

# Environmental Statement

June 2014



# TEMPLE

LEADERS IN ENVIRONMENT,  
PLANNING & SUSTAINABILITY.

---

## **Report for – Rother Valley Railway Limited** **Track Reinstatement between Northbridge Street and Junction Road** **Environmental Statement – Volume 2 Main Statement** **Final**



## Document Version Control

| Version | Date       | Author          | Approver  |
|---------|------------|-----------------|-----------|
| 0.1     | 20/11/2013 | Robert Slatcher | P. George |
| 1.0     | 02/05/2014 | Robert Slatcher | P. George |
| 2.0     | 04/06/2014 | Robert Slatcher | P. George |
| 3.0     | 16/06/2014 | Robert Slatcher | P. George |

**Report for:** **David Slack**  
Rother Valley Railway Ltd

**Main Contributors:** **Emma Devenport**  
**Tess Murray**  
**Noise & Vibration - Camilo Castro- Llach**  
**Air Quality -Enan Keogh**  
**Landscape – Fira**  
**Ecology & Nature Conservation – CLM**  
**Water, Hydrology and Hydrogeology – Water Environment**  
**Land Quality –SLR**  
**Archaeology & Cultural Heritage – Place Consulting**  
**Transport and Access- Integrated Transport Planning**  
**Socio-economics – Berkley Hannover Consulting**  
**Land Use and Agriculture - David Slack (RVR Ltd)**

## Copy to

This report has been prepared by Temple Group Ltd with all reasonable care and diligence within the terms of the contract with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. We accept no responsibility to third parties to whom this report, or any part, thereof is made available. Any such party relies upon the report at their own risk.

---

## Contents

|      |   |    |
|------|---|----|
| 1.0  | Introduction  | 5  |
| 1.1  | Purpose of the Report   | 5  |
| 1.2  | Context   | 5  |
| 1.3  | Environmental Impact Assessment (EIA)                                       | 5  |
| 1.4  | Scoping   | 6  |
| 1.5  | Structure of the Environmental Statement                                    | 6  |
| 2.0  | Description of the Scheme   | 8  |
| 2.1  | Scheme Context  | 8  |
| 2.2  | Scheme Location   | 9  |
| 2.3  | Area History  | 10 |
| 2.4  | Description of the Proposed Scheme  | 10 |
| 2.5  | Scheme Operation  | 12 |
| 2.6  | Land Use Requirements   | 12 |
| 2.7  | Construction Overview   | 13 |
| 2.8  | Overall Construction Methodology  | 15 |
| 2.9  | Structure Specific Construction and Methodology                             | 16 |
| 2.10 | Operational Overview  | 17 |
| 2.11 | Decommissioning   | 17 |
| 3.0  | Alternatives and Project Need   | 18 |
| 4.0  | Assessment Approach and Methodology   | 19 |
| 4.1  | Approach to EIA   | 19 |
| 4.2  | Study Area  | 20 |
| 4.3  | Existing Baseline and Future Conditions                                     | 20 |
| 4.4  | Identifying Potential Impacts and Effects - Direct, Indirect and Cumulative | 20 |
| 4.5  | Significance of Effect  | 21 |
| 4.6  | Mitigation Measures, Enhancements and Residual Effects                      | 22 |
| 4.7  | Scope of Assessment   | 23 |
| 4.8  | Planning and Policy Context   | 23 |
| 4.9  | Limitations to the assessment   | 24 |
| 5.0  | Consultation  | 25 |
| 5.1  | Overview  | 25 |
| 5.2  | Scoping   | 25 |



---

|     |  |     |
|-----|--|-----|
| 5.3 | General Consultation                             | 25  |
| 6.0 | Noise and Vibration                              | 26  |
| 6.1 | Introduction                                     | 26  |
| 6.2 | Planning and Policy Context                      | 26  |
| 6.3 | Assessment Methodology and Significance Criteria | 30  |
| 6.4 | Baseline   | 36  |
| 6.5 | Predicted Effects                                | 38  |
| 6.6 | Residual Effects                                 | 43  |
| 6.7 | Conclusions                                      | 43  |
| 7.0 | Air Quality                                      | 44  |
| 7.1 | Introduction                                     | 44  |
| 7.2 | Planning Policy and Context                      | 44  |
| 7.3 | Methodology                                      | 45  |
| 7.4 | Baseline   | 49  |
| 7.5 | Predicted Effects                                | 51  |
| 7.6 | Cumulative Effects                               | 53  |
| 7.7 | Mitigation                                       | 53  |
| 7.8 | Residual Effects                                 | 53  |
| 7.9 | Conclusion                                       | 54  |
| 8.0 | Landscape and Visual                             | 55  |
| 8.1 | Introduction                                     | 55  |
| 8.2 | Scope of Assessment                              | 55  |
| 8.3 | Methodology                                      | 58  |
| 8.4 | Baseline   | 65  |
| 8.5 | Predicted Effects                                | 84  |
| 8.6 | Cumulative Effects                               | 86  |
| 8.7 | Mitigation                                       | 86  |
| 8.8 | Residual Effects                                 | 88  |
| 8.9 | Conclusion                                       | 89  |
| 9.0 | Ecology and Nature Conservation                  | 91  |
| 9.1 | Introduction                                     | 91  |
| 9.2 | Methodology                                      | 93  |
| 9.3 | Baseline   | 99  |
| 9.4 | Predicted Effects                                | 107 |



---

|  |     |
|--|-----|
| 9.5 Mitigation                                 | 112 |
| 9.6 Residual Effects                           | 116 |
| 9.7 Conclusions                                | 117 |
| 10.0 Water Quality, Hydrology and Hydrogeology | 118 |
| 10.1 Introduction                              | 118 |
| 10.2 Methodology                               | 123 |
| 10.3 Baseline                                  | 125 |
| 10.4 Predicted Effects                         | 132 |
| 10.5 Mitigation                                | 135 |
| 10.6 Residual Effects                          | 138 |
| 10.7 Conclusion                                | 139 |
| 11.0 Land Quality                              | 142 |
| 12.0 Archaeology and Cultural Heritage         | 143 |
| 12.1 Introduction                              | 143 |
| 12.2 Methodology                               | 145 |
| 12.3 Baseline                                  | 148 |
| 12.4 Predicted Effects                         | 154 |
| 12.5 Cumulative Effects                        | 156 |
| 12.6 Mitigation                                | 156 |
| 12.7 Residual Effects                          | 156 |
| 12.8 Conclusion                                | 157 |
| 13.0 Transport and Access                      | 158 |
| 13.1 Introduction                              | 158 |
| 13.2 Methodology                               | 161 |
| 13.3 Baseline                                  | 162 |
| 13.4 Predicted Effects                         | 173 |
| 13.5 Cumulative Effects                        | 176 |
| 13.6 Mitigation                                | 176 |
| 13.7 Residual Effects                          | 177 |
| 13.8 Conclusion                                | 177 |
| 14.0 Socio-Economics                           | 178 |
| 14.1 Introduction                              | 178 |
| 14.2 Methodology                               | 179 |
| 14.3 Baseline                                  | 184 |

---

|                                       |         |
|---------------------------------------|---------|
| 14.4 Predicted Effects                | 187     |
| 14.5 Cumulative Effects               | 191     |
| 14.6 Mitigation and Residual Effects  | 192     |
| 14.7 Conclusion                       | 192     |
| <br>15.0 Land-use and Agriculture     | <br>193 |
| 15.1 Introduction                     | 193     |
| 15.2 Legislation and Policy           | 193     |
| 15.3 Methodology                      | 195     |
| 15.4 Baseline conditions              | 198     |
| 15.5 Predicted Effects                | 200     |
| 15.6 Cumulative Effects               | 202     |
| 15.7 Mitigation                       | 202     |
| 15.8 Residual Effects                 | 203     |
| 15.9 Conclusion                       | 204     |
| <br>16.0 Cumulative Effects           | <br>205 |
| 16.1 Introduction                     | 205     |
| 16.2 Methodology                      | 205     |
| 16.3 Other Developments               | 206     |
| 16.4 Intra-project Cumulative Effects | 206     |
| 16.5 Inter-project Cumulative Effects | 206     |
| 16.6 Conclusion                       | 207     |

## **Appendices**

Appendix 1 Bibliography

Appendix 2 Mitigation Summary Tables

Appendix 3 Residual Effects Summary Table

Appendix 4 Draft Construction Environmental Management Plan

Appendix 5 Noise and Vibration Appendices

Appendix 6A Archaeological and Cultural Heritage Appendices

Appendix 6B Assessment of Historic Maps

---

## Abbreviations

|              |   |
|--------------|---|
| <b>AADT</b>  | Annual Average Daily Traffic                          |
| <b>ALC</b>   | Agricultural Land Classification                      |
| <b>AOD</b>   | Above Ordnance Datum                                  |
| <b>AONB</b>  | Area of Outstanding Natural Beauty                    |
| <b>AQMA</b>  | Air Quality Management Area                           |
| <b>AQS</b>   | Air Quality Standards                                 |
| <b>BAP</b>   | Biodiversity Action Plan                              |
| <b>BGS</b>   | British Geological Survey                             |
| <b>BPM</b>   | Best Practicable Means                                |
| <b>BS</b>    | British Standard                                      |
| <b>BRE</b>   | Building Research Establishment                       |
| <b>CEMP</b>  | Construction Environmental Management Plan            |
| <b>CFMP</b>  | Catchment Flood Management Plan                       |
| <b>COPA</b>  | Control of Pollution Act                              |
| <b>CRN</b>   | Calculation of Railway Noise                          |
| <b>CRTN</b>  | Calculation of Road Traffic Noise                     |
| <b>DCLG</b>  | Department for Communities and Local Government       |
| <b>Defra</b> | Department for Environment, Food and Rural Affairs    |
| <b>DfT</b>   | Department for Transport                              |
| <b>DMRB</b>  | Design Manual for Roads and Bridges                   |
| <b>DWP</b>   | Department for Work and Pensions                      |
| <b>EcMP</b>  | Ecology Management Plan                               |
| <b>EIA</b>   | Environmental Impact Assessment                       |
| <b>EPUK</b>  | Environmental Protection United Kingdom               |
| <b>ES</b>    | Environmental Statement                               |
| <b>EU</b>    | European Union  |
| <b>FRA</b>   | Flood Risk Assessment                                 |
| <b>GLVIA</b> | Guidelines for Landscape and Visual Impact Assessment |
| <b>HDV</b>   | Heavy Duty Vehicle                                    |

---

|                   |   |
|-------------------|---|
| <b>IEEM</b>       | Institute of Ecology and Environmental Management |
| <b>JSA</b>        | Job Seekers Allowance                             |
| <b>LAQM.TG</b>    | Local Air Quality Management Technical Guidance   |
| <b>LOAEL</b>      | Lowest Observable Adverse Effect Level            |
| <b>LSOA</b>       | Lower Super Output Area                           |
| <b>MAFF</b>       | Ministry for Agriculture, Fisheries and Food      |
| <b>MMU</b>        | Manchester Metropolitan University                |
| <b>NAQO</b>       | National Air Quality Objective                    |
| <b>NIRR</b>       | Noise Insulation (Railways) Regulations           |
| <b>NPPF</b>       | National Planning Policy Framework                |
| <b>ONS</b>        | Office for National Statistics                    |
| <b>OS</b>         | Ordnance Survey                                   |
| <b>PFRA</b>       | Preliminary Flood Risk Assessment                 |
| <b>PLQRA</b>      | Preliminary Land Quality Risk Assessment          |
| <b>PPG</b>        | Planning Policy Guidance                          |
| <b>PPL</b>        | Potential Pollution Linkages                      |
| <b>PPS</b>        | Planning Policy Statement                         |
| <b>PPV</b>        | Peak Particle Velocity                            |
| <b>RDC</b>        | Rother District Council                           |
| <b>RVR</b>        | Rother Valley Railway Limited                     |
| <b>SEL</b>        | Sound Exposure Level                              |
| <b>SFRA</b>       | Strategic Flood Risk Assessment                   |
| <b>SNCI</b>       | Site of Nature Conservation Interest              |
| <b>SOAEL</b>      | Significant Observable Effect Level               |
| <b>SSSI</b>       | Site of Special Scientific Interest               |
| <b>SWMP</b>       | Surface Water Management Plan                     |
| <b>SxBRC</b>      | Sussex Biological Records Centre                  |
| <b>TSR&amp;GD</b> | Traffic Signs Regulation & General Directions     |
| <b>VDV</b>        | Vibration Dose Value                              |
| <b>WFD</b>        | Water Framework Directive                         |
| <b>ZTV</b>        | Zone of Theoretical Visibility                    |



