed restoration scheme.

1.4 This formal request for a scoping opinion is made in accordance with The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2011 (hereafter referred to as the EIA Regulations).

The Applicant

1.5 The Forestry Commission (Forest Enterprise England, FEE) manages the nation's forest estate to provide environmental, social and economic benefits. FEE is an executive agency of the Forestry Commission (FC). The Forestry Commission (FC) is the government department responsible for protecting, expanding and promoting the sustainable management of woodland and increasing their value to society and the environment. They manage the Crown Lands in the New Forest.

1.6 The Forestry Commission is a partner in the New Forest Higher Level Stewardship (HLS) Scheme, which is managed through a formal partnership between the New Forest Verderers, the Forestry Commission and the NFNPA. The New Forest HLS is England's largest agri-environment scheme designed to restore and enhance the internationally-important habitats in the New Forest. The Scheme funds:

- the maintenance and restoration of internationally-important habitats for wildlife;
- the historic practice of commoning, which maintains the unique New Forest landscape;
- work to identify and maintain historic sites improve their protection;
- improved access to and education about the area's unique environment.

[1] Further details on the definition of 'unfavourable recovering' is provided in Chapter 2 of this Scoping Report.

1.7 One of the key objectives of the New Forest HLS Scheme is wetland restoration; to safeguard an area that is recognised as being of outstanding importance for nature conservation in both the UK and Europe due to the size, quality and complex mosaic of habitats. The Latchmore Wetland Restoration is being funded by the New Forest HLS Scheme and by FC core funding.

Purpose of the Scoping Report

1.8 In accordance with the EIA Regulations, this report provides information in relation to a formal request to the New Forest National Park Authority (NFNPA) for a Scoping Opinion.

1.9 The aim of this report is to:

- Outline the location and setting of the wetland restoration project.
- Describe the nature of the proposals.
- Identify the potential environmental effects.
- Describe the studies that will be undertaken as part of the detailed EIA, and subsequently to be reported in an Environmental Statement (ES).

1.10 An outline is also given of the methodology that will be employed to assess the significance of effects for each environmental topic considered.

Nature and Purpose of EIA

1.11 EIA is the process of compiling, evaluating and presenting all the significant environmental effects of a proposed development, to assist the determining authority in considering the application. The information compiled during the EIA is presented within an ES. Early detection of potentially adverse environmental effects can aid the identification and incorporation of appropriate avoidance and/or mitigation measures into the project design.

1.12 The EIA will be conducted in accordance with current Government regulations, policy and guidance, including:

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2011.
- National Planning Policy Framework (March 2012).
- National Planning Practice Guidance (March 2014)[2].
- *Institute of Environmental Management and Assessment* (2004) Guidelines for Environmental Impact Assessment (IEMA Guidelines).

Responsibilities for the ES

1.13 This Scoping Report has been compiled by LUC on behalf of FC with inputs from topic specialist sub-consultants. Whilst LUC will have overall responsibility for the ES, various sub-consultants will undertake specialist assessments where necessary. All are experienced professionals in their fields of expertise including:

- Cascade Consulting (hydrology; macro-invertebrate; otters; and river habitat survey).
- Footprint Ecology (breeding birds and overwintering birds).
- Turnpenny Horsfield Associates Ltd (fish).
- Hampshire and Isle of Wight Wildlife Trust (odonata).
- Oxford Archaeology (archaeology).

[2] See: http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/

- Transport Planning Associates (transport).

1.14 LUC will produce the Introductory chapters, Summary and Conclusions chapter and the chapters on: Planning Policy; Ecology (with input from relevant sub-consultants); and Land Use, Landscape and Recreation.

1.15 LUC is a registered practitioner with the Institute of Environmental Management and Assessment (IEMA) and has secured the IEMA EIA Quality Mark for EIA. This provides assurance to third party stakeholders that an objective EIA is been carried out according to the IEMA Code of Practice and by experienced professionals.

Consultation

1.16 Consultation will form an important part of the EIA process and this Scoping Report identifies specific groups and organisations that will be consulted. In accordance with the EIA Regulations, the New Forest National Park Authority will consult the statutory consultees listed in **Table 1.1** of this Scoping Report. They will also undertake discretionary consultation with the non-statutory consultees listed in **Table 1.2** below.

Table 1.1: Statutory Consultees

Statutory Consultees
• English Heritage.
• Environment Agency.
• Hampshire County Council (Highways and Rights of Way).
• Natural England.
• New Forest District Council.
• New Forest National Park Authority: Biodiversity officer, landscape officer, conservation officer, archaeological officer and environmental health officer.
• The Verderers of the New Forest.

Table 1.2: Non-statutory Consultees

Non-statutory Consultees	
• British Dragonfly Society	• New Forest Access Forum
• Commoners Defence Association	• New Forest Association
• Dragonfly Society	• New Forest Consultative Panel
• MP New Forest West (Mr Desmond Swayne MP)	• New Forest Dog Owners Association
• Freshwater Habitats Trust	• New Forest Equestrian Association
• Friends of Latchmore	• New Forest History and Archaeology Group
• Hampshire and Isle of Wight Wildlife Trust	• New Forest Land Advice Service
• Ellingham, Harbridge & Ibsley Parish Council	• Ringwood Natural History Society
• Hyde Parish Council	• RSPB
• Bramshaw Parish Council	• Southampton University

1.17 Consultation with the above organisations will also be undertaken by the EIA team as required. Consultees and the approach to consultation are also outlined in the Latchmore Restoration Planning Application: Consultation and Communication Strategy, available here http://www.hlsnewforest.org.uk/downloads/download/31/latchmore_wetland_restoration_planning_application_consultation_strategy.

1.18 A public exhibition informing members of the public about the proposed Latchmore Wetland Restoration Project and the EIA process was held on the 29th April 2014 at Godshill Village Hall. All attendees were invited to complete a feedback form, or they were given the opportunity to submit their responses online up until the 13th May via the Forestry Commission's consultation website. 94 people attended the exhibition and 50 written responses were received in total. A summary of the key issues raised and a commentary on how the comments will be addressed is available on the Latchmore Project Website – see http://www.hlsnewforest.org.uk/downloads/download/29/pe_consultation_responses_290414 link.

Scoping Report Structure

1.19 This Scoping Report comprises the following sections:

Chapter 2: provides a description of the project area and the restoration options.

Chapter 3: sets out the proposed content and draft structure of the Environmental Statement.

Chapters 4 to 8: describe in more detail the specific topic areas that will be investigated as part of the EIA, including:

- Water Environment.
- Ecology.
- Archaeology.
- Traffic and Transportation.
- Land Use, Landscape and Recreation.

1.20 For each of these topics, the following is provided:

- **Overview of the proposed** approach to the EIA including a summary of the assessment methods to be used.
- Outline of the proposed **significance criteria** to be used.
- Identification of the **potential environmental effects** arising from the restoration works before and after completion.

Latchmore Wetland Restoration Project: EIA

Figure 1.1: Location of Latchmore Wetland Restoration Proposal

Latchmore catchment area

New Forest National Park

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

Inset Map Scale: 1:10,000,000
Map Scale @ A3: 1:140,000

LUC

CB:VG EB:Goosen_V LUCLON 5964-01_001_Latchmore_Brook_Locality_Plan_Rev1_BW 05/08/2014

Source: Ordnance Survey, Forestry Commission, Natural England

2 Project Description

Introduction

2.1 This chapter provides a description of the site and the restoration options which are being considered as part of the EIA. A description is also provided of the nature of the proposed works. It is important to note that this is based on an understanding of the project at the present time. The proposals will be refined throughout the project design and EIA process.

Location

2.2 Latchmore Brook, for much of its length, flows through the New Forest National Park, which is located in Hampshire. Latchmore Brook is a tributary of the River Avon, most of which lies outside the New Forest National Park. It arises in Picket Corner and Crow's Nest Bottom, draining west towards Ogdens (south of Frogham) where it becomes known as the Huckles Brook. The Brook extends through four forested inclosures: Islands Thorn Inclosure (SSSI Unit 540), Studley Wood (SSSI Unit 58), Amberwood Inclosure and Alderhill Inclosure (SSSI Unit 66) before entering the Open Forest.

2.3 The site as a whole includes the mire catchments of Claypits Bottom (SSSI Unit 30), Thompson's Castle (SSSI Unit 43), Latchmore Mire (SSSI Unit 44) and Watergreen Bottom (SSSI Unit 49), whilst the Latchmore Shade (SSSI Unit 48) (along the watercourse itself) includes wet heath and lawn habitats including SSSI Unit 28. The Latchmore Brook flows in a straightened deepened drain channel for approximately two thirds of its length across Latchmore Bottom, before leaving the western edge of the Open Forest at Ogdens.

2.4 The stream's catchment includes open heathland, deciduous woodland and small scale pastoral farmland in its lower reaches. Conifer woodland stands are also present in the Inclosures and the wider catchment. A map showing the entire hydrological catchment area of the Latchmore Brook and the SSSI units within which work is proposed is provided in **Figure 2.1.**

Options Appraisal

2.5 The FC and EIA Team are currently undertaking a review of the potential options available for the wetland restoration at Latchmore. Four alternative options are being considered and these are outlined below. In accordance with the EIA Regulations, the Environmental Statement will include an outline of the main alternative options considered and the main reasons for the choice made, taking into account the environmental effects. The main section of the Environmental Statement will then assess the preferred option and will set out in detail the environmental effects of this option. The four main options which are being considered include:

- **Option 1: Do nothing** – This will assume that no restoration works are undertaken.
- **Option 2: No works within Latchmore Shade (SSSI Unit 48).** This will assume that restoration works will take place within SSSI Units 30, 43, 44, 49, 58, 66 and 540 with some minor works in 28[3] but no works will be carried out within SSSI Unit 48 Latchmore Shade. This option has been included as a result of comments received at the Public Exhibition held on 29th April 2014 at which some members of the public raised concerns about works within the open Forest. The works will include:

[3] SSSI Unit 28 extends over a large area (based on habitat) across the New Forest and is not included as part of the Latchmore scheme. However to support works in SSSI Unit 43 Thompson's Castle (directly to the north of a part of SSSI Unit 28) some works are required within SSSI Unit 28 and as such it has been included in the list above.

1. Meander restoration along sections of the Latchmore Brook.
2. Bed level raising of main channel, tributaries and side drains.
3. Complete infill of certain sections of the existing main channel, tributaries or side drains.
4. Use of debris dams where agreement with stakeholders can be reached.
5. Repair of nick points and drain infill within mires to restore and stabilise water levels and step erosion.
6. Removal of spoil banks.
7. Tree felling, scrub and vegetation clearance.
8. Replacement, maintenance or relocation of access structures (fords, culverts, bridges).

- **Option 3: Works in all SSSI units including re-creation of old brook meanders.** This option will assume that the works will be undertaken in SSSI Units 30, 43, 44, 48, 49, 58, 66, 540 with some minor works in 28. These works will include:
    1. Meander restoration along sections of the Latchmore Brook.
    2. Bed level raising of main channel, tributaries and side drains.
    3. Complete infill of certain sections of the existing main channel, tributaries or side drains.
    4. Use of debris dams where agreement with stakeholders can be reached.
    5. Repair of nick points and drain infill within mires to restore and stabilise water levels and step erosion.
    6. Removal of spoil banks.
    7. Tree felling, scrub and vegetation clearance.
    8. Replacement, maintenance or relocation of access structures (fords, culverts, bridges).
- **Option 4: Works in all SSSI units including use of natural debris dams in Unit 48.** This will form a variation of Option 3 with works within SSSI Units 30, 43, 44, 48, 49, 58, 66, 540 and some minor works in 28. The works as listed in Option 2 and 3 will be implemented but Option 3 will involve the re-creation of the old (Palaeo-channel) river meanders throughout Unit 48. This will involve infilling the main channel and then excavating the old river meander channels to a suitable depth. Option 4 will instead involve the placing of natural debris dams (where agreement can be reached) in the channel at chosen locations, as opposed to the excavation of old meanders.

Need for the Wetland Restoration

2.6 The condition of the SSSI land in England is assessed by Natural England, using categories across England, Scotland, Wales, and Northern Ireland through the Joint Nature Conservation Committee. There are six reportable condition categories: favourable; unfavourable recovering; unfavourable no change; unfavourable declining; part destroyed and destroyed.

2.7 The wetland restoration is needed as the SSSI Units 30, 44, 48, 49, 66 and 540 units in the Latchmore Brook catchment are currently classed by Natural England as being in 'unfavourable recovering condition'[4]. Units classed as 'recovering' are defined by Natural England as *'not yet being fully conserved but all the necessary management mechanisms are in place. At least one of the designated feature(s) mandatory attributes are not meeting their targets (as set out in the site specific Favourable Condition Table). Provided that the recovery work is sustained, the unit will reach favourable condition in time.'*[5]

[4] See definition at: http://www.sssi.naturalengland.org.uk/special/sssi/glossary.cfm (accessed 9th June 2014).
[5] See definition at: http://www.sssi.naturalengland.org.uk/special/sssi/glossary.cfm (accessed 9th June 2014).

2.8 The FC has a legal responsibility under the EU Habitats Directive/ Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) to restore habitats in a SAC/ SSSI where the habitat has been assessed by Natural England as being in 'unfavourable recovering condition'.

2.9 It is important to note that Natural England have identified the SSSI Units in the Latchmore catchment as being 'recovering' due to the Latchmore Wetland Restoration project which is proposed by the Forestry Commission. If the restoration is not implemented the SSSI Units will revert to being classed as 'unfavourable no change'[6] or 'unfavourable declining'.[7]

2.10 **Appendix 1** outlines the condition assessments[8] of the SSSI Units included in the proposed wetland restoration; these assessments were undertaken by Natural England. As part of the EIA, a detailed review will be undertaken of the condition of the SSSI units.

Proposed Restoration Works

2.11 As outlined in paragraph 2.5, the proposed wetland restoration as set out in Options 2, 3 and 4 will involve eight key work activities. A brief summary of the nature of these activities is summarised below. **These will however be subject to review as part of the EIA.**

1. **Meander restoration** – re-creation of channels within the old stream meanders and diversion of the flow of the stream from the existing drainage channels into the restored meander.
2. **Bed level raising / partial drain infill:** excavation and setting aside of gravel bed from existing drain; channel narrowing using imported infill along some stretches (partial drain infill); installation of clay plugs to ensure that the new stream bed is held in position; redressing of rescued gravel bed material.
3. **Drain infill / bed level raising using heather bales:** installation and staking of heather bales within drains to infill or raise bed levels.
4. **Installation of debris dams**: creation of debris dams within the watercourse channel using trees. These tend to be randomly spaced along the watercourse, but not less than 10m upstream or downstream of a forest road, ride, track or crossing.
5. **Repair of nick points and drain infill**: repair using the partial drain infill approach (as outlined above) using compacted hoggin (where additional volume is required).
6. **Removal of spoil banks:** use of spoil from existing spoil banks to help narrow existing channels, surface dress infilled channels, or use as drain infill.
7. **Tree felling, scrub and vegetation clearance:** removal or felling of trees, scrub and vegetation to facilitate working access.
8. **Replacement, maintenance or relocation of access structures**: such as footbridges, fords and culverts etc.

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[6] **Unfavourable no change** - The unit/feature is not being conserved and will not reach favourable condition unless there are changes to the site management or external pressures and this is reflected in the results of monitoring over time, with at least one of the mandatory attributes not meeting its target (as set out in the site specific FCT) with the results not moving towards the desired state. The longer the SSSI unit remains in this poor condition, the more difficult it will be, in general, to achieve recovery. At least one of the designated feature(s) mandatory attributes and targets (as set out in the site specific FCT) are not being met.

[7] **Unfavourable declining** – The unit/feature is not being conserved and will not reach favourable condition unless there are changes to site management or external pressures. The site condition is becoming progressively worse, and this is reflected in the results of monitoring over time, with at least one of the designated features mandatory attributes not meeting its target (as set out in the site specific FCT) with the results moving further away from the desired state. The longer the SSSI unit remains in this poor condition, the more difficult it will be, in general, to achieve recovery. See definition at: http://www.sssi.naturalengland.org.uk/special/sssi/glossary.cfm (accessed 9th June 2014).

[8] Available at: http://www.sssi.naturalengland.org.uk/Special/sssi/unitlist.cfm?sssi_id=1003036 (accessed 10th June 2014).

Post Restoration

2.12 Once the restoration works have been completed, they will be monitored regularly by the HLS Ecologist, Hydromorphologist and Works Supervisor. An agreed monitoring plan will be set up to monitor the physical integrity of the restoration works (e.g. to ascertain if erosion and deposition is in balance) and the recovery rates of relevant species (e.g. fish, macro-invertebrates and habitats).

2.13 The findings of these monitoring visits will be recorded on a restoration database, and any required actions entered into a separate database which will be reviewed and actioned monthly.

Latchmore Wetland Restoration Project: EIA

Figure 2.1: Latchmore Catchment and SSSI Units

Latchmore catchment area

Existing watercourses

SSSI Unit

- 28*
- 30
- 43
- 44
- 48
- 49
- 58
- 66
- 540

*SSSI Unit 28 extends over a large area across the New Forest and is not included as part of the Latchmore scheme. However to support works in SSSI Unit 43 Thompson's Castle some works are required within SSSI Unit 28 and as such it has been included on the map.

Map Scale @ A3: 1:25,000

LUC

0 1 2 km

CB:VG EB:Goosen_V LUCLON 5964-01_000_Latchmore_Catchment_Rev4 07/08/2014

Source: Ordance Survey, Forestry Commission, Natural England

3 Proposed Structure of the Environmental Statement

The Environmental Statement

3.1 The following section sets out the key issues that will be addressed by the Environmental Statement (ES), which will accompany the application for consent. The proposed structure may change as a result of the environmental studies, the Scoping Opinion received from the New Forest National Park Authority and responses from statutory and non-statutory consultees.

3.2 The EIA Regulations require that an Environmental Statement should include at least:

- A description of the development comprising information on the site, design and size of the development.
- A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.
- The data required to identify and assess the main effects which the development is likely to have on the environment.
- An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.
- A non-technical summary of the above information.

3.3 Guidance on the content of the ES is provided within the EIA Regulations. It is proposed that the ES will include information on the following topics:

Introductory ES Chapters

- **Introduction** - This will provide a brief introduction to the project and the legislative requirements for an EIA, together with an outline of the structure of the ES and an introduction to the applicant (FC).
- **Approach to the EIA** - The EIA process will be described in relation to the requirements of the EIA Regulations, including the key steps in the process of environmental assessment, and the consultation undertaken. The process of scoping will also be documented.
- **Scheme Description and Design** - This chapter will provide a detailed description of the proposed restoration works and ongoing management of the project.
- **Consideration of Options** - This will include information on the options appraisal and the evolution of the restoration proposals.
- **Planning Policy Context** - This chapter will set out the national and local planning policy context. The ES will not assess how the scheme complies with these policies as that will be covered by a Planning Statement to be submitted as part of the planning application alongside the ES.

Topic Specific Chapters

- Water Environment and contaminated land (this will include the issue of unexploded Ordnance).
- Ecology.
- Traffic and transportation.
- Archaeology.

- Land Use, Landscape and Recreation.
- A description of the proposed scope of the studies is included within **Chapters 4 to 8** of this report.

3.4 Within each of the environmental topic chapters of the ES, the information provided will be structured in a consistent way, as far as practicable. **Box 1.1** below provides a summary of the proposed structure of the topic chapters.

Box 1.1: Proposed Structure of ES Topic Chapters

Introduction: will outline the content and key objectives of the chapter.

Scope of the Assessment: will identify the key issues identified at scoping stage; what was scoped in to the assessment and if anything was scoped out.

Consultation: will summarise the scoping responses and other consultation comments, and set out how the comments were addressed.

Assessment Methodology: will outline the methods used (desk study, surveys etc.), and any limitations encountered in undertaking the assessment.

Significance Criteria: will outline the criteria that were used to assess the significance of the effects.

Existing Conditions: will summarise the baseline situation, including field survey results where appropriate, in addition to the future situation at the site should the restoration not take place.

Design of Restoration Proposals: will outline modifications that were made to project to avoid and reduce effects, and any mitigation that has been incorporated into the design of the proposals.

Assessment of Predicted Effects associated with the proposed works and post restoration. The section for each phase will include:

a. Predicted Effects: a summary of the likely effects (both negative and positive) of the scheme and an assessment of the significance of the effects. Any uncertainty or risks associated with the predictions are referred to in the text.

b. Proposed Mitigation Measures: a summary of measures required to mitigate potential significant adverse effects of the scheme. For the post restoration phase, this also includes any future monitoring requirements.

c. Residual Effects: a summary of effects remaining following mitigation indicating the significance of the residual effects.

d. Cumulative Effects: an outline of any cumulative effects that may occur in association with existing or other relevant proposed projects.

Future Monitoring Requirements: will outline any monitoring that will be undertaken during the works or post restoration.

Summary of Effects: will summarise in tabular format the significance of effects, mitigation measures and residual effects.

Topics Scoped Out of the Environmental Impact Assessment

3.5 The IEMA Guidelines describe the process of scoping as identifying the issues to be addressed by an EIA. It is a method of ensuring that an EIA focuses on the important issues and avoids those that are considered to be less significant.

3.6 It is important to note that as set out in the National Planning Practice Guidance (NPPG) (March 2014) - Environmental Impact Assessment (para 002), *"Local planning authorities and developers should carefully consider if a project should be subject to an Environmental Impact Assessment.*

If required, they should limit the scope of assessment to those aspects of the environment that are likely to be significantly affected."

3.7 The Guidance also states in para 033, "*Whilst every Environmental Statement should provide a full factual description of the development, the emphasis of Schedule 4 is on the "main" or "**significant**" environmental effects to which a development is likely to give rise. The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects.* ***Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only. Impacts which have little or no significance for the particular development in question will need only very brief treatment to indicate that their possible relevance has been considered.***" [Bold emphasis as set out in the NPPG].

3.8 Subject to agreement with the statutory consultees, it is proposed that the following topics will be scoped out of the EIA:

Noise

3.9 Noise at the restoration works site will be localised, rarely involving more than two or three machines working at once (e.g. an excavator, dumper truck and an excavator at a stock pile) and limited to a maximum of ten weeks, although it is anticipated to be less than this. This is unlikely to lead to a significant environmental effect and it is therefore proposed that it is scoped out of the EIA.

3.10 Noise effects associated with traffic and transport from works traffic using local roads will, however, be assessed in the Traffic and Transportation chapter of the Environmental Statement (see **Chapter 7**).

Air Quality

3.11 As the proposed scheme will not generate any emissions to air once the restoration has taken place, no potential operational air quality effects are predicted to occur, and therefore an assessment of potential operational effects on air quality is not deemed necessary.

3.12 There are three Air Quality Management Areas (AQMAs) within the New Forest at Totton, Fawley and Lyndhurst. No traffic associated with the project is likely to travel through these areas. In addition, given the relatively limited amount of traffic that will be generated during the works and that the traffic will only take place over a limited number of weeks within each year, significant effects on air quality during the restoration works are not anticipated and have therefore been scoped out of the EIA.

Consideration of Alternatives

3.13 The EIA Regulations require applicants to outline the main alternatives considered and an indication of the main reasons for the choice made, taking into account the environmental effects.

3.14 Four alternative options for the restoration of Latchmore Brook will be considered through the EIA process, as set out in Chapter 2 para 2.5 of this Scoping Report. The Environmental Statement will undertake a strategic assessment of the environmental effects associated with these alternatives, concluding with an explanation of why the proposed option was selected.

Supporting Documents

3.15 In addition to the ES, the following documents will be prepared in support of the application:

- **Non-Technical Summary:** This will be a standalone document, which will include relevant information and plans providing a comprehensive summary of the ES written in non-technical language.
- **Planning Statement:** This statement will consider the appropriateness of the proposal in relation to planning policy and other material considerations.
- **Design and Access Statement:** This document will detail the evolution of the design of the scheme.
- **Statement of Community Involvement:** This will set out the consultation carried out and the comments received.

4 Water Environment

Introduction

4.1 The following chapter provides an overview of the approach that will be used to assess the effects of the proposed scheme on the water environment including: hydrology, flood risk, water quality, sediment transport and geomorphology. The assessment will be undertaken by a team of qualified hydrologists at Cascade Consulting supplemented by work undertaken by JBA Consulting.

4.2 The purpose of this section of the scoping report is to:

- set out the baseline data that will be collected in relation relating to the water environment;
- define a survey and assessment framework from which a comprehensive overall assessment can be produced, including the consideration of alternative options;
- invite statutory and non-statutory consultees to comment on the proposed methodologies, and to provide and receive information relevant to the scheme.

Overview of Proposed Methodology

Study Area

4.3 As detailed in **Chapter 2** of this Scoping Report, the Latchmore Brook and associated mire systems are located on the northern part of the New Forest to the north of the A31 and south of the Hampton Ridge. The part of this watercourse under consideration runs from the headwaters at Studley Head at the northern end of Islands Thorns Inclosure (SU22171644) to the footbridge at Ogdens car park (SU18091245) 6km downstream. From Ogdens the watercourse continues downstream to the Hampshire River Avon 2km to the west. The whole catchment will be considered in the assessment, as shown in **Figure 2.1**.

4.4 The upper part of Latchmore Brook flows through three wooded inclosures Island Thorns, Studley Wood, Amberwood and Alderhill and includes the mire catchments of Claypits Bottom, Thompson's Castle, Latchmore Mire and Watergreen Bottom. This emerges onto the Open Forest at Latchmore, referred to as the lower part of Latchmore Brook, which is around 4km from the headwaters. The upper part of the watercourse is actively meandering with strong gravel inputs, moderate gradients, and limited lateral erosion because of stronger banks. Channel straightening has occurred which creates locally steepened sections and over-deepened channel conditions because of dredging and erosion. There has been incision up to 2-3m (from bank top to stream bed level) in the upper reaches of this unit, where the channel is significantly narrower than the mid to lower reaches. In the middle section of the watercourse, lateral erosion is greater with increase gravel deposition as bars. The lower 800m is a straightened and deepened drainage channel across Latchmore Bottom as far as the western edge of the Open Forest at Ogdens. This lower section includes the Latchmore Shade SSSI Unit which includes the watercourse, wet heath and lawn habitats. The incised channel has resulted in the drying of the immediate floodplain and created hummocky lawns across former *Molinia* mire.

Study Background

4.5 The existing watercourse is locally unstable with areas of erosion and deposition having been affected by artificial drainage and historical river engineering works which have had several adverse effects:

- The lower section of channel has been artificially deepened and straightened resulting in increased erosion of the river bed with reduced channel habitat diversity.

- This channel incision has led to limited seasonal inundation of the grassland and woodland habitats on the surrounding flood plain.
- Nick point erosion has progressed along some of the natural and artificial drainage channels and tributaries which has caused increased erosion within the mire systems, wet heath and grassland habitats mostly to the north of the main watercourse.
- Tree removal through channel rationalisation, and groundwater table lowering due to reduced water levels in the channel, has reduced the flood plain to a patchwork of grazed lawns and remnant wet woodland.
- The historic removal of the trees from the lower section of the study reach, creating the grazed lawn habitat which is an integral part of the SSSI, has also lowered the resistance of the river banks to fluvial erosion
- Ditching of the upper catchment has created a more rapid and responsive flow regime where flood peaks are increased and water enters the main channel more quickly. This creates a higher energy system more capable of erosion and sediment transport.

4.6 The river multiple distributor and locally sinuous channels with an associated mix of pool, riffle and gravel bar morphology. The nature and distribution of these features may continue to change over the next decade as the large scale erosion, transport and deposition patterns continue.

4.7 The SSSI Units (Units 30, 44, 48, 49, 66 and 540 in particular) are in an unfavourable condition having been adversely affected by artificial drainage, with increased erosion within the mire systems, wet heath and grassland habitats. The artificially deepened and straightened Latchmore Brook has resulted in increased erosion of the river bed and limited channel habitat diversity, and limited the seasonal inundation of the surrounding mire, wetland and grassland habitats.