## Glossary

|                                 |   |
|---------------------------------|---|
| <b>A</b>                        |   |
| Airborne noise                  | For the purposes of this report, airborne noise is defined as that mainly generated by the train and the interaction of the wheel and the railhead.   |
| Ambient noise                   | Totally encompassing sound in a given situation over a given time period, measured as an Equivalent Continuous Sound Level  |
| aquifer                         | A porous body of rock capable of holding quantities of water that can be abstracted for human use.  |
| arable                          | Land use for growing crops.   |
| at-grade                        | At ground level.  |
| <b>B</b>                        |   |
| ballast                         | Stone material which forms the trackbed of a railway line.  |
| baseline                        | Information which represents the environmental conditions immediately prior to the implementation of any scheme. Environmental impacts or benefits are assessed by measuring how much the baseline conditions would change. |
| Biodiversity Action Plan        | A program to maintain or restore habitats and species.  |
| <b>C</b>                        |   |
| cantilevered                    | A projecting structure, for example a walkway that is supported at only one end.  |
| cartographic                    | Pertaining to maps.   |
| catchment                       | An area of land that drains in to a single watercourse.   |
| <b>D</b>                        |   |
| dB                              | The unit of noise measurement in terms of decibels (dB)   |
| desk based assessment           | A study undertaken utilising available data sources only and not based on original site derived information.  |
| <b>E</b>                        |   |
| Environmental Impact Assessment | A formal process which assesses the potential environmental effects of a project.   |
| Environmental Statement         | Document in which the results of an EIA are presented to decision-makers and the public.  |
| <b>F</b>                        |   |
| floodplain                      | Flat or nearly flat land adjacent a stream or river that stretches from the banks of its channel to the base of the enclosing valley walls and experiences flooding during periods of high discharge.                       |
| fluvial                         | The processes associated with rivers and streams and the deposits and landforms created by them.  |
| forge                           | A furnace where metal is heated.  |
| fugitive dust                   | Dust that becomes airborne.   |
| <b>G</b>                        |   |
| grade separated                 | On different vertical plains.   |
| groundwater                     | Water held in the ground.   |
| <b>H</b>                        |   |
| halt                            | Minor stopping place on a railway.  |
| hydrology                       | The study of surface water.   |
| hydrogeology                    | The study of groundwater.   |
| <b>I</b>                        |   |
| infiltration                    | Process of water entering the soil.   |
| <b>K</b>                        |   |
| kiln                            | A type of oven used to process a substance by burning, firing or drying.  |

|                                  |   |
|----------------------------------|---|
| <b>L</b>                         |   |
| LA1, LA5, LA10, LA50, LA90, LA99 | A-weighted sound pressure level exceeded for 1, 5, 10, 50, 90 or 99% of the measured time   |
| $L_{Aeq}$                        | Equivalent continuous A-weighted sound pressure level over a given period of time   |
| $L_{Amax}$                       | The maximum A-weighted sound pressure level over a given period of time   |
| $LpA$                            | A-weighted Sound Power Level  |
| LWA                              | A-weighted Sound Power Level  |
| <b>M</b>                         |   |
| medieval period                  | The period in European history often dated from between a.d. 476 and 1453.  |
| mitigation                       | Measures, including any process, activity or design to avoid, reduce, remedy or compensate for adverse effects of a development project.  |
| <b>N</b>                         |   |
| nucleated settlements            | A settlement established around a central point.  |
| <b>P</b>                         |   |
| pastoral                         | Land used for the grazing of animals.   |
| PPV                              | Peak Particle Velocity in millimetres per second (mm/s). The vibration measurement parameter that is usually used to describe vibration in relation to sudden impulse events.   |
| public right of way              | A path that members of the public have a protected legal right to walk along. Depending on the type of public right of way, it may also be available for cycling, horse riding, horse drawn carriages and motor vehicles. |
| <b>R</b>                         |   |
| Radiated noise                   | Mainly generated by the excitation of and subsequent radiation via structural elements (viaducts and other supporting structures). The route of sound propagation is through the air.                                     |
| receptor                         | In general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property or a water body.  |
| Residual noise                   | The measured ambient noise level excluding all train pass bys.  |
| riparian                         | Adjacent to a river.  |
| <b>S</b>                         |   |
| scheduled monument               | A nationally important monument afforded legal protection.  |
| scoping opinion                  | A report provided by a determining authority which defines the requested content of an EIA.   |
| soakaway                         | Defined area established to drain water into the ground.  |
| soffit                           | Underside of a bridge.  |
| sound exposure level (SEL)       | The level at a reception point which, if maintained constant for a period of 1 second, would cause the same A-weighted sound energy to be received as is actually received from a given noise event.                      |
| spatial scope                    | To define the physical extent of a study area.  |
| statutory consultee              | An individual or organisation that there is a legal obligation to consult with.   |
| structure                        | For the purposes of this report, structure radiated noise is defined as that.   |
| sustainable drainage system      | Infrastructure which manages surface water in a manner that considers water quality, flooding and amenity.  |
| <b>T</b>                         |   |
| temporal scope                   | The definition of the time scales which an assessment would be undertaken.  |
| topographic                      | Pertaining to the shape and physical features of the earth's surface.   |
| train                            | One or more rail vehicles which are coupled together to form a single operating unit.   |
| transboundary                    | Something that crosses an international boundary.   |
| tributary                        | A stream that feeds into a larger watercourse.  |
| <b>V</b>                         |   |
| VDV                              | Vibration Dose Values in metres per second 1.75 (m/s). The vibration measurement parameter that based on a form of acceleration that is frequency weighted to reflect human sensitivity to various frequencies            |

## 1.0 Introduction

### 1.1 Purpose of the Report

- 1.1.1 Temple Group Ltd. has been commissioned by Rother Valley Railway Limited (hereafter referred to as “RVR”) to carry out an Environmental Impact Assessment (EIA) of the proposed Rother Valley Railway Project (hereafter referred to as “the Scheme”).
- 1.1.2 The Scheme would comprise reinstatement of approximately 3.4km of the former Kent & East Sussex Railway between the B2244 Junction Road and Northbridge Street in Robertsbridge, East Sussex and associated rail infrastructure including three level crossings. A more detailed description of the Scheme is provided in Chapter 2.
- 1.1.3 The purpose of this Environmental Statement (ES) is to support a planning application under the Town and Country Planning Act 1990 submitted to Rother District Council (RDC).

### 1.2 Context

- 1.2.1 The proposed new infrastructure is considered to be a development that requires EIA as it falls under Schedule 2 Category 10d (Infrastructure projects: Construction of Railways) of the *Town and Country Planning (Environmental Impact Assessment) Regulations 2011* (“the EIA Regulations”) and is likely to have significant effects on the environment due to its location, characteristics and size. The proposed development is therefore “EIA development” for the purposes of the EIA Regulations.
- 1.2.2 The railway alignment has been allocated within the Rother District Local Plan (Adopted 2006). Policy EM8 states that the Scheme will be supported, subject to the proposals meeting the following criteria:
  - It must not compromise the integrity of the floodplain and the flood protection measures at Robertsbridge;
  - It has an acceptable impact on the High Weald Area of Outstanding Natural Beauty; and
  - It incorporates appropriate arrangements for crossing the A21, B2244 at Udiam, Northbridge Street and the River Rother.

### 1.3 Environmental Impact Assessment (EIA)

- 1.3.1 EIA is a process to assess the likely environmental effects of a project, in order that decision makers may take these into account in making their determination of the planning application. EIA is a structured framework which allows for the systematic appraisal of a range of potential environmental effects together through a single process, with a final means of communicating the findings of the EIA through the production of a report known as an Environmental Statement (ES).
- 1.3.2 EIA is required by European Law, as defined in the EC Directive 85/337/EEC (as amended) and is implemented through English law in respect to projects granted planning consent pursuant to the *Town and Country Planning (Environmental Impact Assessment) Regulations 2011*, which define the type of development for which EIA is required and any thresholds required to define such a development. The EIA requirement for the Scheme is defined in Section 1.2 of this ES.

- 1.3.3 The objective of the EIA process is to identify the likely significant direct, indirect, temporary and permanent environmental effects resulting from construction and operation of a development. It also identifies measures to avoid or reduce those predicted effects. The ES reports on that process and describes the effects likely to occur both with and without developed mitigation.
- 1.3.4 The EIA process is an open and inclusive one that seeks external input from third parties and statutory bodies. This external input allows the full and thorough consideration of all possible environmental effects and makes for a more effective assessment.
- 1.3.5 The ES seeks to describe the whole EIA process in a way that is understandable to a wide readership. The ES also acts as a supporting document to planning applications and is used by planning authorities and statutory organisations to determine an application based on the likely significant environmental effects. In order to satisfy this requirement, an ES must contain sufficient detail to allow technical and planning specialists to understand the likely effects.

## **1.4 Scoping**

- 1.4.1 On 29th October 2013, a formal EIA Scoping Request was submitted to RDC prepared by Temple Group on behalf of RVR (as the Applicant) under Regulation 8 of the EIA Regulations.
- 1.4.2 The scoping request sought a formal written opinion from the Council on the proposed scope of the EIA and content of the ES based on the description of the proposals contained within the Scope and Methodology Report. Section 4.7 of this report provides the details of the scope of the assessment undertaken for this EIA and included in this ES.
- 1.4.3 A formal written Scoping Opinion was published by the Council in January 2014. The Scoping Opinion is provided in Volume 3, Report 2 to the ES. The Scoping Opinion provides guidance on the content of the ES based on the consultation undertaken by RDC with statutory consultees and the opinion of the Council. Further details of the consultation undertaken for the Scheme are provided in Chapter 5 of this report.

## **1.5 Structure of the Environmental Statement**

- 1.5.1 This ES has been prepared in accordance with best practice, the EIA Regulations and the Scoping Opinion. The structure and contents of each volume of the report is set out in **Table 1.1**.
- 1.5.2 The ES contains three levels of reporting detail which are split into four separate volumes as set out in Table 1.1:

**Table 1.1 - Structure of the Environmental Statement**

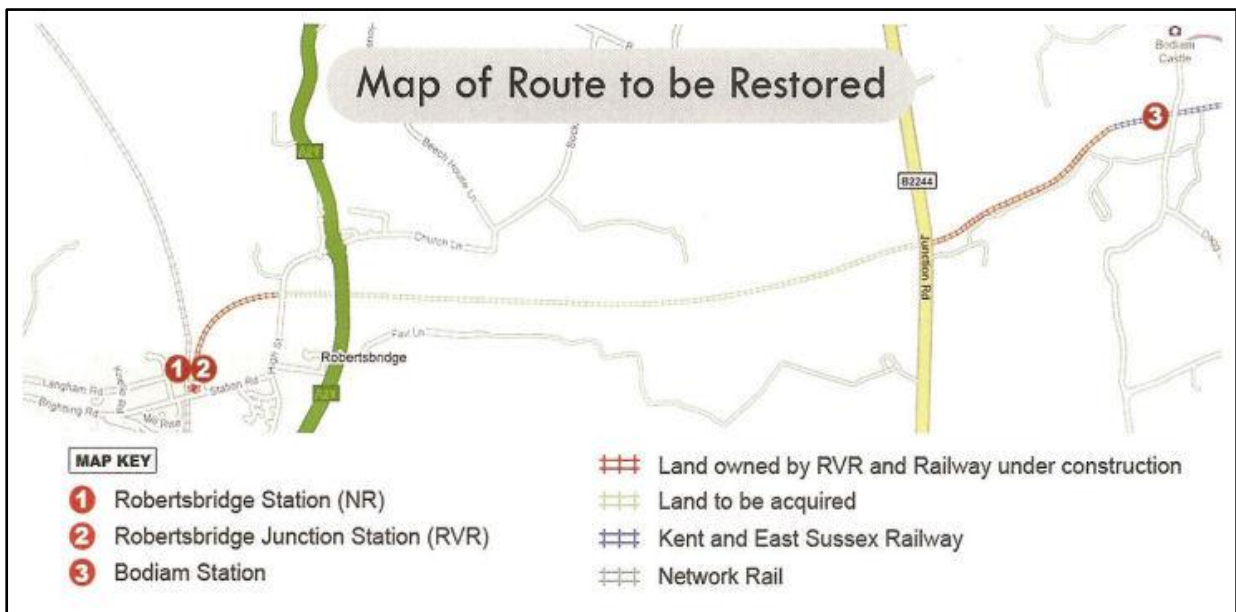
| <b>Environmental Statement Volume</b>       | <b>Description</b>   |
|---|--|
| Volume 1 : Non-Technical Summary            | Provides a broad overview of the Scheme proposal and the key findings of the EIA using non-technical language.   |
| Volume 2 : Main Statement                   | Provides a description of the EIA process and the likely effects of the Scheme, including: <ul style="list-style-type: none"><li>• Details the Scheme proposal;</li><li>• Alternatives considered;</li><li>• Construction methodology;</li><li>• Operational regime;</li><li>• Summary of the likely environmental effects for each discipline;</li><li>• Proposed mitigation and residual effects of the Scheme for each discipline; and</li><li>• Description of cumulative effects.</li></ul> |
| Volume 3 : Technical and Supporting Reports | Comprises Technical Reports which supplement the assessment contained within Volume 2.   |
| Volume 4 : Figures                          | Contains the figures used to support the Main Statement.   |