4.8 The EIA will consider changes to the hydrological and geomorphological regime, the water quality of Latchmore Brook, and any changes to flood levels and flood risk as a result of the proposed works.

Baseline Studies

4.9 The assessment of effects will use information and data from a variety of sources:

- Detailed descriptions of each of the proposed restoration activities.
- River flows for a range of conditions. This will include QMED (median annual flood), extreme flood flows and low flow conditions (such as Q50 and Q95) to compare velocities and shear stress for both the existing conditions and with the proposed works. The impact at low flows such as Q50 and Q95 is less important than QMED or the bankfull flow, when most erosion events occur.
- Modelling outputs from a JFlow river model including a 'Do nothing' scenario and the proposed schemes.
- Data on material and sediment sizes from the bed and banks of the channel.

4.10 The existing baseline information is described below and includes data from the Environment Agency, the British Geological Survey, standard sources such as the Flood Estimation Handbook and site specific studies such as the JBA modelling reports on site surveys already undertaken.

4.11 The requirements for additional data and survey work is also discussed.

Geology

4.12 The New Forest sits between the Hampshire, Wiltshire and Dorset chalk downlands. The British Geological Survey (BGS) mapping shows that the area lies over the Selsey Sand formation in the upper reaches which is a silty sands, clays and silts and with the Poole formation in the lower valley which is a fine to very coarse-grained, locally pebbly, layer of cross-bedded sands and lignitic clays. There is Barton Clay capping the higher ground to the east, with Head deposits of clay and silty clay along the valley floor.

4.13 Seven Geological Conservation Review Sites have been designated within the New Forest SSSI, the closest being Studley Wood, adjacent to the source of Latchmore Brook and within its catchment (SU227158).

Hydrology

Flow Measurements

4.14 Flow monitoring was completed in February 2014 and this will be used to apply a catchment weighting to the data available from the adjacent Dockens Water Environment Agency gauge, to derive the flow duration curve for Latchmore Brook. Use of the Dockens Water data will also provide longer term records to identify key flow such as QMED or extreme flood flows.

Catchment Descriptors

4.15 The Flood Estimation Handbook CD ROM version 3 will be used to provide the catchment delineation for the Latchmore Brook at Ogdens and at the EA gauging station on the adjacent Dockens Water at Moyles Court to the south.

4.16 In summary both catchments experience periods of variable rainfall throughout the year and may be expected to be flashy in response to storm events with a high percentage of rainfall expressed as runoff. New Forest streams are typically characterised by high winter flows and low summer flows because the clay strata store little water, leading to rapid runoff after rainfall. This suggests that the hydrological response of the two catchments is quite similar and that flows from the gauging station on the Dockens Water could be used to assist the analysis of flows on Latchmore Brook.

QMED and extreme flood flows

4.17 As part of the EIA, the effect of the proposed works will be assessed by comparing flow velocities and shear stress for a range of flow conditions to identify how sediment entrainment and channel shape may change for a range of flow conditions. A key measure for channel stability studies will be the median annual flood or QMED, which equates to approximately the 2.3 year return period flow and is usually around bankfull. The FEH Revised Statistical method will be used to obtain the QMED for Latchmore Brook, and this will be compared with the QMED from flow data from the gauge on Dockens Water to allow a donor adjustment.

Low and Medium Flows

4.18 Whilst QMED or the bankfull flow is the most likely to cause the maximum amount of erosion, it is also usual to assess the Q50 or Q95 flow. Flow duration curves will be used to provide these percentile flows using the Low Flows Enterprise (LFE) or the Low Studies Report (1980). These will be compared to the flow records at the adjacent gauge on Dockens Water to effect calibration of the low flow estimates on the ungauged Latchmore Brook.

4.19 The Friends of Latchmore in their letter of 20 March 2014 agree that it makes sense to utilise the hydrological information from Dockens Water so far as possible in the EIA. However they believe that the flow regime on this watercourse is substantially different to that of the Latchmore Brook although the reasons are not known. They indicate that observations show a peak flow of 12 to 15 m3/s a number of times per year in the channel below Alderhill Inclosure, compared with the 2-year return period flow of 5.1 m3/s used by JBA in their June 2013 report. This appears to be similar to that measured on Dockens Water. The magnitude of flood flows would be expected to be quite similar as the catchment areas and descriptors are similar. It is not clear how or where these larger flows have been measured, and therefore further clarification will be sought from the Friends of Latchmore to determine how the hydrological information can be used.

Water Quality

4.20 An initial baseline water quality investigation was undertaken in February 2014. Based on 10 sampling sites, this revealed that the water quality in Latchmore Brook is good and that the watercourse is slightly acidic, with pH values ranging between 4.75 and 6.59. The watercourse is characterised by low nutrient levels for ammonia, oxidised nitrogen (nitrate and nitrite), total phosphorus and phosphate, with concentrations typical for oligo- to mesotrophic conditions[9]. Photosynthetic activity, measured indirectly by chlorophyll levels, was low at the time of sampling. The conductivity[10] was also very low, ranging between 61 and 85 uS/cm suggesting low concentrations of dissolved solids and potentially also a low alkalinity. All samples had a low Biochemical Oxygen Demand (BOD)[11], which can be considered typical for rural streams with low organic inputs.

Flood Risk

4.21 The scheme is naturally in Flood Zone 3[12] with a 50m (approximate) corridor either side of the main brook also being classed as Flood Zone 3, and the outer edges in Flood Zone 2[13]. There are no properties within the proposed area of works, however immediately downstream in the village of Ogdens there are properties with land adjacent to the watercourse. Environment Agency data, including flood risk maps, will be used to establish the historical and existing baseline, and where possible this will include determining flood levels along the watercourse once the proposed works have been undertaken.

Geomorphology

4.22 A number of surveys are proposed to establish a robust baseline against which the proposed restoration measures can be assessed. This includes a fluvial and geomorphology audit which was completed at the end of February 2014 to identify key features of the brook. This included an assessment of sediment sources and sinks in the river as well as an overview of flow types, bank morphology and the presence and effect of anthropogenic structures. Particle size analysis of bed and bank sediments will be required to understand the range of particles composing the bed within the watercourse. This will be used to inform the analysis of sediment transportation.

Approach to Assessment and Significance Criteria

Assessment

4.23 In order to inform the design of the final wetland restoration scheme (which will be assessed in the EIA), an options appraisal will be undertaken.

4.24 The proposed assessment framework for the consideration of effects arising from the Latchmore restoration will consist of the following elements:

- Description and evaluation of the existing and potential future hydrological (including flood risk), hydrodynamic, geomorphological and surface water quality baseline conditions of Latchmore Brook and downstream including Huckles Brook.
- Identification and understanding of the likely effects of the restoration works on these baseline conditions both during the works and post restoration.

4.25 A description of the baseline conditions for the assessment will be developed from available Environment Agency monitoring data and survey data, and will illustrate the variations and trends in flow, water levels, sediment characteristics and water quality over time and spatially downstream of the site. From this work, the key hydrological and geomorphological receptors will be identified.

[9] Oligotrophic = low nutrient status. Mesotrophic = medium nutrient status.
[10] Conductivity = measurement of salts within water.
[11] Biological Oxygen Demand = measure of the quantity of oxygen used by microorganisms.
[12] Flood zone 3 = high probability of flooding. This zone comprises of land where water has to flow or be stored in times of flood.
[13] Flood zone 2 = medium probability of flooding. This zone comprises of land assessed as having a 1 in 100 and 1 in 1000 annual probability of river flooding (1-0.1%).

4.26 The assessment of the restoration works will consider water quality issues, for example potential pollution incidents and issues with suspended sediments. The operational assessment will consider the significance of any changes in flows, velocities, river bed and/or bank stability and sediment patterns, as a consequence of the restoration works. The assessment will look to compare the predicted changes to hydrological and/or hydromorphological standards against the baseline to assess the overall effect.

4.27 A JFLow model will be used to model the following scenarios (a) the existing case or Do Nothing Case to show what would happen if works are not completed - would the channel continue to incise and make flood risk, SSSI status worse etc and (b) with the planned restoration works in place.

4.28 The model outputs will be provided in the form of bed velocities and the shear stress distribution, including the likely implications on sediment erosion and transportation. This will give an indication of the likely direction of change of the channel. The 1 in 100 year fluvial flood (with climate change contingency) will be simulated for the scheme, with flood maps produced to demonstrate flooding extents.

4.29 The Environment Agency has completed a Water Framework Directive (WFD) Preliminary Assessment of the Latchmore Restoration Plan (2012). The WFD requires all European countries to manage the water environment to consistent standard. This is achieved through a number of objectives which include; prevent deterioration in the status of aquatic ecosystems, protect them, and improve the ecological condition of waters, and aim to achieve at least good status for all waterbodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027.

4.30 Under Article 4.8 of the WFD, a project cannot permanently cause deterioration or exclude or compromise the achievement of WFD objectives in other waterbodies and should be consistent with the implementation of other European environmental legislation (Article 4.9).

4.31 Step 1.2 of the Guidance sets out three objectives to test for WFD compliance of schemes;

- Objective 1: The project does not cause deterioration in the Status of the Biological Elements of the waterbody (Article 4.7);
- Objective 2: The project does not compromise the ability of the waterbody to achieve its WFD objectives (Article 4.7); and
- Objective 3: The project does not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same River Basin District (RBD) (Article 4.8).

4.32 The WFD waterbody at the site is currently at moderate ecological status with a status objective of good by 2015. The reasons for failure are fish, dissolved oxygen and water quality (levels of copper and zinc). Whilst a WFD preliminary assessment of the Latchmore Brook has already been undertaken by the EA, this will be reviewed as part of the EIA and updated as necessary to take account of the final restoration proposals.

Significance Criteria

4.33 The sensitivity of each of the key hydrological and geomorphological receptors will be established using the criteria defined in **Table 4.1**[14].

[14] Derived from Department for Transport's TAG Unit 3.3.11: The Water Environment Sub-Objective http://www.dft.gov.uk/webtag/webdocuments/3_Expert/3_Environment_Objective/3.3.11.htm#1_2_7

Table 4.1: Criteria for Determining the Value of the Water Resources Receptors

	Sensitivity	Value / Importance
High	Hydrology, water quality and geomorphology support Good or High Water Framework Directive (WFD) status. High vulnerability to temporary or permanent changes in hydrology, water quality and geomorphology.	Designated for relevant environmental features at national (Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR) or equivalent) or international level (SPA, SAC or Ramsar). This includes WFD protected areas (e.g. Drinking Water Protected Area DrWPA). Frequently used by people e.g. for recreation, abstraction.
Medium	Hydrology, water quality or geomorphology supports Good or High WFD status or potential. Medium vulnerability to temporary or permanent changes in hydrology, water quality and geomorphology.	Designated for relevant environmental features at regional (e.g. Sites of Importance for Nature Conservation) or district level (e.g. Local Nature Reserves) Occasionally used by people e.g. for recreation, abstraction.
Low	Hydrology, water quality or geomorphology supports Less than Good WFD status or potential. Low vulnerability to temporary or permanent changes in hydrology, water quality and geomorphology.	Not designated for relevant features, but may contain habitats or populations/assemblages of species that appreciably enrich the local habitat resource (e.g. species rich hedgerows, ponds). Infrequently used by people e.g. for recreation, abstraction.
Negligible	Hydrology, water quality and geomorphology support Less than Good WFD status or potential. Not vulnerable to temporary or permanent changes in hydrology, water quality and geomorphology.	Not designated for relevant features. Not used by people e.g. for recreation, abstraction.

4.34 The assessments outlined will allow judgements to be made on the likely effects as a result of the restoration works and their significance. The potential significance of effects will be assessed based on the criteria set out in **Tables 4.2-4.3**.

4.35 The significance criteria are based on the nature of the effect (in terms of magnitude, probability, reversibility, duration and direction) and the receptor value.

4.36 It should be noted that these criteria form a starting point to guide decisions on significance of effects. Decisions will be based on professional judgement and in some circumstances it may be judged necessary to deviate from the criteria. Any deviations will be clearly recorded and justified.

4.37 Generally, a higher level of significance is attached to large scale effects on sensitive or highly valued receptors. Effects of major or moderate significance are deemed to be significant in terms of the EIA Regulations. These effects may be beneficial or adverse.

Table 4.2: Criteria for Determining the Nature of the Hydrological Effects[15]

Magnitude	Criteria	Example
Large adverse	Results in loss of feature	• loss of important fishery • change in WFD classification of river reach • loss of flood storage/increased flood risk • pollution of potable source of abstraction
Moderate adverse	Results in adverse effect on integrity of feature or loss of part of feature	• loss of productivity of a fishery • contribution of a significant proportion of the effluent in the receiving river, but insufficient to change its WFD classification • reduction in the economic value of the feature
Slight adverse	Results in minor adverse effect on feature	• measurable changes in feature, but of limited size and/or proportion
Negligible	Results in an effect on feature but of insufficient magnitude to affect the use/integrity	• discharges to watercourse but no significant loss in quality, fishery productivity or biodiversity • no significant effect on the economic value of the feature • no increase in flood risk
Slight beneficial	Results in minor beneficial effect on feature or a reduced risk of adverse effect occurring	• measurable changes in feature, but of limited size and/or proportion
Moderate beneficial	Results in moderate improvement of feature	• enhanced productivity of a fishery • reduction in a significant proportion of the effluent in a receiving river, but not sufficient to change its WFD classification • moderate reduction in flood risk
Large beneficial	Results in major improvement of feature	• removal of major existing polluting discharge to a watercourse • major reduction in flood risk

4.38 **Table 4.3** illustrates the criteria used for determining significance.

[15] Taken from Department for Transport's TAG Unit 3.3.11: The Water Environment Sub-Objective http://www.dft.gov.uk/webtag/webdocuments/3_Expert/3_Environment_Objective/3.3.11.htm#1_2_7

Table 4.3: Significance Evaluation Matrix

		Receptor (sensitivity, value, importance)			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Effect	**Major**	Major effect	Major effect	Moderate effect	Negligible (not significant)
	Moderate	Major effect	Moderate effect	Minor effect (not significant)	Negligible (not significant)
	Minor	Moderate effect	Minor effect (not significant)	Negligible (not significant)	Negligible (not significant)
	Negligible	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)

Source: adapted from IEMA State of Environmental Impact Assessment Practice in the UK (2011) and the Department of Transport's TAG Unit 3.3.11: The Water Environment Sub-Objective.

Potential Effects

4.39 Potential effects from the restoration scheme that will be considered in the EIA are provided in **Table 4.4** below.

Table 4.4: Main Effects of Proposed Activities

Description of Main Activity	Channel Stability	Flood Risk	Ground Water	Water Quality
Restore meanders	Y	Y	Y	Y
Raise bed level of eroded channels	Y	Y	Y	Y
Repair eroding nick points	Y	Y	Y	Y
Infill incised drains	Y	Y	Y	Y
Remove spoil banks		Y		Y
Manage trees (felling or pollarding)				Y
Replace bridge with ford, causeway or maintain crossings	Y	Y		Y
Create debris dams	Y	Y		Y

4.40 A summary of the resulting effects (beneficial or adverse) on the water environment as a result of the proposed works and post restoration is provided in **Table 4.5.** These will be considered in detail in the EIA.

Table 4.5: Summary of Potential Ground Conditions and Hydrological Effects

Summary of Potential Hydrological Effects
During Restoration Works • Water quality issues due to pollution events and suspended sediment issues. • Short term changes in flood risk within Latchmore Brook catchment.
Post Restoration • Changes to flow patterns, velocities and shear stress distribution brought about by changing the channel shape and/or plan form. • Changes to flow capacity within the restored channels and potential increase in flood risk in the Latchmore Brook catchment as far as the Avon confluence. • Changes to groundwater levels from raised surface water levels.

4.41 Please note that potential ecological effects will be dealt with in the following section of this Scoping Report, **Chapter 5: Ecology.**

Potential Effects Scoped Out

4.42 No potential effects have been scoped out of the assessment.

5 Ecology

Introduction

5.1 The following chapter provides an overview of the approach that will be used to assess the potential ecological effects of the proposed scheme. The assessment will be undertaken by a team of qualified ecologists at LUC supplemented by relevant specialists from Cascade (macro-invertebrate; otters; and river habitat survey); Footprint Ecology (breeding birds and overwintering birds); Turnpenny Horsfield Associates Ltd (fish) and Hampshire and Isle of Wight Wildlife Trust (*Odonata*)

5.2 The approach to the assessment of ecological effects within the context of Ecological Impact Assessment (EcIA), including baselines studies, the method of assessment, potential effects, and our approach to mitigation and consultation is outlined below.

Overview of Proposed Methodology

Study Area

5.3 At its largest extent the Study Area will cover the entire catchment area of the Latchmore Brook upstream of the footbridge at Ogdens Car Park (SU18091245) – See **Figure 2.1.** This catchment is formed of a mosaic of mire systems, woodland, wet/dry heath and grassland habitats. The proposed Latchmore Wetland restoration proposal will include works in SSSI Units 28, 30, 43, 44, 48, 49, 58, 66 and 540, some of which are in an unfavourable condition.

5.4 The Study Area will vary for the different ecological features that will be examined within this chapter. The vegetation surveys will cover the entire catchment area of the Latchmore Brook upstream of the footbridge at Ogdens Car Park. For other ecological features the Study Area will be limited to cover only those areas where significant effects could potentially occur. For example bat roost potential surveys will be restricted to those areas within Alderhill Inclosure and Island Thorns Inclosure where tree felling may be required to allow access and bed level raising, as these are the only areas where this scheme could significantly impact upon these species.

Baseline Studies

5.5 An extensive suite of ecological surveys will be undertaken to ensure a robust baseline of the current site condition can be established before assessing the potential effects of the proposed restoration scheme. These surveys will include:

- River Habitat Survey.
- Fish.
- Macroinvertebrates.
- Odonata.
- Otter.
- Vegetation.
- Reptiles.
- Bats.
- Birds.
- Badgers.

- Great crested newts.

River Habitat Survey

5.6 The River Habitat Survey (RHS) methodology provides a useful tool for the characterisation of a watercourse's geomorphology and habitat provision. The methodology captures information over 500m survey sections within a selected reach, with comprehensive method testing recommending that surveying 1 in 4 (typically) provides more than 90% of the variation within the entire river reach. The survey captures a range of information at 50m sub-sections throughout the survey reach, which with careful interpretation will enable assessment of ecological and hydrological aspects. The surveys also enable identification of the Habitat Modification Scores (HMS) and Habitat Quality Assessment (HQA) scores utilised by the Environment Agency.

5.7 The survey was carried out by a fully trained Environment Agency accredited RHS surveyor in early May 2014, and will be used to help inform further surveys.

Fish

5.8 The proposed approach to establishing the fish assemblage of Latchmore Brook in its current condition, and use by migratory species, is as follows:

- review of existing data - a request has been made via the Forestry Commission to obtain information on previous fish surveys undertaken along Latchmore Brook and Huckles Brook (electrofishing, netting, hydroacoustic density surveys, historical salmonid redd count data, trap or rod count data).
- sea trout smolt trapping at confluence between River Avon and the site between late March and mid-May 2014 - the location for the survey is just upstream of Ogdens.
- electrofishing of Latchmore Brook reach within the works area in August/September 2014 (dependent on Environment Agency permissions) to establish general fish assemblage and sea trout parr production.
- redd count in November 2014 (a site visit in early February 2014 confirmed that flooding had cleaned the gravels and moved the shoals so that the presence of redds could not be determined).

5.9 The EIA will consider the use of Latchmore Brook by sea trout and how this could be affected by the proposed restoration measures. As the Environment Agency have a blanket ban on electrofishing in the early months of the year to avoid disturbing sensitive alevins (young fish) in the gravels, the above combination of surveys was considered to provide a robust baseline on which the assessment could be based. In addition, the RHS data to be collected will be used to enable a detailed characterisation of Latchmore Brook. The approach has been informed by discussions with the Environment Agency Fisheries Team.

Smolt Trapping

5.10 A fyke net incorporating a trap has already been deployed over a period of five weeks between late March and April 2014 to target the sea trout smolt run. The net was checked for smolts every morning and the catch recorded. The smolts survey period was targeted using available existing data from other New Forest streams and discussions with researchers at the University of Southampton who have recently completed research on sea trout in the New Forest.

Electrofishing

5.11 Information on the general fish assemblage and sea trout parr production for the current reach will be achieved through quantitative electrofishing surveys at six locations along the stretch of the watercourse proposed for restoration. The surveys will involve isolating each 100m survey reach with stop-nets. A depletion sampling methodology will then be carried out, with a series of three successive electrofishing runs undertaken, in an upstream direction covering the whole river channel, to provide a more accurate understanding of the species composition, abundance and biomass. The surveys will be carried out in accordance with relevant best practice guidance, including the British Standard guidance BS EN 14011:2003 (water quality - sampling of fish with electricity).

Redd Count

5.12 A walkover of the main channel subject to restoration will be surveyed from the banks by experienced fisheries ecologist who will search for the presence of redds. As stated above, this could not be carried out in February as the flooding had cleaned the gravels, and therefore will be undertaken in November 2014. This will provide important information on likely adult numbers of sea trout using Latchmore Brook.

Macroinvertebrates

5.13 Ten ecological samples of aquatic benthic macroinvertebrates will be collected on two separate occasions; one in spring 2014 (May) and one in autumn 2014 (September). The sample locations will be informed by the RHS survey to select suitable habitat. The samples will be taken in accordance with Environment Agency best practice guidance[16].

5.14 A 60-second surface search will be completed using standard, long-handled pond nets, to capture surface dwelling taxa such as pond skaters (*Gerridae*), and whirly-gig beetles (*Gyrinidae*), followed by a standard 3-minute kick/sweep and finally a 60-second stone search for taxa that hide on or beneath macrophytes and rocks and/or are hard to dislodge such as leeches (*Hirudinea*), caddisflies (*Trichoptera*) and limpets (*Ancylidae*). Any surface dwelling taxa observed at the sampling sites will also be recorded.

5.15 Analysis of the macroinvertebrate samples will be conducted by an experienced taxonomist. Only nymphs, pupae and adult animals will be counted and empty cases, shells or exuviae (skins) will not be included in the final result. All taxa will be identified to species level, with the exception of *Oligochaeta* (worms) which are only identified to subclass level and *Chironomidae* (non-biting midge larvae) which are identified to family level.

Odonata and Southern Damselfly

5.16 The southern damselfly (*Coenagrion mercuriale*) will be the focus of the survey, with 12 half day transect surveys completed over three periods; end of May, June and early July, in suitably sunny conditions. This should sufficiently cover the emergence period.

5.17 The site will be divided into fixed length transects of suitable habitat which are then walked slowly with all males counted (on the wing and resting on vegetation) within five metres of the transect. The transect will include both banks (i.e. walk up one side and return down the other).

5.18 If no animals are found, then the transect section will be re-walked searching for exuviae (remains of an exoskeleton) in suitable habitat. Searches will also be carried out at suitable representative sites (where access to marginal vegetation is available) along the course of the stream.

5.19 The above method provides a robust, repeatable set of transects which will be provide a good baseline (index of abundance count data) and which could be extended over a number of years for monitoring if necessary.

5.20 This methodology avoids the need for larval surveys which can be difficult to sample quantitatively and only sample relatively small sections of stream. The adult transect surveys are in line with Natural England monitoring guidelines for the species.

[16] Environment Agency BT-001 Biological Monitoring Working Party Monitoring protocols as described in Wright *et al*. 1993; adapted in Environment Agency 1999 and 2008.

Otter

5.21 Otters are widely distributed within the UK and a healthy population is known to occur on the River Avon to the west, and Dockens Water to the south of the Site. Otters are therefore likely to utilise the Latchmore Brook to some extent. As a result, the proposed otter survey method will not seek to identify otter presence/probable absence or to infer otter density or distribution through the presence of spraint, but rather to identify key areas which may support shelters of high status such as holts, natal dens in addition to potentially important feeding areas. This will initially be achieved by searching for suitable habitat features along the riparian zone whilst together with the presence of characteristic field signs such as feeding remains, footprints, hairs, and spraint. This will completed at the same time as the RHS survey.

Vegetation

5.22 The catchment of the Latchmore Brook upstream of Ogdens to the B3078 (survey area c. 14 sq. km) shall be subject to Phase 1 Habitat and National Vegetation Classification (NVC) Surveys. The latter shall be employed only for Habitats Directive Annex I habitats and for Groundwater Dependent Terrestrial Ecosystems (whose groundwater-dependent nature may be influenced by the drainage-related works). These surveys shall be undertaken according to the standard methods.

5.23 In order to further characterise the NVC classifications, representative quadrats will be assessed using the Modular Analysis of Vegetation Information System. The use of this system allows for additional information to be extracted from the quadrat data including the percentage fit to the relevant sub-community and Ellenberg Values that express the environmental conditions in which the plants are growing.

5.24 An observation-based assessment of the environmental conditions and management relating to each habitat and vegetation sub-/community will also be undertaken during the Phase 1 Habitat and NVC Surveys. This will allow conclusions to be drawn about the effect of the proposed river works and to identify any management needs that might be addressed by them.

5.25 A full floristic survey (of lower and higher plants) will not be included but attention will be paid to the presence of notable species, including non-/native invasives (such as Japanese knotweed or *Crassula*) as well as those of significance to nature conservation (and Red-Listed or included in the Countryside and Wildlife Act, for example). Where deemed necessary in accordance with the experience of our surveyors, this aspect of the survey will extend to higher plants, mosses and liverworts.

Reptiles

5.26 The New Forest is widely recognised as one of the highest quality sites for reptiles within the UK. As there are no barriers to the movement of reptiles in or out of the catchment of the Latchmore Brook, a traditional refugia based reptile survey was considered unnecessary as it can be confidently assumed that reptiles, including smooth and grass snakes are present in the area. An alternative approach is proposed whereby the quality of the habitat for reptiles within the catchment is mapped. Habitat will be classified as being of high, medium, low or negligible quality. These maps will be used to assess the level of effect on reptiles within the Study Area and form the basis of any modification to the scheme, if required.

5.27 This mapping of reptile habitat and its use as a tool to assess the effect of a potential scheme is an approach that has been pioneered by Paul Edgar of Natural England. Paul will assist LUC with the mapping exercise and the assessment of potential effects.

Bats

5.28 The removal of trees to provide access and facilitate the bed level raising works is the only aspect of these proposals that are considered to potentially effect upon bats. Therefore at this stage bat surveys will be limited to bat roost potential surveys of any tree proposed for removal.

5.29 The bat roost potential survey will use close focusing binoculars to look for features which may support bat roosts, and evidence of bat activity. This will be carried out with due consideration for best practice guidelines (Hundt, 2012). Bats may utilise several different roosts throughout the

year and may only occasionally make use of any given feature, particularly cracks, crevices and fissures. Any field signs confirming or indicating the presence of bats will be recorded including the location, quantity and condition of any droppings and feeding remains, location of characteristic staining from urine and/or grease marks, and the location of clean, cobweb-free timbers, crevices and holes.

5.30 If the proposals included the removal of tree identified as having the potential to support roosting bats then further surveys will be required. These will comprise emergence and return surveys of the affected trees.

Birds

5.31 A full ornithological assessment of the Latchmore Brook will be undertaken and this will focus on the area between Claypits Bottom in the north and Ogden's Farm/Latchmore Shade. This is approximately 7km of stream.

5.32 Surveys will be concentrated on the brook and surrounding woodland/mire/heath habitats, focusing on the area to a maximum of 100m radius of the stream side. It is considered unlikely that birds present beyond this distance from the Brook will be affected by either the proposed works or once the restoration is complete.