## 2.0 Description of the Scheme

### 2.1 Scheme Context

- 2.1.1 The Scheme seeks to reconstruct an approximately 3.4km section of the former Kent & East Sussex Railway (see **Plate 2.1**). The missing section of line would connect the existing operational section of railway that runs from Tenterden, Kent in the east to the B2244 Junction Road and a recently re-constructed short section of line between Robertsbridge Station and Northbridge Street in Robertsbridge.

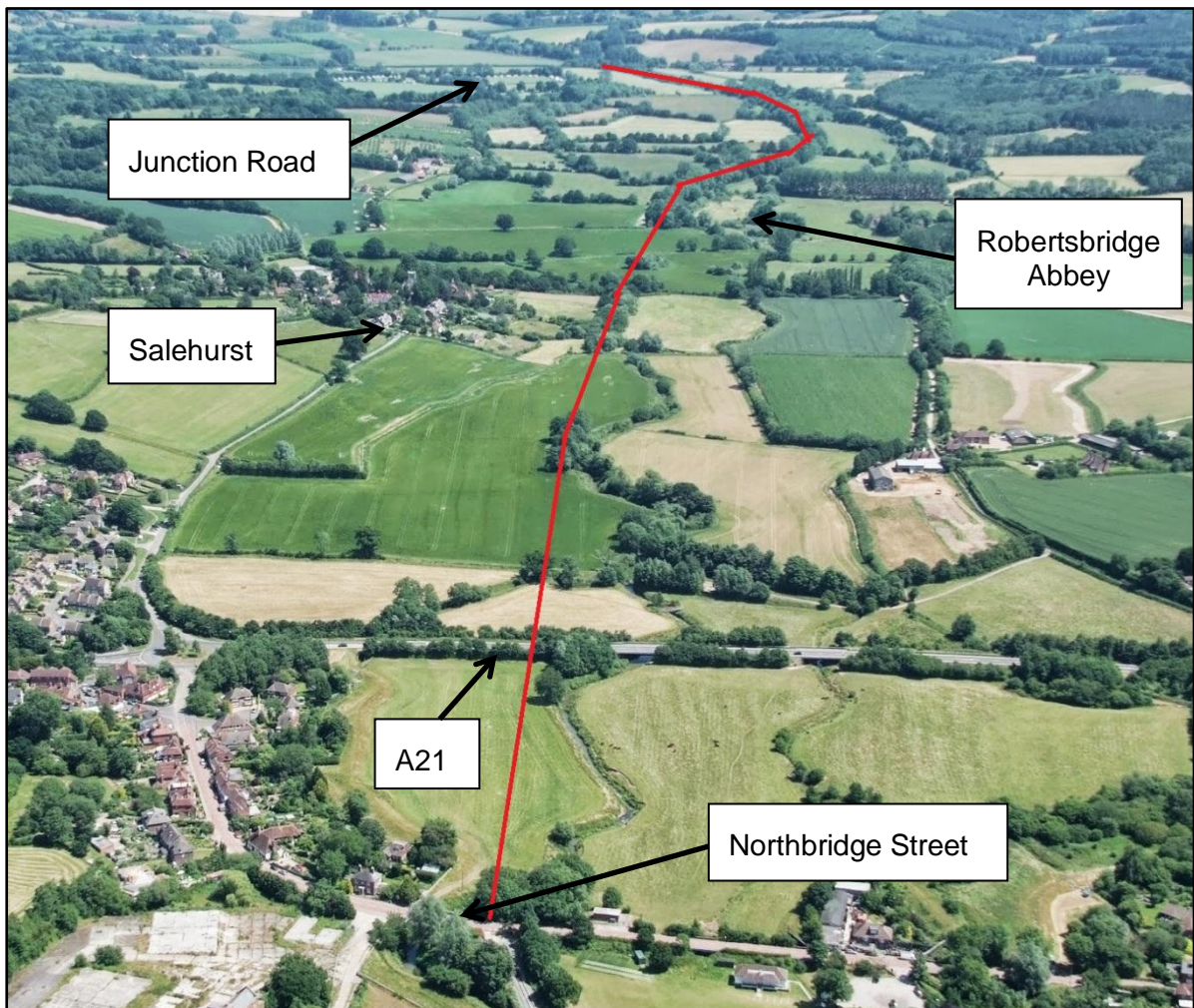
**Plate 2.1 - Plan Showing Section of the Route to be Restored**



- 2.1.2 To the west, the section of line from the terminus at Robertsbridge to Northbridge Street in Robertsbridge and in the east from Bodiam to the B2244 Junction Road was granted planning permission for reinstatement in 2005 (Application Number: RR/2005/836/P). This work included the construction of replacement bridge structures and was completed in 2012. Planning consent for a new railway station, signal box, water crane and tower, carriage shed and engine shed adjacent to the existing national rail station at Robertsbridge was granted by RDC in November 2012 (Application Number: RR/2012/1357/P) and is currently under construction (initial work involving track laying and platform construction were completed in September 2013).
- 2.1.3 The proposed Scheme would allow trains to run the full length of the line between Robertsbridge and Tenterden and provide a connection to the mainline rail network to enable visitors to the Kent & East Sussex Railway to arrive by train (at present it is only accessible by road).
- 2.1.4 **Plate 2.2** shows an aerial view of the proposed Scheme alignment looking east from Robertsbridge.



**Plate 2.2 - Aerial Photo Looking East Showing the Railway Alignment**



## **2.2 Scheme Location**

- 2.2.1 The location of the Scheme extends from Grid Reference 578305, 124995 to 573377, 123488 (see Volume 4, Figure 2.1 and 2.2). The site is located between Northbridge Street, Robertsbridge and Junction Road near Bodiam in East Sussex, covering a distance of approximately 3.4km. The entire line of route lies within the High Weald Area of Outstanding Natural Beauty (AONB).
- 2.2.2 The surrounding area is predominately a mixture of arable and pastoral agricultural land, with areas of woodland to the south of the route. Residential areas within the vicinity of the scheme include Salehurst, Northbridge Street and Robertsbridge, which are all located at the westerly end of the proposed route, and Bodiam to the most easterly point.
- 2.2.3 The site includes two watercourses, the River Rother and Mill Stream. The River Rother flows north-west to south-east and runs broadly parallel with the proposed route, crossing just north of Fowlbrook Wood near the eastern end of the site and again just north of Robertsbridge at the westerly end of the site.

## **2.3 Area History**

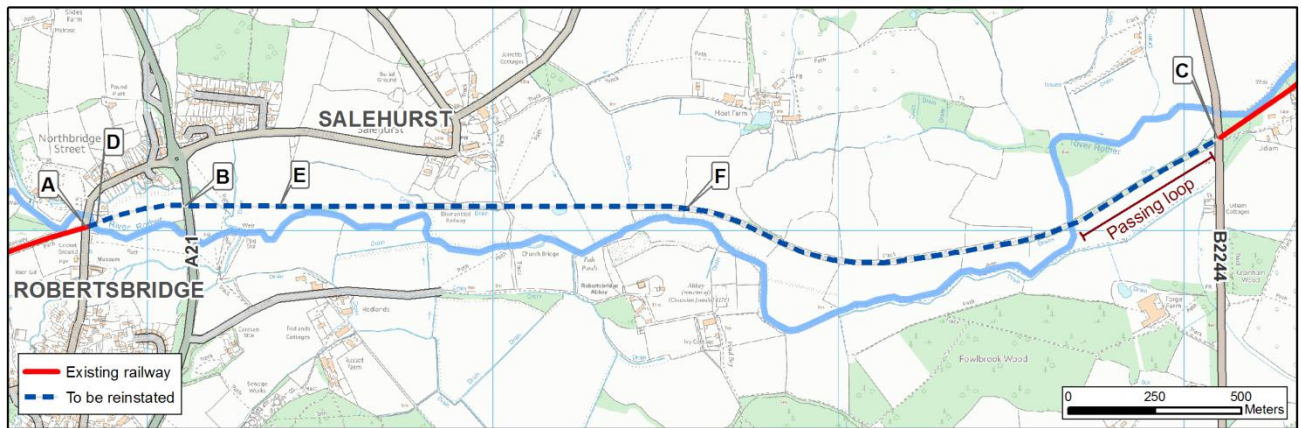
- 2.3.1 A detailed description of the history of the Scheme area is contained within Chapter 12: Archaeology and Cultural Heritage of this report. The nationally important remains of Robertsbridge Abbey are located to the south of the Scheme and date back to the early 12th century (see Volume 4, Figure 12.1).
- 2.3.2 The original line was known as the Rother Valley (Light) Railway. It was granted consent by an Act of Parliament in 1896 and opened in 1900. The line was subsequently renamed the Kent & East Sussex Light Railway in 1904. The railway closed to regular passenger services in 1954 and freight services in 1961.
- 2.3.3 Following the closure of the line, the Kent & East Sussex Railway Preservation Society was formed and purchased part of the line between Tenterden and Bodiam. Trains began to run again in 1974 and the section of purchased line was gradually restored and extended in stages reaching Bodiam in 2000. The line was further extended from Bodiam station to the B2244 Junction Road in 2012.

## **2.4 Description of the Proposed Scheme**

- 2.4.1 The proposed Scheme comprises of the construction of new railway line together with associated infrastructure.
- 2.4.2 The key element of the Scheme will be the reconstruction of approximately 3.4km of single track ballasted railway line on the alignment of the former railway between Northbridge Street, Robertsbridge and the B2244 Junction Road near Bodiam. Approximately 2km of the former railway corridor is still largely intact as delineated in the landscape by trees bounding the alignment including extant embankment along nearly half of the route (see **Plate 2.2**). The remainder of the route has been reclaimed for agricultural use.
- 2.4.3 The Scheme will comprise the following (see also Figure 2.1 and 2.2. in Volume 4):
- 3.4km of new track;
  - Three at-grade full carriageway level- crossings on Northbridge Street (Plate 2.3- Point A), the A21 (Plate 2.3 – Point B) and the B2244 Junction Road (Plate 2.3 – Point C);
  - A signal cabin located adjacent to the A21 level-crossing and walking route adjacent the north side of the railway between Northbridge Street and the signal cabin;
  - A footpath and a combined footpath and bridleway at-grade crossing;
  - A new bridge crossings of the River Rother and Mill Stream (Underbridge 6 [Plate 2.3 - Point D] and 12 [Plate 2.3 –Point E];
  - A new unmanned halt serving the village of Salehurst (timber construction, 120m in length) (Plate 2.3 – Point F);
  - Replacement of an existing bridge crossing of the River Rother (Bridge 26 located adjacent west of the passing loop);
  - A train passing loop to the west of Junction Road (as labelled in Plate 2.3);
  - 5 no. agricultural access points crossing the railway;
  - 22 no. box culverts, pipe culverts and underbridges along the length of the reinstatement to maintain ditches and field drainage; and
  - Operational track infrastructure (e.g. signalling).