5.33 Visits commenced in February 2014 and will run through to the end of May. This allows coverage of wintering and breeding bird species. In total six survey visits will be undertaken with all surveys taking place in the morning and commencing by 6am at the latest, or at sunrise (depending on time of year). The survey work will be supplemented by existing datasets of birds recorded in the area.

Badgers

5.34 The presence of any badger setts will be identified during the extended Phase 1 Habitat survey. All signs of badger activity will be mapped including setts (classified broadly in accordance with Harris, 1989), footprints, paths, dung, latrines and hairs with the aim of ascertaining the extent of any badger territories.

Great crested newt

5.35 Studies of great crested newt within the New Forest carried out by the Freshwater Habitats Trust have no records within the vicinity of the Latchmore Catchment.

5.36 In order to confirm the presence or absence of this species, water samples will be taken from two ponds within the Latchmore catchment and these will be sent for DNA analysis. This will confirm if there are great crested newts in these ponds within 500m of the works area.

Other species groups

5.37 No surveys are proposed for the following ecological receptors

- Small mammals.
- Terrestrial invertebrates.

5.38 The habitats affected and likely to support these receptors represent common and widespread habitats in the local area, and where direct effects are predicted they represent a small proportion of the habitat type available in the wider area. As a result, the temporary disturbance of such habitats will not be expected to result in any significant changes in the composition or distribution of these species or groups within the Study Area or further afield.

5.39 Therefore, survey of these receptors is not considered appropriate for informing this EcIA. Nevertheless, potential effects on these species/groups, for example in relation to disturbance during works, and the requirement for mitigation such as appropriate seasonal timing and phasing of works, will be addressed within the EcIA.

Approach to Assessment and Significance Criteria

Requirements and Advice

Legislative and Policy Guidance

5.40 This assessment will be undertaken in consideration of the following relevant legislation and policy:

- The Chartered Institute of Ecology and Environmental Management (CIEEM) - Guidelines for Ecological Impact Assessment in the United Kingdom (2006).
- The Conservation of Habitats and Species Regulations 2010 (as amended).
- The Wildlife and Countryside Act 1981 (as amended).
- The Countryside and Rights of Way Act 2000.
- Protection of Badger Act 1992.
- The Wild Mammals Protection Act 1996.
- The National Planning Policy Framework (DCLG 2012).

Valuing Ecological Features

5.41 The ecological assessment will take the form of an Ecological Impact Assessment (EcIA) following guidelines published by CIEEM (IEEM at the time of publication[17]). The guidelines recommend that site sensitivity is best described as 'Ecological Value'. The Ecological Value of any given Study Area relates to its habitat assemblages and species populations and their importance to wider ecological processes. The Ecological Value of the Study Area is determined for each of its component habitats and species. The guidelines recommend that Ecological Value should be determined within a defined geographical context. The levels of geographical value adopted in this assessment are set as follows (and described further in **Table 5.1**):

- International.
- National.
- Regional.
- County.
- Local.
- Site.

Table 5.1: Ecological Value Criteria

Ecological Value	Qualifying Criteria	Relevant Context
International	A Study Area is considered of international value when it supports: • An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site, Biogenetic Reserve) or an area which Natural England (NE) has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. • A viable area of a habitat type listed in Annex	Europe

[17] IEEM (2006) Guidelines For Ecological Effect Assessment in the United Kingdom

Ecological Value	Qualifying Criteria	Relevant Context
	1 of the Habitats Directive, or smaller areas of such habitat which is essential to maintain the viability of that ecological resource on an international level. • >1% of the European Resource of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive.	
National	A Study Area is considered of National Ecological Value when it supports • A nationally designated site (SSSI[18], NNR[19], Marine Nature Reserve[20]) or a discrete area which NE has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified. • A viable area of a priority habitat identified in the UK BAP[21], or smaller areas of such habitat which is essential to maintain the viability of that ecological resource at a national level. • >1% of the National Resource of a regularly occurring population of a nationally important species, i.e. a priority species listed in the UK BAP and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act. • A regularly occurring and viable population of a UK Red Data Book species.	UK
Regional	A Study Area is considered of Regional Ecological Value when it supports: • A viable area of priority habitat identified in more than one local BAP within the region and which is essential to maintain the viability of that habitat resource at a regional level. • Any regularly occurring population of a nationally important species or species identified in more than one local BAP within the region and which is essential to maintain the viability of the resource at a regional level. • Ancient woodland greater than 0.25ha.	South West England
County	A Study Area is considered of County Ecological Value when it supports: • County sites and other sites which the designating authority has determined meet the published ecological selection criteria for designation, e.g. Local Nature Reserves. • Viable areas of legally protected habitat/habitat identified in Council BAP or smaller areas of such habitats which are essential to maintaining the viability of the resource at a county level. • Any regularly occurring population of an internationally/nationally important species or	Hampshire

[18] Site of Special Scientific Interest designated under UK law as being the best examples of the UK's flora, fauna, geological or physiographical features.

[19] National Nature Reserve designated under UK law as containing the best examples of natural or semi-natural ecosystems in Britain.

[20] Marine Nature Reserve designated under UK law to conserve marine flora, fauna and geological features.

[21] The Biodiversity Action Plan identifies targets for improving and protecting biodiversity in an area to meet the UK's commitments under the Rio Convention.

Ecological Value	Qualifying Criteria	Relevant Context
	a species in a relevant UK/Council BAP which is important for the maintenance of the viability of the feature at a county level. • Semi-natural ancient woodland smaller than 0.25ha. • Networks of habitat which contribute to ecological connectivity at a county level.	
Local	A Study Area is considered of Local Ecological Value when it supports: • Commonplace and widespread semi-natural habitats, e.g. scrub, poor semi-improved grassland, coniferous plantation woodland, intensive arable farmland etc. which, despite their ubiquity, contribute to the ecological function of the local area (habitat networks etc.). • Very small, but viable, populations of internationally/nationally important species or a species in a relevant UK/Council BAP which is important for the maintenance of the viability of the population at a local level. • Networks of habitat which contribute to ecological connectivity at a local level.	Within a 5 km radius of the development site
Site	A Study Area is considered of Site Ecological Value when it supports: • Habitats of limited ecological value, e.g. amenity grassland, but which contribute to the overall function of the application site's ecological function.	Development site

Potential Effects

5.42 All potential effects are assessed against standard parameters set out by CIEEM. Via this approach, a scientific and repeatable method is applied whereby all aspects of a potential effect are considered. Effects are considered with reference to the following parameters:

- Positive or negative.
- Extent.
- Duration.
- Reversibility.
- Frequency.

5.43 A degree of confidence is also used to assess the likelihood of an effect occurring. The following scale is referred to:

- Certain/near-Certain: probability estimated at ≥95%.
- Probable: probability estimated at 50 – 95%.
- Unlikely: probability estimated at 5 – 49%.
- Extremely unlikely: probability estimated at ≤ 5%.

5.44 Professional judgment is then used to consider the relationship between each of the assessed parameters and the ways in which they may change the habitat assemblages and species. This change is also considered within the geographical context described previously.

Significance of Effects

5.45 Based on these parameters and magnitude levels, an effect is then considered to be either significant or not significant. An effect is considered to be significant if it has the potential to affect the integrity of a habitat or the conservation status of a species. The significance of a potential effect is considered, using professional judgment, within the context of the geographically-based Ecological Value of the feature. For example, the significance of a potential effect on a habitat of local Ecological Value is considered at a local level.

5.46 Significant effects are considered 'significant' in the context of the EIA Regulations, irrespective of their geographical context. Technical definitions of integrity and conservation status follow CIEEM guidance. CIEEM guidance recommends that effect significance is not defined as 'major', 'moderate' or 'minor' due to the complexities of ecological processes.

Potential Effects

5.47 A summary of the potential effects on ecology during the proposed restoration works and post restoration is provided in **Table 5.2**. These will be considered in detail in the EIA.

Table 5.2: Summary of Potential Ecological Effects

Summary of Potential Ecology Effects
During Restoration Works • Direct terrestrial habitat loss caused by vegetation removal to facilitate access. • Direct habitat loss caused by infilling the current channel. • Severance (i.e. fragmentation of habitat) due to the linear nature of the temporary access tracks and river restoration scheme. • Loss of life – including protected species. In particular this may affect reptiles (during access over heathland habitat); bats (through removal of trees with bat roost potential); and breeding birds (through vegetation removal). • Physical disturbance – associated with works in the vicinity of retained habitats, for example affecting tree roots or hydrology. • Noise disturbance – associated with works in the vicinity of retained habitats e.g. otter holts. • Downstream effects due to pollution incidents, suspended sediment issues.
Post Restoration • Changes to the hydrological regime and geomorphological features resulting in the alteration of the habitat mosaic supported within the Latchmore Brook catchment with associated effects on the species supported therein.

Potential Effects Scoped Out

5.48 No potential effects have been scoped out of the assessment.

6 Archaeology

Introduction

6.1 This chapter of the Scoping report will examine the potential effects of the restoration scheme on the archaeological and cultural heritage resource of the project and, as appropriate, its immediate environs. It will assess potential effects upon a range of receptors, primarily comprising:

- Designated and undesignated archaeological sites and historic buildings including Listed Buildings and Scheduled Monuments.
- Known and potential archaeological sites.
- Areas of archaeological sensitivity.

Overview of Proposed Methodology

Site Background

6.2 The site is located within an area which contains areas of known archaeological activity and which has, in general, the potential to contain hitherto unrecorded or unrecognised archaeological sites. The New Forest in general has the potential to contain a range of archaeological deposits and above and below ground archaeological sites ranging from the early Prehistoric to medieval/modern and previous assessment work (discussed further below) has suggested that the environs of the scheme contain a number of known archaeological sites. Identified sites include a number of Scheduled Monuments including prehistoric burial mounds, roman pottery kilns and two medieval hunting lodges, one with possible royal connections. The area contains a number of other, non-designated, sites including a number of undated earthwork enclosures and banks and further prehistoric burial mounds. The village of Frogham which lies to the west of the restoration area, contains a number of Grade II Listed Buildings and another lies at Fritham Lodge to the east of the scheme.

Study Area

6.3 Information on and identification of all cultural heritage receptors will be carried out for a detailed study area of 1km around the area of the proposed restoration works. This wider study area will be used for the desk-based element of the works and is intended to identify both sites within the footprint and immediate environs of the scheme, and register the presence of sites within the wider area of the scheme. Identification of these sites will be used to put the site into its full archaeological and historic context and to help assess the potential for the area to contain hitherto undetected or sub-surface remains which may not have been picked up by previous surveys.

6.4 A detailed field survey of the area will be also be carried out but this will be concentrated upon a more focused study area, comprising a 50m corridor on either side of the proposed footprint of the restoration works (and off-site storage or access areas where these have been identified).

Baseline Studies

6.5 Areas of the scheme have been the subject of two previous baseline studies:

- An archaeological constraints report for the western (Latchmore Bottom) end of the scheme produced by AC Archaeology in March 2011. This survey entailed the examination of a standard range of archaeological archive sources and a detailed walkover survey of the area and its immediate environs.

- An HLS Archaeological Constraints Evaluation of the section of the scheme within the Islands Thorns Inclosure, carried out by the New Forest National Park Authority Archaeologist between April and December 2013. This survey entailed the examination of a standard range of archaeological archive sources, examination of LiDAR and National Mapping Programme (Aerial Photograph) coverage and a detailed walkover survey of the scheme area and its immediate environs. OA have been supplied with a draft (incomplete) version of this report, dated to December 2013.

6.6 These surveys examine different areas of the footprint of the proposed project, but do not, in total, examine the entire area. The central area (the Amberwood/Alderhill inclosure section) has not been surveyed.

6.7 The proposed survey will cover the area of the entire project, using but updating/augmenting the results of the previous surveys. The survey will make use of all relevant and accessible archival and historic sources. It is understood, from previous clarifications and secondary information obtained during the tender process that as part of the New Forest HLS (Higher Level Scheme) an initial digest of key information for the scheme area will be provided by the New Forest National Park Authority (NFNPA) Archaeologist. It is anticipated (from review of the 2013 report) that this information will include:

- Information gained from the recent and ongoing LIDAR analysis and mapping programme.
- A digest of data held by the National Monuments Record (NMR) (as held by English Heritage), the Hampshire Historic Environment Record (HER) as held by Hampshire County Council and the English Heritage National Mapping Programme (NMP).

6.8 The information provided by the NFNPA archaeologist will be fully assessed (as a first stage) and potential data gaps identified. Further research will be carried out as necessary in order to ensure that the data resource used for the EIA survey is as comprehensive as possible. It is anticipated that this may comprise:

- further review of the LIDAR data;
- examination of historic maps and plans as held by the Hampshire Record Office;
- examination of details of designated sites (Listed Buildings, Scheduled Monuments etc) as held by the English Heritage National Heritage list and review of aerial photographs as held by English Heritage specialist Aerial Photograph library at Swindon;
- details of archaeological site locations provided by New Forest History and Archaeology Group (if available for use in the EIA);
- review of information as contained within the AC Archaeology and NFPNA reports;
- review of archaeological reports as held by the Forestry Commission and the NFNPA archaeologist.

6.9 The results of the initial data collection and analysis will be used to produce a detailed resource mapping (at a suitable scale, anticipated to be 1: 5000) showing the location of known sites and areas of potential archaeological sensitivity. Known sites will be given an initial significance and sensitivity rating (using the significance criteria discussed below. The details of the scores attributed to the Islands Thorns sites are not contained within the (draft) report as supplied. When these are received they will be reviewed and (if necessary) adjusted.

6.10 The detailed resource mapping (and accompanying significance and sensitivity matrix) will be used as a basis for a detailed walkover survey which will examine the restoration area and a 50m buffer, anticipated to cover the potential working width/effected area. The area will be examined in a grid pattern of roughly 10m and any features recorded and their positions noted with a handheld GPS (accuracy approximately 6m). All features of potential archaeological significance will be photographed and recorded with approximate measurements, description and interpretation. An assessment of their significance, using standard criteria, will also be carried out.

Approach to Assessment and Significance Criteria

6.11 The results of the EIA survey will be reported upon in the Environmental Statement. The report will conform entirely to the standards set by the Institute for Archaeologists (IfA) in their guidance paper, Standards and Guidance for Archaeological Desk-Based Assessment (2012) and National Planning Policy Framework (NPPF), published in March 2012.

6.12 Significance and setting issues will be assessed with reference to the English Heritage documents Conservation Principles (2008) and The Setting of Heritage Assets (2011).

6.13 The assessment of archaeological effects will be carried out in line with the relevant standards and guidance. It will follow best practice methodologies as appropriate, including:

- The Institute of Field Archaeologists Standard and Guidance for Archaeological Desk-Based Assessment (1999).
- Design Manual for Roads and Bridges (DMRB), Volume II, Section 3, Part 2. Highways Agency August 2007 (HA 208/07). Although originally prepared as an assessment methodology for Highway Schemes, DMRB is now generally regarded as the industry standard for Cultural Heritage assessments.
- Seeing The History in the View: a method for assessing heritage significance within views. English Heritage (May 2011).
- The Setting of Heritage Assets. English Heritage (2011).

6.14 Determination of the importance of receptors (sites and features) will be based mainly upon existing designations, but allows for professional judgement where features are found that do not have any formal national or local designation.

Table 6.1 contains the criteria used to assess the potential importance/ sensitivity of receptors.

Table 6.1: Criteria used to determine Importance/Sensitivity of Receptor

Importance/ sensitivity of receptor	Equivalent to:
High	Sites of Importance at a national level such as: • Scheduled Monuments, • Grade I and II* Listed Buildings, • English Heritage Registered Park and Gardens. Sites which, although not currently designated or recognised as being of national importance are identified as part of this study as being of potential national significance – i.e. Sites of a Major Importance in a New Forest context.
Medium	Important sites on a Regional or district level, such as: • Grade II Listed Buildings • Locally Listed Buildings • Conservation Area. • Sites with a district value or interest for education or cultural appreciation. Sites which, although not considered sufficiently important or well preserved to be of national importance, but which nevertheless are considered important within a regional/New Forest context.

Importance / sensitivity of receptor	Equivalent to:
Low	Important sites on a local or parish level, such as: • Sites with a local or parish value or interest for education or cultural appreciation. Sites that are so badly damaged that too little remains to justify inclusion into a higher grade.
Negligible	Sites or features with no significant value or interest or sites that are so badly damaged that too little remains to justify inclusion into a higher grade.
Uncertain	Possible archaeological sites for which there is limited existing information. It has not been possible to determine the importance of the site based on current knowledge. Such sites might comprise isolated findspots or cropmarks visible on air photographs.

6.15 Assessment of the potential magnitude of effect will be made using the criteria as laid out in **Table 6.2** below.

Table 6.2: Criteria used to determine magnitude of change

Magnitude of change	Description of change
High	Complete destruction of the site or feature. Change to the site or feature resulting in a fundamental change in the ability to understand and appreciate the resource and its historical context and setting.
Medium	Change to the site or feature resulting in an appreciable change in the ability to understand and appreciate the resource and its historical context and setting.
Low	Change to the site or feature resulting in a small change in the ability to understand and appreciate the resource and its historical context and setting.
Negligible	Negligible change or no material change to the site or feature. No real change in the ability to understand and appreciate the resource and its historical context and setting.
Uncertain	Extent and exact location of archaeology is uncertain; effect is therefore uncertain or because precise construction methods/effects are uncertain.

Source: adapted from Design Manual for Roads and Bridges (DMTB) (HA 208/07

6.16 The importance and/or sensitivity of the receptor and the magnitude of change are combined to indicate the significance of predicted effect as shown in **Table 6.3.**

Table 6.3: Significance of Effects

		Receptor (sensitivity, value, importance)			
		High	**Medium**	**Low**	**Negligible**
Nature of effect	**High**	Major significance	Major significance	Moderate or minor significance	Negligible (not significant)
	Medium	Major significance	Moderate significance	Minor significance	Negligible (not significant)
	Low	Moderate or minor significance	Minor significance	Negligible (not significant)	Negligible (not significant)
	Negligible	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)

Source: adapted from IEMA State of Environmental Effect Assessment Practice in the UK (2011)

6.17 Where the significance of effect is designated 'unknown' for whatever reason, then further evaluation of the issue is generally necessary in terms of further details on the effects or further clarification of the cultural heritage resource.

6.18 It should be noted that **Table 6.3** is a starting point to guide decisions on significance of effect. Decisions will be based on professional judgement and in some circumstances it may be judged necessary to deviate from **Table 6.3.** Any deviations will be clearly recorded and justified.

6.19 Generally a higher level of significance is attached to large scale effects on sensitive or highly valued receptors. Effects which are graded as being major are those which the EIA team consider should be given greatest weight, relative to other levels of effect, in decision making.

Potential Effects

6.20 A summary of the potential effects on the Cultural Heritage resource during restoration and post restoration is provided in **Table 6.4.** These will be considered in detail in the EIA.

Table 6.4: Summary of Potential Archaeological Effects

Summary of Potential Archaeological Effects
During Restoration Works • Damage to or destruction of archaeological features or historic structures located within the footprint of the proposed /restoration works. • Damage to or destruction of archaeological features located within the footprint of any temporary works (construction compounds, work areas, access tracks etc). • De-watering or damage to archaeological features or historic structures located within the line of the existing watercourse. • Temporary visual effects upon the settings of archaeological sites or historic buildings/structures.
Post Restoration • Effects upon the settings of archaeological sites.

Potential Effects Scoped Out

6.21 No potential effects have been scoped out of this assessment.

7 Traffic and Transportation

Introduction

7.1 The following chapter provides an overview of the approach that will be adopted to assess the potential effect of the proposed Latchmore Wetland Restoration on traffic and transportation. Details on the proposed consultations, assessment and reporting methodologies, significance criteria and potential effects are also provided.

Overview of Proposed Methodology

Site Background

7.2 The Latchmore Brook lies within the New Forest National Park. The Latchmore site can be accessed via numerous local minor roads via the A338 from the West, the A31 from the south and southeast, and the B3078 from the north.

7.3 It is expected that material will be delivered from the nearest geologically compatible quarries. This could include Corfe Mullen, Hurn Court or Hamer Warren, all located to the west of the New Forest. Heather bales will be delivered by tractor from nearby Inclosures within the New Forest.

Study Area

7.4 At this stage, it is anticipated that materials and machinery will be delivered during the restoration process via two potential routes to site. Two-thirds of materials are expected via Alderhill and one-third via Ogdens. Consideration will be given to alternative access routes to the site as part of the assessment, however it is likely that the most suitable routes will comprise:

- Alderhill: A31 Stoney Cross, via Forestry Commission roads over Broomy Plain and Broomy Inclosure.
- Ogdens: B3081, A31, A338, Ellingham Drove, Moyles Court, north along Gorley Road to South Gorley, right to Ogdens).
- Fritham: A31, B3079, B3078 Roger Penny Way, left at Longcross, right towards Fritham, through village, past Royal Oak Public House, left into the forest car park with track to Islands Thorns Inclosure.

7.5 The proposed study area for this topic will encompass the routes outlined above.

Baseline Studies

7.6 A visual inspection of the roads within the study area will be undertaken, to determine their status and condition with a view to considering their suitability for use for works access.

7.7 Background traffic data will be collected where available.

7.8 Personal Injury Accident (PIA) will be sourced from Hampshire County Council for relevant sections of road network, for example the A31/Stoney Cross and the A338/Ellingham Drove junctions. A review of the data will be undertaken to establish locations and likely causes of recorded accidents.

Approach to Assessment and Significance Criteria

7.9 The significance of effects will be determined in accordance with the criteria set down in Guidelines for the Environmental Impact of Road Traffic (Institute of Environmental Assessment (now Institute of Environmental Assessment and Management (IEMA), 1993 - the IEMA Guidelines), and the stated threshold of predicted increases in total and HGV traffic.

7.10 The IEMA Guidelines state defined thresholds of traffic increase whereby an environmental effect may occur and further assessment work is required to determine its magnitude. The Guidelines also make a distinction between sensitive areas[22], where there is a strong presence of sensitive receptors and other factors (e.g. poor accident record) to consider, and non-sensitive areas, with sensitive areas having a 10% threshold (i.e. 10% increase in traffic) and non-sensitive areas having a 30% threshold (30% increase in traffic). Whether the location of the site and the access routes are within sensitive or non-sensitive locations will be determined in the environmental impact assessment, the relevant threshold will then be used to determine whether further environmental assessment is required.

Potential Effects

7.11 Effects will occur as a result of the increase of traffic during the restoration works, which will be quantified as part of the assessment. These will then be measured against baseline traffic flows (if available) to determine the increase in traffic generation and the impact on highway capacity. As assessment will also be made of the loss of pedestrian amenity.

7.12 A summary of the potential traffic effects both during and post the restoration are provided in **Table 7.1**.

Table 7.1: Summary of Potential Traffic Effects

Summary of Potential Traffic Effects
During Restoration • Increase in traffic generation and effect on highway capacity. • Effect on road safety. • Loss of pedestrian amenity. • Vibration damage to cobb cottages.
Post Restoration • Very minimal traffic generation for maintenance/inspection vehicles (to be scoped out of the EIA).

Potential Effects Scoped Out

7.13 It is proposed to scope out potential post restoration traffic effects on the basis of the very low levels of traffic movements associated with the site once it is restored. It is also proposed to scope out of the EIA consideration of driver delay and pedestrian severance and delay. This is because the restoration works will take place over a short timescale and it is envisaged that there will be negligible driver delay, or pedestrian severance or delay as a result of the restoration works. Loss of pedestrian amenity will be considered as some pedestrian access through the restoration area may be temporarily restricted due to the works.

[22] A sensitive area is not specifically defined within the IEMA Guidelines. Areas which are sensitive to traffic change are considered as roads where properties front the road, or where footways, schools and other amenities are present which would indicate the presence of sensitive road users.

8 Land Use, Landscape and Recreation

Introduction

8.1 This chapter of the EIA will consider the land use, landscape and visual and recreational effects of the proposed wetland restoration. Land use effects will include any potential impacts on Forestry Commission and Commoning activities[23]. The landscape and visual impact assessment will consider the potential effects of proposed development on:

- the landscape as a resource in its own right;
- views and visual amenity as experienced by people.

8.2 This assessment will also consider effects on the recreational amenity of people using the landscape resource – i.e. the effect of the proposed works on people's use of the landscape as a recreational resource, as distinct from any effects of changes in the appearance of the landscape (although the receptors of any recreational amenity effects will also be visual receptors).

8.3 Land use, landscape, visual and recreational amenity effects will be dealt with separately.

8.4 The following section provides a more detailed explanation of the methodology that will be used to assess the potential effects on landscape, visual and recreational amenity. The assessment of impacts on land use will consider the extent to which the proposed wetland restoration will have an effect on Forestry Commission activities and Commoning within the Latchmore catchment. This will include an evaluation of the impact of any changes in relation to access and grazing.

Overview of Proposed Methodology

Background

8.5 As a location exhibiting a number of landscape characteristics which contribute to the *Special Qualities* for which the New Forest has been designated a National Park, and which is consequently popular as a recreational destination, the Latchmore Brook area can be considered potentially sensitive to any form of landscape modification.

Study Area

8.6 The hydrological catchment area of the Latchmore Brook as far downstream as Ogdens is anticipated to mark the limit of the area within which potentially significant landscape effects are likely. If hydrological assessment identifies a significant potential for changes to the water table or to flood risk further downstream then the Study Area may need to be altered accordingly, but to date there has been no suggestion that any such changes will be of sufficient magnitude to have a significant effect on landscape character.

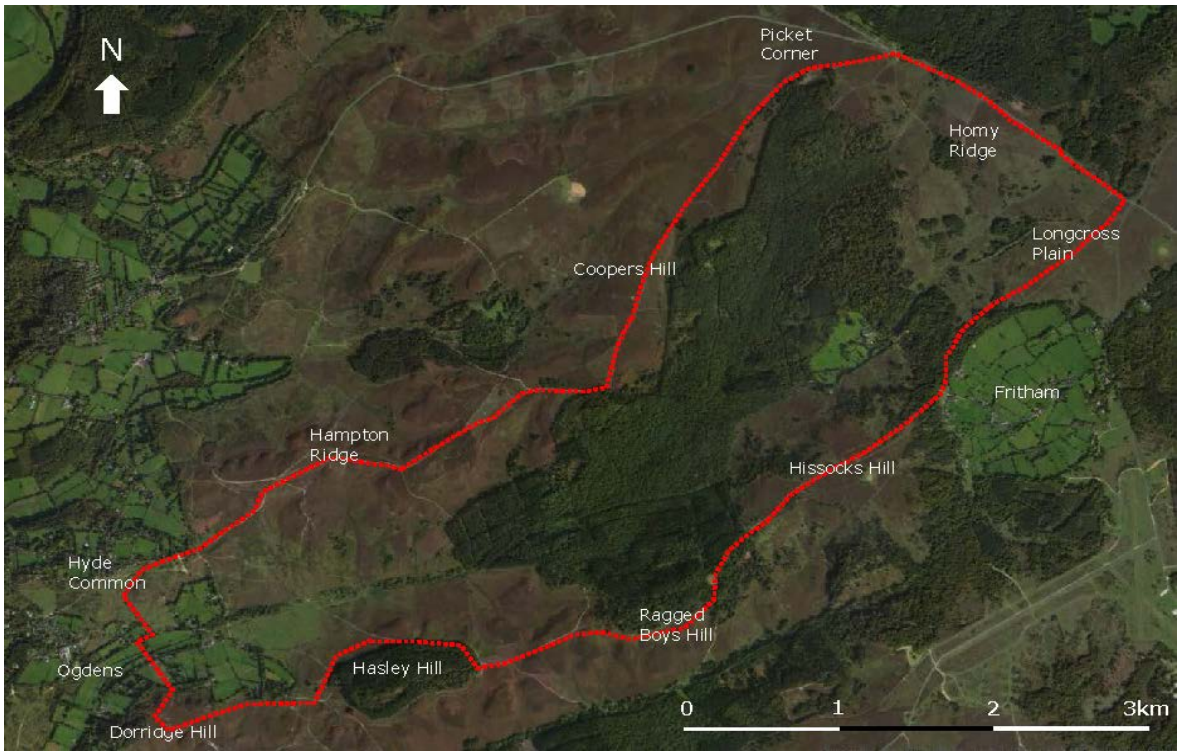
8.7 The ridges and hills that mark the catchment edges are also considered to define the extents of potentially significant visual effects, since there is no higher ground in the locality. There are no views into the Latchmore Brook valley from west of Ogdens.