**Plate 2.3 – Plan of key scheme features**



- 2.4.4 The three highway level- crossings would have locally monitored and controlled barriers and would be formed of precast concrete slabs with embedded rail. On the A21 crossing, it is intended to extend the existing 40mph speed limit southwards from the roundabout to beyond the level-crossing. All crossings would have new road signs and road markings in accordance with the requirements of the *Traffic Signs Regulations and General Directions (TSR&GD)* and the *Traffic Signs Manual* standards and/or the guidance document *Level Crossings: a Guide for Managers, Designers and Operators – Rail Publication 7 (December 2011)*.
- 2.4.5 In addition there will be one combined footpath and bridleway crossing and one footpath crossing of the railway. Both pedestrian crossings will be laid with Type 1 fill material. The footpath will have a width of approximately 1300mm, while the bridleway crossing will measure a width of approximately 1975mm.
- 2.4.6 The Scheme will require the construction of two railway bridges, No.6 and No.12, both with an approximately 10m skew span. The bridge structures have already been obtained and comprise former Network Rail bridges that have been replaced on the mainline network. Bridge No. 6 will be constructed across the River Rother, to the east of Northbridge Road. Bridge No. 12 will be located to the east of the A21 and will cross over Mill Stream. An existing culvert to the west of bridge No. 12, will be unaffected by the construction works.
- 2.4.7 There will be a number of bridge and culvert structures along the line of route as described below (see Figure 2.4, Volume 4):
- 2 no. new bridges structures (bridges 6 and 12)
  - 4 no. 0.75m pipe culverts (bridges 7, 15, 18 and 23);
  - 5 no. 5m box culverts (bridges 8, 9, 10, 11 and 14);
  - 1 no. 50m viaduct formed of multiple pre-cast pipes (bridge 13);
  - 4 no. 3m wide box culverts (bridges 19, 20, 21 and 25);
  - 2 no. 6m span steel bridges (bridges 16 and 24);
  - 1 no. 13m twin span bridge (bridge 17);
  - 1 no. 265m long viaduct formed of multiple pre-cast pipes (bridge 22);
  - 1 no. replacement of an existing bridge (bridge 26);
  - 1 no. 600mm piped culvert; and
  - 3 no. 300mm piped culverts.

---

## **2.5 Scheme Operation**

- 2.5.1 Once complete the Scheme would allow a train service to operate between Tenterden and Robertsbridge. The existing Kent and East Sussex Railway timetable has been used as a basis for the assumed operational timetable as it is not proposed to significantly alter the intensity of service from that provided at present. As such, the operational timetable of the Scheme would vary significantly throughout the year (the railway would operate on a single day in January; but in the peak month of August the railway would operate every day). The number of services (i.e. train movements) would also vary on a seasonal basis.
- 2.5.2 In general, between April and October, on days when the railway is operational, there would be five return journeys each day. Exceptions to this are occasions when there would be eight return services a day, which are limited to fewer than ten days in a year and usually coincide with, but not limited to, bank holiday weekends.
- 2.5.3 In addition to the regular timetabled services the railway is also used for private charters and as a film location. Under normal circumstances, these additional train movements would not coincide with the most intensive use of the railway and as such it is not anticipated that the railway would exceed ten return journeys in a day during normal operation. The journeys would be provided by a combination of steam and heritage diesel locomotives. The timetabled services can be summarised as follows:
- 9 days a year – 8 return journeys a day;
  - 9 days a year – 7 return journeys a day;
  - 128 days a year – 5 return journeys a day;
  - 14 days a year – 4 return journeys a day; and
  - 192 days a year – no timetabled service<sup>1</sup>.
- 2.5.4 The timetabled service usually operates between 10:00hrs and 18:00hrs. However, the railway proposes to extend the evening diner service that currently operates weekly on the Kent & East Sussex Railway through to Robertsbridge. This service would finish at 23:00hrs.

## **2.6 Land Use Requirements**

- 2.6.1 The Scheme will require approximately 6.2 hectares (ha) of permanent landtake. Approximately 3.4 ha of the land required (54% of the total area required) consists of the former railway corridor, which has remained largely intact since the line was decommissioned.
- 2.6.2 An additional 0.7 ha will be required on a temporary basis in order to facilitate construction. The proposed permanent and temporary land take is shown in Figure 2.4, Volume 4.

---

<sup>1</sup> Although private chartered trains may still operate on these days.

## 2.7 Construction Overview

### Programme

- 2.7.1 The proposed construction programme and methodology described in the following section was developed in conjunction with RVR Limited. It represents the best understanding of the Scheme construction works at this stage of the design development. However, it is possible that the construction methodology may change due to a range of factors including, but not limited to availability of plant and equipment and conditions of site. Despite this, the mitigation measures identified through the EIA process and set out in this ES would be maintained through to the construction phase and implemented through a Construction Environmental Management Plan (CEMP), a draft of which is included in Volume 2, Appendix 4.
- 2.7.2 The assessment of construction effects has been undertaken to ensure a reasonable worst-case scenario is considered and that any conclusions are sufficiently robust to accommodate potential changes in the construction methodology.

### Construction Programme

- 2.7.3 The total duration of the construction phase of the Scheme is estimated to be 18 to 24 months. Subject to obtaining consent, the works are scheduled to commence in July 2015. **Table 2.1** - Outline Construction Programme outlines the indicative construction programme for the Scheme. The duration and phasing of the works may change prior to or during construction.

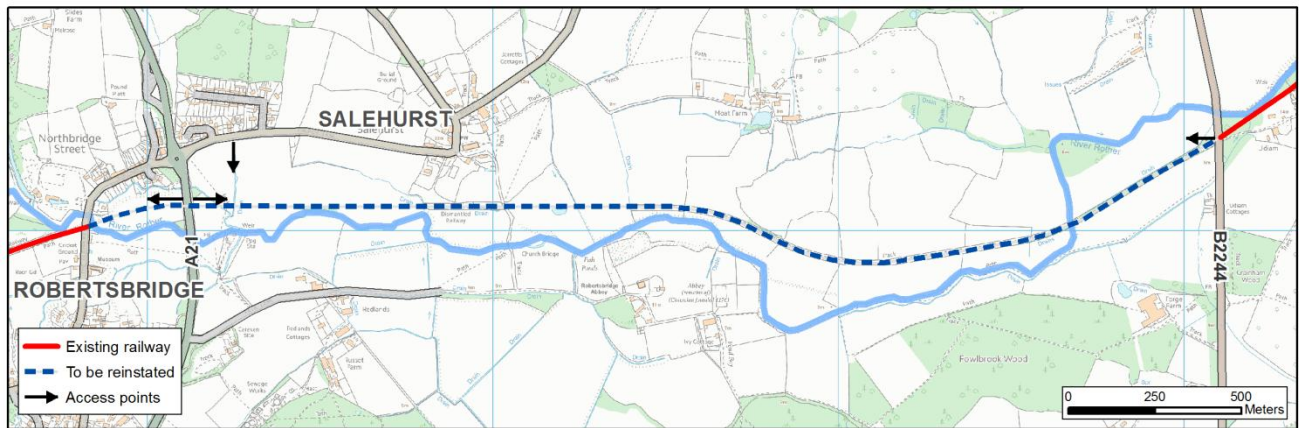
**Table 2.1 - Outline Construction Programme**

| Date                      | Activity   |
|---------------------------|--|
| July / August 2015        | Establish Site compound and access points        |
| July / October 2015       | Construction of bridge 12                        |
| September/ October 2015   | Flood defence enhancement works                  |
| September / December 2015 | Construction of bridge 6                         |
| October 2015              | Start of embankment earthworks                   |
| January 2016              | Start of culvert construction                    |
| February/ April 2016      | Creation of track sub-base for use as haul route |
| May / August 2016         | Ballasting                                       |
| September 2016            | Junction Road level-crossing construction        |
| September / December 2016 | Installation of signalling equipment             |
| September / December 2016 | Installation of track                            |
| October 2016              | Bridleway level-crossing construction            |
| November 2016             | A21 level-crossing construction                  |
| December 2016             | Northbridge Street level-crossing construction   |
| January 2017              | Early estimate completion date                   |
| July 2017                 | Late estimate completion date                    |

### Road Traffic Access

- 2.7.4 There would be a need for four temporary vehicle access points to the site from the highway network:
- One from the east side of Northbridge Street;
  - One from the west side of the A21;
  - One from the south side of Church Lane; and
  - One from the east side of Junction Road.

**Plate2.4 – Temporary site access points from the highway network**



- 2.7.5 An internal haul road would be constructed on the former track alignment and would run on the track sub-base prior to the final construction of the track bed thereby avoiding the need for any additional temporary land take.
- 2.7.6 Parking for construction staff would be provided at the existing RVR Robertsbridge site and at the proposed temporary compound located adjacent to the Junction Road site access point.

### **Construction Compound**

- 2.7.7 A single temporary construction compound would be provided to support the construction works. This would be located adjacent to the north of where the former railway embankment meets Junction Road and would cover an area of approximately 390m<sup>2</sup> (shown in **Figure 2.4**). The compound would be secured with Heras style fencing and would be used for the storage of materials and equipment. One or two 20 foot shipping containers would be temporarily located on site to provide secure storage. The compound would have a Type-1 material base, which would be removed post-construction.
- 2.7.8 Overall, storage requirements on site would be minimised by employing an ‘in-time’ delivery programme whereby materials are only delivered to site as and when required by the construction programme. The compound would not be lit and would not contain site office accommodation. The site office would be located at the existing RVR Limited office at Robertsbridge.

### **Material Deliveries and Construction Traffic**

- 2.7.9 Road vehicles would be required to deliver a range of materials and plant equipment. Deliveries would be split between the A21 and B2244 with a view to delivering directly to where the load is required.
- 2.7.10 Significant material deliveries would include fill material for the embankments, ballast, sleepers and rail. It is estimated that during the construction phase there would be approximately 450 road vehicle deliveries to site.
- 2.7.11 Construction personnel have been assumed to utilise their own vehicles to commute to and from the construction site. Numbers of personal vehicles are forecast to vary during the construction phase, however, the number of construction staff is anticipated to be up to a maximum of 25 individuals, although it is not anticipated that all these individuals would be on site simultaneously.

## 2.8 Overall Construction Methodology

2.8.1 Due to the nature of the Scheme there will be various different elements of construction that would be undertaken. These are listed below:

- Enabling works (site preparation);
- Flood defence enhancements;
- Earthworks (embankment construction);
- Structures (construction of bridges and culverts);
- Level-crossing construction; and
- Installation of track and signalling.

2.8.2 Each type of construction work has unique elements associated with it which varies the nature of the environmental effects it creates.

2.8.3 In general construction work would commence from the A21 access point and work outwards to the east and west. The sub-base of the track would be formed first in order to be used as a haul route along the site. When the track bed is complete, track laying would commence from the B2244 Junction Road end of the site back towards Robertsbridge.

### Construction Equipment

2.8.4 **Table 2.2** lists the anticipated main construction equipment required for the proposed construction work.

**Table 2.2 - Indicative Construction Equipment List**

| Item                                  | Number |
|---------------------------------------|--------|
| <b>Bulk Earthworks</b>                |        |
| 15 tonne excavator                    | 1      |
| 360 degree dumper                     | 1      |
| 2 tonne vibrating roller              | 1      |
| <b>Piling</b>                         |        |
| Vibro piling rig                      | 1      |
| <b>Lifting</b>                        |        |
| Crane with 100t lifting capacity      | 1      |
| <b>Track Laying</b>                   |        |
| Road/ rail 360 excavator              | 1      |
| Locomotive and ballast hopper wagons* | 1      |
| Tamper/ liner                         | 1      |

\*See 2.9.3- only required if ballast is delivered to site via the rail network.

### Watercourse Diversions

2.8.5 The proposed construction methodology does not require any temporary diversions or coffer dams for the construction of the bridges and culverts for the scheme.



---

### **Topsoil Stripping and Excavation**

- 2.8.6 Topsoil would be stripped from construction areas prior to the commencement of bulk earthworks. Topsoil stripping would be left to the last possible moment before the commencement of local earthworks to minimise the creation of stockpiles and risk of generating sediment laden run-off. Topsoil would be removed by an excavator and stored on site in mounds, prior to reinstatement post-construction. Mounds of topsoil would be a maximum of 2m high and would be left uncompacted in order to maintain the soil structure and allow water to penetrate and minimise run-off.

## **2.9 Structure Specific Construction and Methodology**

### **Underbridge 6 and 12**

- 2.9.1 The bridges would be founded on new caisson abutments. Sheet piles approximately 15m in length would be vibro-piled into the ground both sides of the channel. The concrete plinths on which the bridge deck would sit on would be cast behind the sheet pile caisson to a depth of approximately 3m. Once the abutments have been formed the bridge structures would be lifted into place using a 100 tonne mobile crane. The crane would be located on the railway formation. It is estimated that the bridge deck installation works would take approximately a day each once the abutments are in place.

### **Culverts**

- 2.9.2 Culverts would be constructed utilising pre-cast concrete or corrugated steel units. Local provision would be made for over pumping if required. Adequate capacity for flood discharge would be maintained throughout the construction phase.

### **Track Bed and Rails**

- 2.9.3 A 200mm base layer of ballast would be laid on top of the sub-base formation and rolled. Rails and sleepers would be placed alongside the track bed prior to assembly. Track assembly requires use of 360 excavator and road/rail 360. Additional ballast is then dropped onto the track. Final lining and levelling of the track is achieved with use of rail mounted tamping and lining plant. In order to ensure a worst-case scenario is considered in the assessment it has been assumed that all ballast would be delivered to site via the highway network. However, it is the aspiration of the project to have ballast delivered to site via rail with a rail ballasting train arriving to site via a connection to the main line network at Robertsbridge.

### **Signalling**

- 2.9.4 Signalling will be provided by fixed signal structures with a mass concrete base. These will be principally located in advance of level crossings.

### **Highway Level-Crossings**

- 2.9.5 The Scheme requires three level-crossings to be constructed. Construction of the level-crossings on the A21 and B2244 Junction Road would be undertaken without a full closure of the highway by implementing a signalised single lane configuration during the works. Initial installation of the new railway crossing surface in the road carriageway would probably be achieved over a period of two/three days with single lane traffic working plus a short night time closure to drop in the full length rails.
- 2.9.6 The use of night working, phased construction to limit the need for full highway closures and scheduling work over the quietest weekends of the year will be implemented in liaison with the Highways Agency and the Local Highways Authority (ESCC) to minimise construction related impacts on the road network.

- 2.9.7 The third highway level-crossing would be on Northbridge Street and given the small volume of traffic using this road, it is proposed that construction of this crossing would be undertaken during a full closure of the highway to vehicle traffic (pedestrian access would be maintained throughout construction). During the temporary closure of Northbridge Street vehicle traffic would be diverted via the A21.
- 2.9.8 The level-crossings would be constructed utilising pre-cast concrete blocks with the running rail already installed which will be lifted into position where the existing carriageway has been excavated.
- 2.9.9 Road signage associated with the level crossing will be installed adjacent to the carriageway during the closure periods. Further lane closures will be required for the installation of the level-crossing warning lights and lifting booms.

### **Pedestrian and Bridleway Level-Crossings**

- 2.9.10 A pedestrian level-crossing for a public right of way (PRoW) and a combined pedestrian and bridleway crossing will be required as part of the scheme. Public rights of way will remain open throughout the construction phase with appropriate fencing and signage installed to ensure the health and safety of users. These crossings would consist of a Type 1 fill material laid across the track formation to form the surface for users walk on. Barrier fencing and gates would then be installed.

### **Flood Defence Enhancements**

- 2.9.11 A full Flood Risk Assessment (FRA) has been undertaken with flood modelling by Capita Symonds in December 2013. Flood modelling identified a need to raise the height of the existing flood defence walls in Robertsbridge as the defences do not take account of climate change. A scheme to raise the protection of the flood defences has been agreed with the Environment Agency and consultation is still ongoing. These works would be undertaken prior to the commencement of the railway construction and would be raised to take into account climate change.

### **Utility Works**

- 2.9.12 It is anticipated that some utility works may be required at Northbridge Street. Such works will be undertaken in conjunction with the utility owner.

## **2.10 Operational Overview**

### **Maintenance**

- 2.10.1 Maintenance activities related to the operational railway can be separated into routine maintenance and major renewals. Routine maintenance would in general be non-intrusive and would focus on the upkeep and condition of the infrastructure asset and safety checks.
- 2.10.2 Major renewals would relate to significant track works required to replace life expired equipment. However, given the installation of new infrastructure and non-intensive use of the line it is not anticipated that significant renewals would be required in the foreseeable future.

## **2.11 Decommissioning**

- 2.11.1 It is not anticipated that the new section of railway would be decommissioned. Infrastructure, such as bridges, have a finite operational lifetime (normally 120 years) and would be replaced as required, determined by the findings of routine track maintenance and asset surveys. As such, there are no anticipated environmental effects associated with decommissioning.

---

## 3.0 Alternatives and Project Need

- 3.1.1 The EIA is required to assess alternatives to the proposed Scheme where these have been considered.
- 3.1.2 The aspiration of RVR has always been to reinstate the railway along its original alignment. As such alternative geographic locations for the railway are not realistic and alternative options for the alignment are limited.
- 3.1.3 However, options to create a grade separation of the A21 crossing rather than an at grade level crossing have been considered previously as reported in Mott MacDonald Highways and Traffic Assessment Report<sup>2</sup>. The investigation of crossing options identified that for a range of technical reasons a level-crossing presented the most practical solution. Constraints to a grade-separated crossing included:
- The creation of unacceptably steep track gradients from a safety perspective either side of the A21 to pass over or under the highway;
  - An underbridge would put the railway track under the A21 much lower than the adjacent river. In addition, flooding of the underbridge option would be inevitable and was predicted to occur several times during the course of a year. These events would lead to a deposit of silt and collection of debris along the railway line which would require removal prior to the line re-opening and cause train safety/adhesion risks; and
  - Creation of very significant landscape impacts from deep cuttings or high embankments and potentially significant additional permanent land take requirements.

### Project Need

- 3.1.4 The 'Do nothing' option would be to leave the railway split into two parts: the main operational railway forming the existing KESR between Tenterden in Kent to just west of Bodiam, and the short section of line from Robertsbridge station to Northbridge Street. The latter has been constructed in the full expectation of completing the reinstatement of the final section of line and will house a carriage shed and stabling for rolling stock. It will also provide a key connection to the mainline rail network which will enable visiting locomotives and rolling stock and materials to be brought directly to the railway rather than by road which can be a complicated and expensive process. As such, without the final section of line the Robertsbridge station would not be viable. Consequently, the 'Do nothing' is not considered to be conducive to the railway's passenger and tourism growth plans.

---

<sup>2</sup> Mott MacDonald (January 2013) Rother Valley Railway A21 Robertsbridge. Highways & Traffic Assessment Report (Response to HA Comments on A21 Crossing). Report for Rother Valley Railway Ltd.

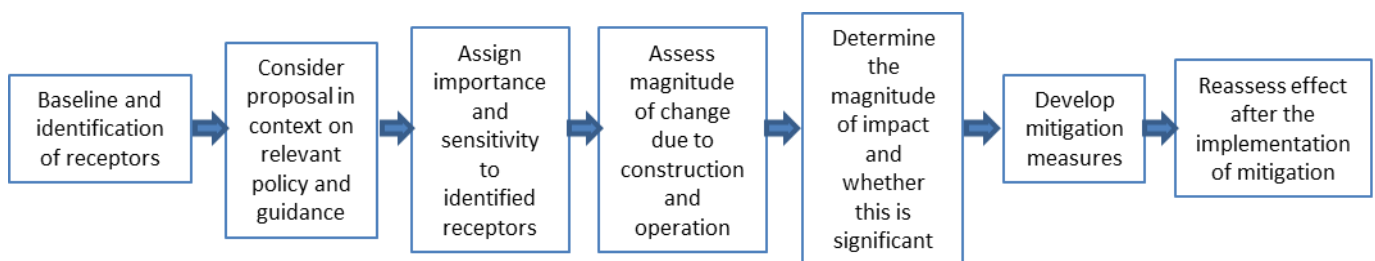


## 4.0 Assessment Approach and Methodology

### 4.1 Approach to EIA

- 4.1.1 In keeping with best practice the following sections describe the approach taken for the assessment for each environmental discipline. Each discipline chapter is structured in this identical manner to describe the assessment process, however, methodologies may differ between disciplines and where this is the case the deviation from the standard approach described is explained.
- 4.1.2 The first stage is to identify the baseline conditions which would reasonably be expected to exist at the site immediately prior to the commencement of construction, and also to identify any sensitive receptors.
- 4.1.3 The second stage is to consider the Scheme in the context of national, regional and local planning policy and guidance to identify any conflicts with the Scheme design and location.
- 4.1.4 It is necessary to evaluate the sensitivity and importance of the identified receptors. The receptor's likelihood of being affected by any changes caused by the Scheme and the importance of the receptor will dictate the determined final severity of effect. Each discipline assigns sensitivity and importance to relevant receptors.
- 4.1.5 The magnitude of change that the Scheme would cause is assessed for both the construction and operational phases (see 2.11 with regards to decommissioning). This assessment is undertaken in the context of the date when construction would occur and when the Scheme would be operational, as the baseline may change during this period, without any influence from the Scheme. From this it is possible to determine the likely magnitude of impact on a receptor and whether this is deemed significant.
- 4.1.6 The aim of the EIA process is to avoid or reduce the potential of an effect once it has been identified so that it is no longer significant. This is achieved through the development of mitigation measures. Once mitigation is developed the effect is reassessed to identify whether the effect has been fully mitigated. Any effect that cannot be mitigated, such that the effect is no longer deemed significant, is described as a residual effect. A residual effect can occur as a result of the construction or operation of the Scheme.

**Plate 4.1 - EIA process flow chart**



## **4.2 Study Area**

- 4.2.1 The spatial extent of the study area has been individually defined for each environmental discipline, according to the physical extent of the potential effects relevant to that discipline or of the information required to assess these effects.
- 4.2.2 Given the nature and limited physical footprint of the Scheme, there are no anticipated effects on any international or wider political boundaries. As a result, it is considered appropriate to scope transboundary effects out of the EIA.

## **4.3 Existing Baseline and Future Conditions**

- 4.3.1 The baseline conditions represent the pre-existing environment immediately prior to an effect occurring. Effects could be as a result of construction or operation of the Scheme. Any change is measured against the baseline in order to measure the effect.
- 4.3.2 Construction and operational effects can be temporary or permanent. The ES has sought to describe effects on the basis of when they occur (i.e. during construction or operation) and to then describe the temporal duration of the impact (i.e. temporary or permanent).
- 4.3.3 Identification of baseline conditions must take into account predicted changes that would occur prior to the construction or opening of the Scheme, and that are entirely independent of the proposed Scheme. Examples of changes include predicted growth in traffic levels, changes in predicted air quality and changes in land use prior to the commencement of the Scheme. Identification of the baseline therefore involves two stages of work:
- Identification of the existing baseline; and
  - Determining how likely the existing baseline is to change before the implementation of the Scheme.
- 4.3.4 The baseline for effects for the construction of the Scheme is therefore the situation, as it is predicted to be, at the start of construction in 2015.
- 4.3.5 For effects that would be caused by the operation of the Scheme, a design year 15 years after opening has been used. This period accounts for the time mitigation measures might take to become fully effective, which is particularly relevant for landscape and ecology. The most obvious example is the period of time required for compensatory vegetation planting to become established. The design year for the project has been defined as 2030.