- The following topographical features mark the limits of the Study Area (moving in a clockwise direction from Ogdens): Hyde Common, Windmill Hill, Hampton Ridge, Coopers Hill, Picket

[23] Commoning is an ancient tradition which can be traced back to at least Saxon times. Grazing associated with Commoning has been essential in shaping and maintaining the habitats found in the Forest today. Rights of Common are attached to land or property and are conferred by its ownership or occupation. The management of Commoning is the responsibility of the Verderers Court. The Verderers comprise 5 elected and 5 appointed Verderers whose role it is to regulate the Rights of Common and development on the open Forest. Their role is guided by the New Forest Acts and byelaws. The requirement to receive the consent of the Verderers is generally restricted to activities in the Open Forest (Heathland and A&O Woodland) and the Forestry Commission has a duty to consult and gain agreement with the Verderers in relation to activities or proposed developments on the Open Forest.

Corner, Homy Ridge, Longcross Plain, Hiscocks Hill, Ragged Boys Hill, Hasley Hill and Dorridge Hill. See **Figure 8.1** below.

Figure 8.1: Limits of landscape and visual study area



8.8 The landscape within the Study Area will be characterised on the basis of site study with reference to:

- the characterisation and typologies described in the New Forest Landscape Character Assessment 2013;
- the Special Qualities of the NFNP, as defined in 200724 and informing the vision of the NFNP Core Strategy and Development Management Policies DPD;
- the settings of the Western Escarpment Conservation Areas.
- tranquillity mapping carried out in 1997, and noise assessment carried out in 2008.

8.9 An initial site visit was carried out in February 2014, when water levels were very high and Latchmore Brook had in places burst its banks. Further site studies and photography from representative viewpoints will be carried out at later stage in the overall EIA process, so that assessment can be informed by any findings from other assessments, in particular hydrological and ecological studies, which might have an effect on landscape and views.

[24] NFNPA paper 191/07: A Statement of Special Qualities for the New Forest National Park Authority (June 2007)

Approach to Assessment and Significance Criteria

8.10 The landscape and visual impact assessment (LVIA) will be carried out in accordance with the principles contained in:

- Landscape Institute and the Institute of Environmental Management & Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (hereafter referred to as GLVIA3).
- Scottish Natural Heritage (2011) A Handbook on Environmental Impact Assessment, Appendix 1: Landscape and Visual Impact Assessment.
- Landscape Institute Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment.

8.11 The key steps in the methodology for landscape and visual assessment will be:

- analysis of the landscape within the study area to identify landscape 'receptors' – i.e. elements of the landscape, its specific aesthetic or perceptual qualities and its character – that could potentially be affected by the proposed works;
- identification of different groups of people who may experience views of the development, and the selection, in consultation with the NPA and any other bodies that the Consultation Strategy identifies, of viewpoints that represent the potential effects on these groups;
- identification of groups of recreational users of the landscape whose activities may be affected by the restoration project;
- description of potentially significant effects on landscape resources, viewers and recreational users of carrying out the proposed works, considered against the likely effects of not carrying out the proposals;
- judgement of the significance of landscape and visual effects, on the basis of the nature of the receptors (sensitivity) and the nature of the effect on those receptors (magnitude);
- judgement of the significance of effects on recreational amenity;
- identification of any additional measures, not already built into the scheme proposals, which could mitigate identified adverse effects (either through reducing the level of effect or providing compensatory benefits), and assessment of residual effects after implementation of these measures.

8.12 GLVIA3 states that the nature of receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed and the value attached to the receptor. Susceptibility is defined in GLVIA3 paragraph 5.40 as "*the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue*[25] *consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies*".

8.13 Value of landscape receptors is determined with reference to any landscape designations and the level of policy importance that they signify, and to the application of criteria that indicate value, such as:

- Scenic beauty / landmarks – the arrangement of landform, land cover and any particular landscape features, either natural or manmade.
- Naturalness – the absence of intrusive, man-made landscape elements.
- Distinctiveness – the presence of characteristics or features which can either be considered to typify (in a positive way) a particular area, or to make that area stand out as being unusual (again in a positive way), giving it 'rarity' value.

[25] Undue can be interpreted as 'disproportionate'.

- Condition – a landscape that is well managed, which depending on the nature of that landscape may mean regular maintenance (reflecting a functional value) or, in contrast, an absence of intrusive maintenance (e.g. in a more natural landscape).
- Historic associations – the presence of features which impart a sense of history or continuity, which may be through the presence of obvious landmarks or more subtly through the presence of less obvious but related features which create a connected historic landscape.
- Recreational value – the use of a landscape for recreational activity, where experience of the landscape is an important element of that activity.

8.14 For visual receptors, susceptibility relates to the activity/occupation of the viewer, and is typically considered to be 'high' for outdoor recreational users of a landscape and for residential viewers, and lower for those whose attention is less focused on the landscape, or whose relationship with it is more brief, such as passing road users or workers at their place of employment. In the case of Latchmore Brook, visual relationships are generally going to be recreational.

8.15 Visual value is considered in terms of the view itself, rather than the receptor. This will take into consideration how well 'used' a viewpoint is, any particular value associated with specific viewpoints e.g. scenic value or heritage features and any planning designations relating to views.

8.16 With regard to recreational amenity, there is no published guidance in the same way that there is for the assessment of landscape and visual effects, but a similar approach can be applied. Susceptibility can be considered in terms of the degree to which the activities of particular recreational receptors are dependent on being able to access particular areas or use particular routes, and some areas or routes might potentially have a higher value than others in terms of their suitability for the recreational activity or area in question.

8.17 Landscape, visual and recreational sensitivity is described as **low**, **medium** or **high** as defined in **Table 8.1**.

Table 8.1: Definitions of receptor sensitivity

Sensitivity	Receptor	Definition
High	Landscape	A landscape character area/type in which defining characteristics are susceptible to being changed by built development and the area may be highly valued.
	Visual	Viewers whose attention or interest is focussed on the landscape such as residents of properties in local communities or visitors to popular recreational destinations; or where there is a notable viewpoint.
	Recreational	Activity is dependent on specific routes/areas, or the routes/areas have a significantly higher recreational value than alternatives.
Medium	Landscape	A landscape character area/type in which some defining characteristics, which add value to the landscape/ townscape, may be susceptible to being changed by built development.
	Visual	Viewers with a moderate interest in their environment such as users of local rights of way, users of local recreational facilities or motorists on local roads.
	Recreational	Alternative routes/areas are limited, or the routes/areas have a slightly higher recreational value than alternatives.
Low	Landscape	A landscape character area/type in which defining characteristics are less susceptible to being changed by built development, and/or do not enhance landscape value.
	Visual	Viewers with a passing interest in their surroundings and whose interest is not specifically focussed on the landscape e.g. employees at their working premises or motorists on main roads. No particular value attached to views.
	Recreational	Activity can be carried out in alternative locations with no loss of recreational value.

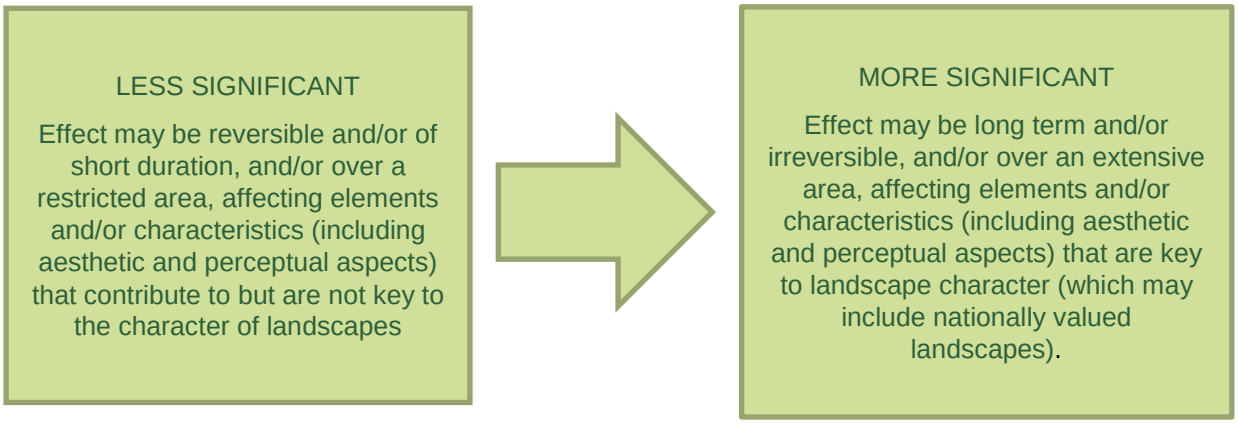
8.18 The magnitude of the effect on each landscape, visual or recreational receptor is assessed in terms of its size and scale, geographical extent, duration and reversibility. Magnitude of effects is described as **negligible**, **low**, **medium** or **high**, as defined in **Table 8.2.** The direction of effect (**beneficial**, **adverse** or **neutral**) is determined in relation to the degree to which the proposal fits with landscape character and the contribution to the landscape that the development makes, even if it is in contrast to existing character.

Table 8.2: Definitions of magnitude of change

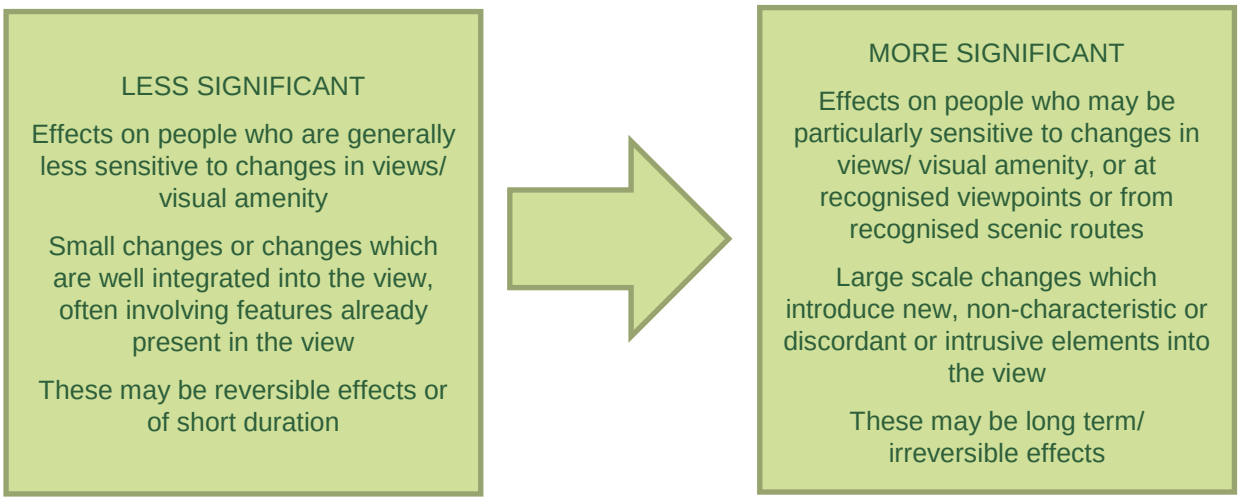
Magnitude	Receptor	Definition
High	Landscape	An obvious, permanent change in landscape characteristics and character.
	Visual	Large change in view, perhaps where the development is in close proximity in a direct line of vision, or affecting a substantial part of the view, or obstructing/conflicting with important elements of view.
	Recreational	Route/area will be permanently unavailable for the recreational activity.
Medium	Landscape	Discernible changes to landscape characteristics and character.
	Visual	Clearly perceptible change in view, perhaps where the development is relatively close but at an oblique angle or further away in the direct line of vision, creating a distinct new element in the view.
	Recreational	Quality of route/area for the recreational activity will be diminished to a moderate extent for the long-term
Low	Landscape	Small changes to landscape characteristics and character
	Visual	Small change in view, perhaps where the development is at a distance or oblique angle, or where the scale of the landscape absorbs the development well.
	Recreational	Quality of route/area for the recreational activity will be slightly diminished in the long term, or temporarily diminished to a greater extent.
Imperceptible / barely perceptible	Landscape	A barely perceptible/ imperceptible change to landscape characteristics and character.
	Visual	Change which is barely perceptible/ imperceptible, perhaps where the development is at a long distance or oblique angle, or where the development blends well with the existing view.
	Recreational	Quality of route/area for the recreational activity will be slightly diminished but only for a short duration.

8.19 Sensitivity and magnitude are considered together to form a judgement regarding the overall level of landscape, visual or recreational effect, which is rated on a scale of **negligible**, **minor**, **moderate** or **major.** Major and moderate effects are considered to be significant in the context of the EIA Regulations. The text boxes below give an indication of less and more significant effects. It should be noted that a significant effect can result from a large effect on a particular landscape characteristic or feature, or from a combination of smaller changes to many characteristics of the landscape.