## **4.4 Identifying Potential Impacts and Effects - Direct, Indirect and Cumulative**

- 4.4.1 This ES describes the impacts and effects of the Scheme. The identification of effects has been achieved through specialist discipline assessments that have been supported by consultation with third parties.
- 4.4.2 Receptors can be anything that potentially could experience an impact as a result of the construction or operation of the Scheme and include residential and commercial properties, natural resources (e.g. water, land, and ecology), archaeology, humans and so forth. Effects can be either adverse or positive. The effect is the consequences of the impact on the receptor taking into account the receptor's sensitivity or value.
- 4.4.3 The EIA has sought to assess direct, indirect and cumulative effects related to the Scheme. Direct effects are those effects where the Scheme causes an impact or change experienced by a receptor as a result of a single primary act, for example, construction of new infrastructure changing the appearance of the landscape.

- 4.4.4 Indirect effects are those effects that are not a direct result of the Scheme, but are the result of two or more stages of change resulting from a single original effect. An example of an indirect effect could be a Scheme that affects groundwater levels, which in turn changes the water level of a nearby wetland, resulting in an adverse effect on the ecology of that wetland. The Scheme would not directly affect the ecology of the wetland, but by affecting groundwater would indirectly affect the ecology at that location.
- 4.4.5 The EIA has been undertaken on the basis of the most likely design and has assumed the worst-case scenario in terms of environmental effects where applicable.
- 4.4.6 Cumulative effects are defined as both “the combined effects of different development activities within the vicinity” of the Scheme and “those different aspects of a single development on a particular receptor”<sup>3</sup>
- 4.4.7 This means that individual impacts that may not be significant in isolation could in combination result in a significant adverse effect. Such effects could be identical but from different sources (for example, low-level dust emissions from different sites combining to cause an adverse effect) or different effects from the same source acting in combination (for example, a residential receptor experiencing adverse noise, air quality and visual effects generated by a single development simultaneously).
- 4.4.8 Effects may be described temporally as short-term, medium-term or long-term effects. The time periods that are described by these terms are:
- Short-term (during construction only: 2015 - 2017);
  - Medium-term (between the end of construction and the design year: 2017 – 2030); and
  - Long-term (post design year).
- 4.4.9 Technical Reports may use alternative definitions for these time periods based on the methodology used in their assessment. Where this occurs it is made clear in the text.

## 4.5 Significance of Effect

- 4.5.1 The ‘significance’ of an environmental effect is a function of the ‘value’ or ‘sensitivity’ of the receptor and the ‘magnitude’ or ‘scale’ of the impact. The matrix in **Table 4.1** shows how the amount of effect is generally derived. An effect is deemed to be significant when it is assessed as being moderate, large or very large. This definition of a significant effect differs for some discipline assessment methodologies, where this is the case it will be stated in the respective chapter/ Technical Report.

**Table 4.1- Significance Matrix**

| Value/<br>Sensitivity | Magnitude of Impact |            |          |          |            |
|-----------------------|---------------------|------------|----------|----------|------------|
|                       | No Change           | Negligible | Minor    | Moderate | Major      |
| Very High             | Neutral             | Slight     | Moderate | Large    | Very Large |
| High                  | Neutral             | Slight     | Slight   | Moderate | Large      |
| Medium                | Neutral             | Neutral    | Slight   | Slight   | Moderate   |
| Low                   | Neutral             | Neutral    | Neutral  | Slight   | Slight     |
| Negligible            | Neutral             | Neutral    | Neutral  | Neutral  | Slight     |

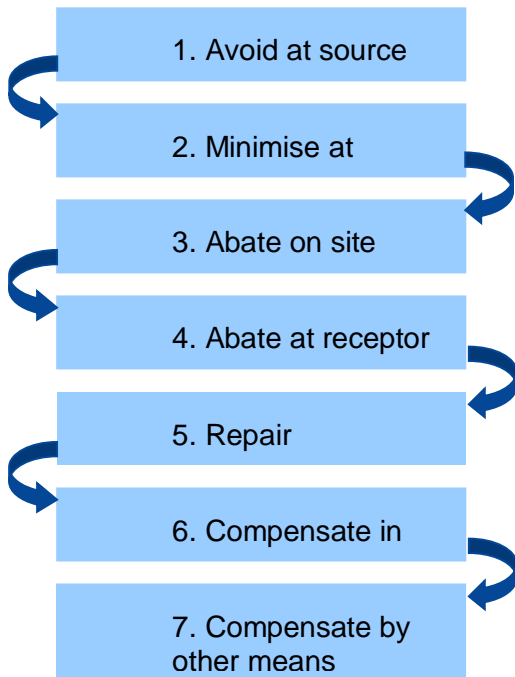
<sup>3</sup> Department for Communities and Local Government (2006) Environmental Impact Assessment: A guide to good practice and procedures

- 4.5.2 For some disciplines a variation of the matrix shown in **Table 4.1** may be used. Where this is the case, the methodology used is explained in the relevant discipline chapter.
- 4.5.3 In addition, the assessed effect may be adjusted from that shown by the matrix based on professional judgement or other qualitative criteria, where appropriate. Where such changes are made, the justification for them is explained in the text.

## **4.6 Mitigation Measures, Enhancements and Residual Effects**

- 4.6.1 Mitigation measures are developed to prevent, reduce and where possible offset any impacts resulting in significant adverse effects on the environment. The priority is to develop mitigation to ensure significant effects are not significant. However, all impacts should be mitigated as much as is reasonably practicable. For the EIA, only mitigation measures that are committed to by RVR and that are deliverable have been assessed for their effectiveness to reduce adverse effects.
- 4.6.2 Mitigation measures that have been recommended, but cannot be guaranteed to be implemented by the Scheme, may be identified in the ES but have not been used to assess the reduction in an adverse effect. Mitigation measures that cannot, at this stage, be committed to by RVR are referred to as mitigation options.
- 4.6.3 Mitigation measures described in the ES have been summarised in **Appendix 2** of this report.
- 4.6.4 Enhancements are measures to improve the environment and not to mitigate predicted adverse effects. Where present these have been assessed for their effect on the environment.
- 4.6.5 The aim of a mitigation measure is to avoid the identified impact altogether, instead of trying to reduce its effects. However, sometimes it may not be possible to reduce the level of impact experienced below the threshold of significance. The principle of the mitigation hierarchy will be used (**Plate 4.2**) to manage predicted effects. The hierarchy sets out the mitigation options in order of preference. An adverse effect which still exists after the implementation of mitigation is described as a residual effect. Where residual effects are present, these will be identified for each discipline and the significance of that residual effect assessed.

**Plate 4.2 - Mitigation Hierarchy**



## **4.7 Scope of Assessment**

- 4.7.1 The scope of assessment relates to what elements the EIA process assesses. The scope can include individual environmental disciplines, the temporal scope of each discipline (i.e. will assessment cover construction only, or operation only, both construction and operation etc.) and the spatial scope (e.g. the physical area which would be assessed for the Scheme and each discipline). It is usual that the temporal and spatial scope would vary based on the requirements of the discipline. The proposed scope of the assessment is described in the Scope and Methodology (Volume 3, Report 1), which was issued to statutory consultees in order to obtain a consensus upon the content of the ES. For this EIA all disciplines have considered both the operational and construction phases.

## **4.8 Planning and Policy Context**

- 4.8.1 The National Planning Policy Framework (NPPF) was published on 27 March 2012, and provides a simple and consolidated national planning framework covering all forms of development, and setting out national economic, environmental and social priorities. It forms guidance for decision making on planning applications and sets out the basis for local councils in drawing up local plans.
- 4.8.2 Sustainable development sits at the heart of the NPPF, promoting positive growth by recognising that economic, social and environmental gains should be sought jointly and simultaneously through the planning system.
- 4.8.3 The NPPF also introduces the “presumption in favour of sustainable development” (PFSD) a theme that is sought to run through both plan-making and decision taking. Twelve core land-use planning principles are identified, comprising the empowerment of local people to shape their surroundings, promotion of creativity in plan-making, proactive support to sustainable economic development, high quality design, recognition of the distinctive character of different areas, support for low carbon developments and renewable resources, conservation of the

natural environment, reuse of brownfield land, promotion of mixed use developments, conservation of heritage assets, managing sustainable patterns of growth and use of public transport, and strategies to improve the health and wellbeing of communities.

- 4.8.4 Each chapter of the ES considers the relevant NPPF policies which cover: the economy, town centres, the rural economy, transport, communications infrastructure, high quality homes, good design, healthy communities, Green Belt, climate change (including flooding and coastal change), the natural environment, the historic environment and minerals.
- 4.8.5 The policies in the NPPF apply from the date of publication, replacing all previous national guidance in the form of PPS and PPGs. Local planning authorities with up to date local plans (adopted post-2004) will be able to continue using their plans as a basis for decision making for a period of 12 months, even where there is a degree of conflict, although policies in the NPPF will be material considerations.
- 4.8.6 For those authorities with local plans adopted prior to 2004, greater weight will be given to the NPPF, especially where there is conflict. Rother District Council's local plan was adopted post 2004.
- 4.8.7 For the purposes of this EIA, a balanced review of all relevant policies over the lifetime of the assessment - including those now superseded by the NPPF - have be included for completeness.

## **4.9 Limitations to the assessment**

- 4.9.1 Limitations have been highlighted for each discipline under their respective chapters. Each discipline chapter has identified restrictions upon their assessment that has affected their ability to undertake their assessment. The limitations identified while undertaking this EIA fall under three broad categories:
- Access;
  - Design detail; and
  - Construction detail.
- 4.9.2 There are three landowners within the Scheme footprint and access to their land has been withheld. As such access to the site has been restricted to public rights of way only. This has presented constraints primarily upon noise and vibration, ecology, archaeology and cultural heritage and landscape and visual impact and is discussed further in each respective chapter.
- 4.9.3 The Scheme is a reinstatement of a former section of railway line and as such the Scheme, when built, will closely replicate what was originally located on the site. As such, the level of design available at present is sufficient to determine all likely significant effects, given that significant sections of the original line are still in-situ.
- 4.9.4 The detail of construction has not been finalised at this stage and as such all construction information is indicative. In order to accommodate this the assessments have sought to consider a worst case scenario for construction related effects to ensure that should any aspect of the construction methodology alter it would not result in an impact greater than that assessed within the ES.

---

## 5.0 Consultation

### 5.1 Overview

- 5.1.1 Where appropriate, discipline specific consultation has been undertaken with relevant stakeholders to agree the methodology and scope of assessments. Such consultation is described in each subsequent discipline chapter.

### 5.2 Scoping

- 5.2.1 A formal scoping request was submitted to Rother District Council on 29<sup>th</sup> October 2013. A scoping opinion was subsequently received on 17<sup>th</sup> January 2014 (Volume 3, Report 2).
- 5.2.2 The scoping opinion states that the Council was satisfied that the topic areas described in the Scope and Methodology Report encompassed those matters identified in Schedule 4, Part 1 of the Town and Country Planning (Environmental Impacts Assessment) Regulations 2011 (as amended). It also states that:

*‘the principal issues in the determination of the planning application are likely to be those subject areas covered by the road crossings and the flood plain’.*

- 5.2.3 The Council consulted with the following organisations to develop their scoping response:
- East Sussex County Council – archaeology;
  - East Sussex County Council – Transport development Control;
  - The Highways Agency; and
  - The Environment Agency.

### 5.3 General Consultation

- 5.3.1 Over the course of the last 4 years, RVR has engaged in an extensive programme of consultation with key businesses, community groups, statutory and non-statutory bodies, and members of the public to disseminate information about the proposed reinstatement of the railway and the benefits it will bring to the local economy and the wider area. This has included one to one meetings with individuals, presentations to groups, including the District Council, and holding events at the Robertsbridge Station site to raise awareness with and answer questions from the general public.
- 5.3.2 Whilst there have inevitably been some concerns expressed about the potential impacts of the Scheme, including landowners who will be directly affected through loss of land, the proposals have in general been very positively received by the local community. RVR will continue to engage with stakeholders throughout the design and planning process.



## 6.0 Noise and Vibration

### 6.1 Introduction

- 6.1.1 This chapter of the ES assesses the likely significant effects of the proposed Scheme with respect to noise and vibration.
- 6.1.2 Exposure to high levels of environmental noise can have significant effects on both human beings and the natural environment. Noise and vibration levels can increase during the operation and construction phases of railway infrastructure projects. The effects of noise and vibration on sensitive receptors for this particular Scheme are therefore an important consideration.
- 6.1.3 This chapter describes the methods used to assess:
- The noise and vibration effects associated with the Scheme;
  - The baseline conditions currently existing at the Site and of the surrounding area;
  - The mitigation measures required to prevent, reduce or offset any significant adverse noise and vibration effects; and
  - The likely residual effects after these measures have been adopted.
- 6.1.4 The proposed Scheme is expected to result in:
- Construction activity over a two year period between 2015 and 2017;
  - Operation of a new section of track; and
  - Up to eight return train services a day starting in 2017.
- 6.1.5 Based on data provided by RVR it has been assumed that the journeys would be provided by a combination of steam and heritage diesel locomotives. The timetabled services can be summarised as follows:
- 9 days a year – 8 return journeys a day;
  - 9 days a year – 7 return journeys a day;
  - 128 days a year – 5 return journeys a day;
  - 14 days a year – 4 return journeys a day; and
  - 192 days a year – no timetabled service.

### 6.2 Planning and Policy Context

#### Legislation

##### *Control of Pollution Act (CoPA)<sup>4</sup>, 1974*

- 6.2.1 The Control of Pollution Act details the regulatory provisions which apply to the control of noise and vibration arising from construction sites. Section 60 of the Act enables the local authority to serve a notice imposing requirements on the way works are to be carried out and the noise levels that may be emitted. Section 61 enables the person who intends to carry out works to ascertain the noise and vibration control factors before commencement of works through prior consent. The Council can attach conditions to the consent, to impose noise limits or qualify the permit works and limit its duration.

---

<sup>4</sup> Her Majesty's Stationary Office, (1974); Section 72 of the Control of Pollution Act.



- 6.2.2 A key feature underpinning the Section 61 consent process is the explicit requirement placed upon the contractor to employ Best Practicable Means (BPM) to mitigate the effects of noise and vibration generated by the construction works programme. BPM, as defined within section 72 of the Control of Pollution Act 1974 strikes a balance between the operational imperatives of the contract works and the need to employ reasonable care to minimise environmental effects from noise and vibration in order protect those in the immediate vicinity.

*Environmental Protection Act (EPA)<sup>5</sup>, 1990*

- 6.2.3 Under Part III of the Environmental Protection Act 1990, a local authority has a duty to inspect its area from time to time to detect any statutory nuisances and to take such steps as are reasonably practicable to investigate any complaint of a statutory nuisance made by a person living within its area. Where a local authority is satisfied of the existence or of the likely occurrence or recurrence of statutory nuisance, it must serve an abatement notice. Statutory nuisances are set out under section 79(1) EPA and include noise emitted from premises so as to be prejudicial to health or a nuisance and noise that is prejudicial to health or a nuisance and is emitted from or caused by a vehicle, machinery or equipment in a street.
- 6.2.4 It is a defence against action under Part III of the Environmental Protection Act 1990 to show that construction works are being carried out under the terms of a Section 60 notice or Section 61 prior consent under the Control of Pollution Act 1974.
- 6.2.5 Section 122 of the Railway Act 1993 provides a defence for licensed railway undertakers and operators against actions in common law or statutory law for nuisance.

*The Noise Insulation (Railways and Other Guided Transport Systems) Regulations (NIR), 1996 (as Amended)*

- 6.2.6 The Noise Insulation Regulations require for grants to be provided covering the cost of sound insulation in dwellings subjected to noise from new or altered railways; and empower responsible authorities to provide noise insulation where noise from construction of a new or altered railway would seriously impact a sensitive property for a substantial period of time.
- 6.2.7 In regard to operational noise, two conditions have to be met to qualify under the Noise Insulation Regulations: the noise level should be at least 68 dB(A) daytime and 63 dB(A) night-time and the noise increase expected to be caused by the Scheme should be at least 1 dB(A). For a building to classify under these regulations it should be no more than 300m from the closest point of the nearest running rail.

***National Planning Policy***

***National Planning Policy Framework (NPPF)<sup>6</sup>, 2012***

- 6.2.8 The National Planning Policy Framework (NPPF) was published in March 2012. The NPPF is part of government reform to make the planning system less complex and more accessible, and to promote sustainable growth. It replaces existing national planning policies such as *Planning Policy Statement PPS1: Delivering Sustainable Development* and *Planning Policy Guidance PPG24: Planning and Noise*.

<sup>5</sup> Her Majesty's Stationary Office, (1990); Environmental Protection Act.

<sup>6</sup> Department of Communities and Local Government (2012); National Planning Policy Framework (2012)

6.2.9 Through the NPPF the planning system is required to contribute to and enhance the natural and local environment. Consequently, the aim is to prevent both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution. As such it states:

*“Planning policies and decisions should aim to:*

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”*

**Noise Policy Statement for England (NPSE)<sup>7</sup>, 2010**

6.2.10 The Noise Policy Statement for England (NPSE) was published by Defra in March 2010 and sets out the long term vision of Government noise policy:

*“Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.”*

6.2.11 The NPSE long term vision is supported by the following aims:

*“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

- Avoid significant adverse impacts on health and quality of life;*
- Mitigate and minimise adverse impacts on health and quality of life; and*
- Where possible, contribute to the improvement of health and quality of life.”*

6.2.12 The NPSE has the legal status of a statement of government policy, not simply Defra's policy. Consequently every central government department will be expected to ‘noise-proof’ future policies against it; and other decision makers are expected to review their existing policies against the Statement and take it into account when making decisions on specific development proposals.

6.2.13 The NPSE provides useful advice on interpretation of its aims, including at paragraph 2.18 where it states:

*“There is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors.”*

---

<sup>7</sup> Department for Environment Food and Rural Affairs (2010); Noise Policy Statement for England (2010)

6.2.14 The NPSE emphasises:

*“Effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development”, and*

*“Not focussing solely on the noise impact without taking into account other related factors” and the need to consider “the economic and social benefit of the activity or policy under examination”.*

6.2.15 The Government considers that the noise aspects of sustainable development projects should be looked at favourably, notwithstanding that there should not be any significantly adverse noise effects as a result i.e. that a reasonable rather than absolute level of protection is expected. For example, the NPSE at paragraphs 2.20 and 2.21 reinforces that it seeks to avoid “significant adverse impacts” and distinguishes these from more stringent “Lowest Observed Adverse Effect Levels”; as used to set the World Health Organisation’s ultimate night-time noise target. Consequently, noise policy in England does not promote or otherwise sanction the ultimate WHO night noise level target of L<sub>night</sub>, outside 40 dB(A) as an overall policy objective.

***Regional Planning Policy***

***Rother District Local Plan (Adopted 2006)***

6.2.16 The Rother District Local Plan, the current adopted development plan contains policies directing development proposals and protecting amenities. Chapter 5 states that:

*“Conversely, the amenity of neighbouring properties needs to be protected. Hence, the impact of development needs to be carefully considered in relation to issues such as loss of light and privacy, avoiding an overbearing presence and otherwise causing intrusion such as through noise, activity at unsocial hours, lighting, etc.”*

***Standards and Guidance***

***British Standard 7445-1 ‘Description and Measurement of Environmental Noise’<sup>8</sup> (1991)***

6.2.17 British Standard 7445 defines parameters, procedures and instrumentation required for noise measurement and analysis.

***British Standard 6472-1 ‘Guide to Evaluation of Human Exposure to Vibration in Buildings’<sup>9</sup> (2008)***

6.2.18 British Standard 6472-1 Part 1: Vibration Sources other than Blasting’ presents recommended frequency weighted vibration spectra (for continuous vibration) and vibration dose values (VDV) (for intermittent vibration) above which adverse comment is likely to occur in residential properties.

<sup>8</sup> BSI, (1991); BS7445 - Description and Measurement of Environmental Noise. Part 2: Guide to the Acquisition of Data Pertinent to Land Use, BSi, London.

<sup>9</sup> BSI, (2008); BS6472 - Guide to Evaluation of Human Exposure to Vibration in Buildings, BSi, London.

---

***British Standard 5228 ‘Noise and Vibration Control on Construction and Open sites’ 10 (2014)***

6.2.19 British Standard 5228 (Part 1 – Noise, Part 2 Vibration) provides a ‘best practice’ guide for noise and vibration control, and includes sound power level (LWA) data for individual plant as well as a calculation method for predicting noise from construction activities.

***British Standard 7385 ‘Evaluation and Measurement for Vibration in Buildings’ 11 (1990)***

6.2.20 British Standard 7385 presents guide values or limits for transient vibration, above which there is a likelihood of cosmetic damage.

***Calculation of Railway Noise<sup>12</sup> (CRN), (1995)***

6.2.21 This Department of Transport/Welsh Office Memorandum describes procedures for railway noise calculation, and is suitable for environmental assessments of schemes where rail noise may have an impact.

***Calculation of Road Traffic Noise<sup>13</sup> (CRTN), (1998)***

6.2.22 This Department of Transport/Welsh Office Memorandum describes procedures for traffic noise calculation, and is suitable for environmental assessments of schemes where road traffic noise may have an impact.

***Design Manual for Road and Bridges<sup>14</sup> (DMRB), (2011)***

6.2.23 The Highways Agency DMRB Volume 11 Section 3 Part 7-Traffic Noise and Vibration’ provides guidance on the appropriate level of assessment to be used when assessing the noise and vibration impacts arising from all road projects, including new construction, improvements and maintenance.

### **6.3 Assessment Methodology and Significance Criteria**

6.3.1 This section presents the methodology used to assess the baseline conditions and each type of noise and vibration impact, in terms of the application of relevant standards and guidance (as detailed above), the types of data and analyses carried out, and the derivation of the presented significance or compliance criteria used in the assessments.

6.3.2 The assessment methodology has been based on the EIA Scope and Methodology Report for the Scheme. The details of the final noise and vibration assessment methodology used are discussed in detail in the following sections. Both the temporal and spatial scopes of the assessment are also detailed.

---

<sup>10</sup> BSI, (2009); BS5228 - Noise and Vibration Control on Construction and Open Sites, BSi, London.

<sup>11</sup> BSI, (1990); BS7385 - Evaluation and Measurement from Vibration in Buildings, BSi, London.

<sup>12</sup> Department of Transport/Welsh Office, (1995); Calculation of Railway Noise.

<sup>13</sup> Department of Transport/Welsh Office, (1998); Calculation of Road Traffic Noise.

<sup>14</sup> Highways Agency, (2011); Design Manual for Road and Bridges Volume 11 Section 3 Part 7-Traffic Noise and Vibration.

## Baseline Monitoring

- 6.3.3 Baseline noise monitoring has been completed in accordance with the principals set out in BS 7445-1 by appropriately trained and qualified acoustics professionals.
- 6.3.4 Monitoring was undertaken as a combination of long term unattended surveys supplemented by short term attended surveys where suitable secure locations for long term surveys could not be identified.
- 6.3.5 The long term unattended noise monitoring was completed using four Norsonic 140 integrating sound level meters, both of these types are certified as Class 1 according to IEC 61672. All meters were fitted with appropriate all weather kits.
- 6.3.6 The attended noise measurements were carried out using a Rion NL-52 Class 1 integrating sound level meter.
- 6.3.7 The equipment was set to measure continuous 15 minute periods for the duration of the noise survey in terms of LAeq<sup>15</sup>, LA10, LA90 and LAm<sub>ax</sub>.
- 6.3.8 All equipment was field calibrated before and after use and no significant deviation in calibration level was noted. All equipment was within manufacturer's calibration traceable to national and international standards, and calibration certificates for the equipment are available on request.

## Construction Noise Assessment

- 6.3.9 Construction noise has been predicted and assessed in accordance with the methodology outlined in Part 1 of the BS5228. The construction processes and activities have been based on information provided by RVR and past experience of similar projects. The assumptions used to predict construction noise are detailed in Volume 2, Appendix 5.
- 6.3.10 Predictions have been undertaken in accordance with the methodology of BS5228-1. The significance of construction noise effects has been assessed and categorised in accordance with guidance provided within BS5228-1 and with the requirements of the NPSE.
- 6.3.11 The NPSE requires that noise impacts be assessed in terms of the level of adverse effect caused. For the purpose of this assessment a Significant Adverse Effect has been determined to occur where the construction noise levels are in excess of the levels detailed in **Table 6.1** below:

**Table 6.1- Significant adverse effect level – construction noise**

| Time period                | L <sub>Aeq,t</sub> dB |
|----------------------------|-----------------------|
| Daytime (07:00 – 19:00)    | 75                    |
| Evening (19:00 – 23:00)    | 65                    |
| Night time (23:00 – 07:00) | 55                    |

- 6.3.12 The ABC criteria provided in Annex E of Part 1 of BS5228 detailed in Table 6.2 has been taken to indicate the magnitude of effect.