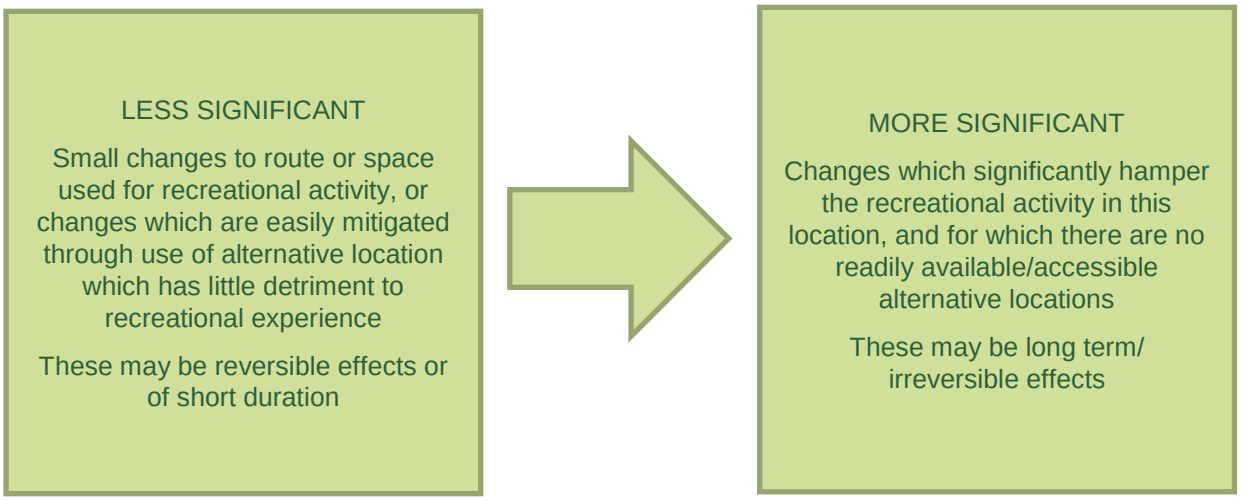
Landscape:



Visual:



Recreational:



Land Use

8.20 There are no established criteria for assessing the significance of effects on land use activities such as Forestry Commission or Commoning activity and so professional judgement will be used to inform the assessment of significance.

Potential Effects

8.21 It is recognised that there is a close relationship between the character of landscapes within the New Forest, ecological and hydrological systems, land management regimes and recreational use. The landscape effects resulting from interventions to alter water movement could potentially extend beyond the direct physical effects of channel realignment and short-term construction disturbance, so it will be important to understand the potential indirect and secondary effects on landscape, and views of the landscape, that could result from changes in the interaction between different elements of the physical environment, and in human interventions in the environment. The assessment of magnitude of landscape and visual effect will therefore be informed by the assessments of hydrological and ecological effect.

8.22 The localised scale of physical landscape changes proposed as part of the restoration project, and the extent of tree cover within the valley, mean that direct visual effects of some elements of the proposals will be very localised, but consideration will also be given to the cumulative effect of these works on visitors moving through the landscape, and to the potentially wider visual effects of longer term landscape changes that could result from the works and associated ongoing management.

8.23 A summary of the potential effects on land use, landscape, and recreational receptors during and post restoration works is provided in **Table 8.3**. These will be considered in detail in the EIA.

Table 8.3: Summary of Potential Land Use, Landscape, Visual and Recreational Amenity Effects

Summary of Potential Land Use, Landscape and Recreational Effects
Restoration Phase Effects • movement of traffic; • creation of passing places on access roads; • creation of temporary road surfaces; • temporary closure of working areas.
Post Restoration Primary Effects • loss of trees; • loss of scrub; • loss of other vegetation; • infilling of existing channels; • creation of new channels; • depth reduction measures (heather bales, clay plugs, gravel deposition); • creation of debris dams; • repair of nick points; • changes to access features (tracks, bridges, culverts, fords); **Post Restoration Secondary Effects** • changes in relationship between channels and surrounding landscape (inundation/flooding), and any subsequent changes in condition and use of terrain (e.g. public access, grazing, access for Commoners and agisters stock); • changes in channel form (erosion and deposition).

Potential Effects Scoped Out

8.24 The project consists of a number of separate works, many of which individually could not be expected to result in potentially significant effects, but as the intention is for these changes to have a combined effect on the hydrology of the catchment it is considered that there may similarly be the potential for the changes to cumulatively have a greater effect on landscape, views and recreational amenity. Therefore no potential effects within the defined Study Area have been scoped out of the assessment at this stage.

8.25 The movement of works vehicles to and from the site could potentially affect landscape character and views beyond the defined Study Area as well as within it. However, the short-term and transitory nature of any such effects with regard to landscape character or visual or recreational amenity beyond the Study Area is not considered sufficient to be likely to generate any significant effect. Effects on road network users and on the roads themselves are addressed in a separate Transport chapter.

Appendix 1: SSSI Units

Natural England SSSI Unit Condition Assessments

SSSI Unit[26]	Condition Assessment Comment
The New Forest - Unit 28	This is an extensive area of dry heath, wet heath and acid grassland mosaic with scattered scrub (at about 5% cover) and occasional stands of bracken (up to about 20% cover). Purple moor grass is present over large areas (probably about 75%) but grazing pressure is keeping the sward short and species-rich. Heather and cross-leaved heath are frequent and all age classes are present, with occasional bilberry and more rarely bog myrtle. There is good representation of characteristic plants with frequent heath bedstraw, catsear, milkwort and tormentil; occasional species include lousewort, sheep's sorrel and heath spotted orchid. Bracken is patchily distributed with some fairly dense areas and others with a more scattered cover. But it does not appear to be having adverse effects on overall diversity. Common gorse is dominant only rarely (making up about 5% cover) and other scrub makes up no more than about 5% creating some additional structure. Rotational management by burning is evident in parts of the heath and there is good recovery of heath vegetation. Grazing pressure appears to be appropriate. Scots pine and other non-site natives are rare (<1%) and there are no other negative indicators. In addition to the above, all additional designated features have been considered and assessed – **Favourable.**
The New Forest - Unit 30	This is a small area of wet heath and Molinia meadow draining into an adjacent woodland. There is evidence of damage as a result of erosion of the watercourse which appears to have resulted in reduced plant diversity in the adjacent habitat and possibly loss of mire habitat. Restoration of the habitat has been attempted but there are indications that this has not been successful to date. Plans are in place to address this. The on-going erosion and the apparent loss of mire vegetation indicate that the target for habitat extent is not being met. The humid heath includes a wide range of characteristic species and cover of Sphagnum is up to 15% in places. Meadow thistle, bog pimpernel, bog cotton, bog asphodel and carnation sedge are present throughout most of the humid heath and Molinia grassland but sward diversity is lower than typical, possibly the result of drainage. Cover of dwarf shrubs is at appropriate levels for the habitat with cross-leaved heath frequent to abundant throughout. Cover of Molinia is within target and it is kept appropriately short by grazing. Leaf litter levels are low and cover of bare ground is within target. There are small amounts of scattered trees and shrubs, bracken and gorse but these are mostly in the drier parts and not resulting in adverse impacts on the wet heath or Molinia grassland. – **Unfavourable recovering.**
The New Forest - Unit 43	This is an area of humid heath which includes very species-rich, intact examples of seepage and valley mire in the catchment of the Latchmore Brook. There is active erosion of the valley mire just outside the unit but the habitats within the unit are in good condition and no indications of adverse impacts were noted. However, there is a risk of damage to the mires should the erosion continue to proceed further upslope. The target for habitat extent is met as there is no indication of loss of heath or mire habitats through conversion to other habitats or drainage. Cover of open ground in the habitats is within target with good representation of small patches of open water, bryophyte mats and wet peat. There are no indications of excessive sward damage through trampling or

[26] Available at: http://www.sssi.naturalengland.org.uk/Special/sssi/unit_details.cfm?situnt_id=1027369 (Accessed 10th June 2014).

SSSI Unit[26]	Condition Assessment Comment
	poaching. Cover of dwarf shrubs is within target at about 40% in the humid heath and 25% in the mires. Of note is the occurrence of petty whin. Cover of Molinia is within target and it is kept appropriately short by grazing. Characteristic plants noted as frequent in the mire habitat include sundew, bog asphodel, tormentil, white beaked-sedge and bog cotton. The uncommon moss Scorpidium scorpioides is present in places indicating good quality habitat conditions. Cover of Sphagnum is within target and makes up to 80% cover in the mires. There is very low cover of trees and scrub. Myrica is present in the lower part of the system. Bracken and gorse are scattered through the wet heath making up less than 5% cover. **– Favourable.**
The New Forest Unit 44	Large unit of fragmented sphagnum rich mire and wet heath, plant diversity is high and there is good representation of characteristic plants. These include bog pimpernel, meadow thistle, round-leaved sundew, white beak-sedge, many-stalked spike-rush, bog asphodel, bog cotton, carnation sedge and tormentil. Cover of scrub and bracken in the open habitats is minimal and within target but it is notable that there is good structural and habitat diversity of value for wetland invertebrates adjacent to the unit. Several snipe were seen during the survey and it is noticeable that at the end of a dry season the majority of the unit had high water levels. There are no indications of negative impacts arising from nutrient input, excessive disturbance or trampling and current grazing levels appear appropriate to maintain the habitats in good condition. There are no indications of problems arising from non-native species or pollution. However obviously engineered drainage channels at the lower end of the slope are affecting extent of mire habitat and possibly quality. There are also several cross drains and these with the areas of spoil are keeping the unit unfavourable but recovering due to the Wetland restoration programme. **- Unfavourable recovering.**
The New Forest - Unit 48	This unit includes areas of valley mire, seepage mire, Molinia grassland and wet and dry heath. The main watercourse through the unit has been modified and there is evidence of other modification of drainage. This has resulted in damage to the adjacent habitats and loss of habitat. Works are proposed to reverse these damaging impacts. The valley mire habitat is generally degraded and significant areas of this habitat appear to have been lost due to erosion and slumping of the vegetation. The extent of habitat is therefore much less than should be the case and this aspect does not meet target. Remaining areas of vegetation associated with the smaller watercourses have also been adversely affected by past drainage and generally does not correspond with the characteristic valley mire vegetation type. Only towards the eastern end of the area is there good quality mire and Molinia lawn type vegetation with a number of characteristic plants. Otherwise, characteristic plants are infrequent in the mire habitat and plants tolerant of eroding vegetation such as bog pondweed are abundant. Sphagnum is generally absent from the mire vegetation and so this aspect does not meet target. Sward height and cover of litter in the Molinia meadow areas are within desired levels and grazing management appears appropriate. Cover of scrub, gorse and bracken are within target and there are no indications of problems arising from exotic species. There is significant on-going erosion of the banks of the watercourse resulting in loss of the associated Molinia meadow habitat. Also of concern is the presence of a spoil bank alongside the watercourse which may be affecting the flood regime and hydrology of the valley bottom. Associated species in this unit include southern damselfly; suitable habitat conditions for this appear to have been reduced in extent by drainage. As a number of key targets are not met the unit is considered to be in unfavourable condition. **- Unfavourable recovering.**

SSSI Unit[26]	Condition Assessment Comment
The New Forest - Unit 49	Large open area of wet heath becoming dryer on the higher ground with a valley mire all in generally favourable condition. Plant diversity is high and there is good representation of characteristic plants in the heath, mire and lawn habitats. These include meadow thistle, round-leaved sundew, white beak-sedge, many-stalked spike-rush, bog asphodel, bog cotton, a variety of small sedges and tormentil. Cover of Sphagnum exceeds 40% in the mire and is frequent in much of the wet heath. Cover of scrub and bracken in the open habitats is minimal and within target but it is notable that there is good structural and habitat diversity of value for wetland invertebrates throughout most of the unit. There are no indications of negative impacts arising from nutrient input, excessive disturbance or trampling and current grazing levels appear appropriate to maintain the habitats in good condition. There are no indications of problems arising from non-native species or pollution. At the lower end of the system are artificially deepened drains with spoil heaps in places. These are having a localised effect on the adjacent habitat reducing cover of cross-leaved heath and general species diversity. In other parts bracken and gorse are established on the spoil bank. Hence unit remains unfavourable but recovering due to the Wetland restoration programme. **- Unfavourable recovering.**
The New Forest - Unit 58	This area is pasture woodland, varied in type with generally younger trees in the northern part with Oak & Beech standards and old to ancient trees in the southern. The habitat is in good condition and targets for the various attributes are currently being met. The composition of the woodland is characteristic of the community type, there are large amounts of standing/lying dead trees and dead wood, and no indications of adverse impacts. The only issue of concern is evidence of recent cutting and removal of fallen trees from paths, but this is localised. – **Favourable**.
The New Forest - Unit 66	This is two large adjacent inclosure woodlands. Amberwood Inclosure was originally planted as an oak plantation and much of this remains in place, although some areas have subsequently been re-planted with conifers. Alderhill Inclosure was originally a mixture of oak and pine but large areas were replaced with conifers in the 1950s. The area formerly had extensive wetland areas but these were drained at the time of inclosure. Alderhill Inclosure is identified in the Forest Design Plan as an area of extensive clearance to re-instate the original predominantly open character with restoration of open heath and mire. This work has not yet started but remains scheduled to take place within the current plan period. The plans for Amberwood Inclosure are slightly different in that the emphasis is on creation of grazed pasture woodland, as well as restoration of mire alongside the Latchmore Brook. Again, this work has not yet started but remains scheduled to take place within the next ten years. Of particular concern at present is the presence of deep drains throughout the woods which exacerbate fast flow rates in the Latchmore Brook system downstream. Plans are being developed to address this issue. **- Unfavourable recovering.**
The New Forest - Unit 540	This is former inclosure woodland which is now open to extensive grazing. It is in the process of being managed to promote a greater proportion of broadleaf trees and to enhance open areas. Currently the canopy consists of even-aged beech (40%), oak (20%) and conifer (20%). There is evidence of recent conifer removal to favour broadleaves. There are occasional near veteran beech and oak but even so the amount of dead wood present is low. Some of the older trees have abundant ivy and growth of epiphytic mosses and lichens. The understory is very sparse and made up by occasional young yew and a few rhododendron. There is little broadleaf regeneration. The ground flora is dominated by bracken although there are patches with bilberry and bluebell. Grazed grass-dominated

SSSI Unit[26]	Condition Assessment Comment
	rides, track edges and clear fell areas provide open space and these sometimes have frequent heath bedstraw, tormentil and wood sage. Further management to increase structural diversity and amount of open space will be beneficial. This wood includes Studley Wood geological interest site. Detailed assessment of the interest of this feature found that the geological interest is accessible for study and generally in good condition. In addition to the above, all additional designated features have been considered and assessed. **- Unfavourable recovering.**