<sup>15</sup> Where a noise indicator (e.g. Leq) includes the suffix A (e.g. LAeq), the reported noise level is weighted based on a factor for humans sensitivity to sound (A) to broadly reflect loudness.

**Table 6.2- Construction Noise Significance Criteria – ABC Method**

| Assessment category and threshold value period ( $L_{Aeq}$ ) | Threshold value, in decibels (dB) |                          |                          |
|--|-----------------------------------|--------------------------|--------------------------|
|  | Category A <sup>A)</sup>          | Category B <sup>B)</sup> | Category C <sup>C)</sup> |
| Night-time (23:00 – 07:00)                                   | 45                                | 50                       | 55                       |
| Evening and Weekends <sup>D)</sup>                           | 55                                | 60                       | 65                       |
| Daytime (07:00 -19:00) and Saturdays (07:00 – 13:00)         | 65                                | 70                       | 75                       |

Note 1: A significant effect has been deemed to occur if the total  $L_{Aeq}$  noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total  $L_{Aeq}$  noise level for the period increases by more than 3 dB due to construction activity.

Note 3: Applied to residential receptors only.

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

D) 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

6.3.13 The Lowest Observable Adverse Effect Level (LOAEL) is where the construction noise level is equal to the ambient noise level at the receptor.

6.3.14 In accordance with the requirements of the NPSE the impact of each noise source needs to be classified in terms of the **Table 6.3**. **Table 6.3** summarises the classification of LOAEL and Significant Observed Adverse Effect Level (SOAEL) respectively for construction noise and categorises the effects in terms of **Major**, **Moderate** and **Minor** effects.

**Table 6.3- Construction noise Impact criteria**

| Magnitude of Impact | Criteria   | NPSE Categorisation  |
|---------------------|--|--|
| Negligible          | Less than or equal to the ambient noise level  | Less than the ambient noise level is regarded as the LOAEL |
| Minor               | Less than the criteria set out in table 6.1 but greater than the ambient noise level                               | Between LOAEL and SOAEL                                    |
| Moderate            | $\geq$ the criteria set out in table 6.1 but less than $L_{Aeq, 1hr}$ 75dB daytime, 65dB evening and 55dB night    | Between LOAEL and SOAEL                                    |
| Major               | $\geq L_{Aeq, t}$ - 5dB Daytime (07:00 – 19:00)<br>65dB Evening (19:00 – 23:00)<br>55dB Night time (23:00 – 07:00) | SOAEL  |

### Construction Vibration Assessment Methodology

6.3.15 An indicative assessment of vibration effects from the Scheme has been undertaken in accordance with the guidance and information contained within Part 2 of BS 5228.

6.3.16 BS 6472-1:2008 '*Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting*' provides guidance on the prediction of human response to vibration in buildings. The Vibration Dose Value (VDV) is calculated to estimate the probability of adverse comment which might be expected from experiencing vibration in buildings.



6.3.17 For rapid onset and transient vibration events such as construction vibration it is more appropriate to assess on the effects of vibration on humans in terms of levels of Peak Particle Velocity (PPV mmsec<sup>-1</sup>), guidance is provided in Annex B of BS 5228-2. Table 6.4 summarises the guidance contained within BS5228 -2.

**Table 6.4- BS 5228-2 Vibration Human Effects Significance Criteria**

| Vibration Level (PPV mmsec <sup>-1</sup> ) | Effect  |
|--|---|
| 0.14 mms <sup>-1</sup>                     | Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration. |
| 0.3mms <sup>-1</sup>                       | Vibration might be just perceptible in residential environments.  |
| 1.0 mms <sup>-1</sup>                      | It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.                  |
| 10 mms <sup>-1</sup>                       | Vibration is likely to be intolerable for any more than a very brief exposure to this level.  |

6.3.18 Based on the information in Table 6.4 above it is suggested that for construction works during the daytime that significant effects on humans could be deemed to occur should a PPV of 1 mms<sup>-1</sup> be exceeded at the foundation of vibration sensitive residential receptors. If community consultation and prior warning is provided, this level and even higher values, of vibration may be acceptable for limited periods of time.

6.3.19 **Table 6.5** summarises the vibration effect levels with regards to the NPSE and this ES.

**Table 6.5- Construction vibration impact criteria**

| Magnitude of Impact | Vibration Level (PPV mmsec <sup>-1</sup> )       | NPSE Categorisation     |
|---------------------|--|-------------------------|
| Negligible          | <0.14 mms <sup>-1</sup>                          | LOAEL                   |
| Minor               | ≥0.14 mms <sup>-1</sup><br><0.3mms <sup>-1</sup> | Between LOAEL and SOAEL |
| Moderate            | ≥0.3mms <sup>-1</sup><br><1.0 mms <sup>-1</sup>  | Between LOAEL and SOAEL |
| Major               | ≥1.0 mms <sup>-1</sup>                           | SOAEL                   |

### Off-Site Construction Vehicle Effects Methodology

6.3.20 Levels of construction traffic associated with the Scheme are low and as such will not result in a change in road traffic flow of between 20% and -25% which DMRB equates to a change of +/-1dB in road traffic noise level, which DRMB advises is normally the minimum perceptible change. Further prediction of construction traffic has been scoped out of this assessment.

### Operational Rail Noise Assessment Methodology

6.3.21 The operational noise and vibration assessment has been undertaken based on 2017 train schedules provided by RVR. Based on information available this is considered to represent the highest noise and vibration levels expected within the first 15 years of operation.

6.3.22 For the purpose of the evaluation, and based on advice from WebTAG, it has been considered that an increase in noise level of L<sub>eq,t</sub> 3 dB or more due to train movements on the new or existing railway as a result of the operation of the Scheme is deemed to represent a observable adverse effect.

- 6.3.23 It is acknowledged that WEBTAG also states that changes may be perceptible where the change in rail noise level is less than 3dB; however this tends to be where the change is due to the introduction of a new noise source or major change in the nature and character of an existing noise source, which either does not apply or is unlikely in this case. Additionally there is significant precedent for the adoption of this criterion in rail schemes such as Crossrail, Thameslink, West Coast Main line and the Channel Tunnel Rail Link.
- 6.3.24 Consequently, a change of more than 3dB has been used to identify a significant change in railway noise in most cases. However, for the new railway a change in railway noise of less than 3dB may be identified if the receptor is already exposed to high levels of railway noise. Railway noise levels of 68 dB LAeq,16hr and 63dB LAeq,8hr, which form part of the eligibility criteria for noise insulation set out in the Noise Insulation (Railway and Other Guided Transport Systems) Regulations 1996, have been used as the thresholds for such determination.
- 6.3.25 It should be noted that there are lower cut-off thresholds for the assessment of changes in noise level of 55 dB LAeq,16 hrs daytime and 45 dB LAeq 8 hrs night time as external free-field limits. These lower limit cut-offs are based on the advice from the World Health Organisation's Guidelines for Community Noise (2000) as representing the thresholds at which the majority of persons are protected against serious noise annoyance during the day and sleep disturbance, even with windows partially open, is avoided at night.

**Table 6.6 - Criteria for Determining Operational Noise effects**

| Operational Rail Noise change (07:00 – 23:00) day, and (23:00 - 07:00) night  | Description of Change | Scale Rating                             | NPSE Classification     |
|---|-----------------------|--|-------------------------|
| Decrease of more than 3dB   | Slight                | Significant beneficial effect            | NOAEL                   |
| -3 dB < noise change < 3 dB   | No significant change | Negligible                               | LOAEL                   |
| Increase of 3-5 dB  | Slight                | Significant adverse minor adverse effect | Between LOAEL and SOAEL |
| Increase of 5-10 dB   | Moderate              | Moderate adverse effect                  | Between LOAEL and SOAEL |
| Increase of more than 10dB  | Substantial           | Major adverse effect                     | SOAEL                   |
| Note: A cut off threshold of 55dB LAeq (16hr day) and 45dB LAeq (8hr night) has been used for the purposes of the assessment. The noise assessment has been based on external noise levels at 1m from the façade. |                       |  |                         |

- 6.3.26 The criteria in **Table 6.6** reflect similar values used for other rail schemes such as Crossrail, Thameslink, West Coast Main line and the Channel Tunnel Rail Link. They also take into account the advice from WebTAG; and consideration of the type of noise source and the nature of the change. Additionally, the factors in the following table that influence the magnitude of effect of any change in noise level have also been considered.
- 6.3.27 In summary, this study considers that significant noise effects from the operational railway are only likely to arise where there is an exceedance of an absolute noise level (55 dB LAeq, 16hrs during the day and 45 dB LAeq, 8hrs at night with the Scheme) and a corresponding increase in daytime or night-time rail noise of 3dB or more. For a new railway a change in railway noise of less than 3dB may be acknowledged as significant if the receptor is already



exposed to high levels of railway noise i.e. above the thresholds in the Noise Insulation Regulations.

- 6.3.28 The DfT's Calculation of Railway Noise 1995 (CRN) provides a methodology to predict noise from the operation of moving trains. These procedures can be used to predict noise levels to assess eligibility under the Noise Insulation Regulations and also provide for the assessment of the noise effect of railways; however, these procedures relate specifically to the prediction of diesel and electric rolling stock.
- 6.3.29 There is no official guidance on the prediction of noise from steam locomotives. Generally it is not possible to apply a single method as there is no uniform design for the locomotives. Therefore, the exact nature and location of the different noise sources associated with the locomotives will vary from one to another.
- 6.3.30 Measurements of steam train pass by noise have been undertaken along an existing stretch of the RVR using locomotives that will be operated on the new section of line when built. The locomotives used are understood to be the loudest in RVR's fleet and therefore represent the worst case. These measurements, taken on 8<sup>th</sup> April 2014, were used to determine the propagation characteristics of noise from the trains. It was found that the noise levels decreased with distance at a higher rate for steam engines than would be predicted by the methodologies outlined in CRN (i.e. the CRN method over estimates steam train noise).
- 6.3.31 However, in order to provide a robust assessment the methodology set out in CRN has been used to assess the propagation of noise from the proposed scheme as this represents a worst case assessment.
- 6.3.32 Based on CRN predictions of railway noise, a detailed assessment of operational noise effects at the nearest identified sensitive receptors has been undertaken
- 6.3.33 In addition to the assessment of noise effects at sensitive receptors near to the Scheme, an assessment of properties that may be eligible for noise insulation against operational train noise under the NIRR has been carried out. The daytime period in for the purposes of these regulations is 06:00 – 24:00 hours whilst the night-time period is 24:00 – 06:00 hours.
- 6.3.34 It should be noted that the NIRR only apply to new or altered railways and do not apply to existing operating railway infrastructure.

#### **Operational Rail Vibration Assessment Methodology**

- 6.3.35 The identification of significant operational vibration effects has been based upon a distance screening assessment informed by professional judgment and previous experience of similar Schemes which suggest that significant railway vibration effects are unlikely more than 50m from the nearest track. The evaluation of significant effects for residential properties has been determined by considering the number of properties affected and the severity of the effect.
- 6.3.36 **Table 6.7** taken from BS 6472 summarises the proposed vibration significance criteria for residential dwellings affected by the Proposed Scheme. Notwithstanding the above, it is normally possible to 'scope out' detailed vibration assessment at sensitive receptors assuming there is sufficient distance between the track and the receptor. The categorisation of vibration effects with regards to the NPSE is also detailed in the table.

**Table 6.7 - Criteria for Determining Vibration effects**

| Period and Location             | Low probability of adverse comment $\text{ms}^{-1.75}$ (LOAEL) | Adverse comment possible $\text{ms}^{-1.75}$ (Between LOAEL and SOAEL) | Adverse comment probable $\text{ms}^{-1.75}$ (SOAEL) |
|---------------------------------|--|--|--|
| Residential buildings 16 h day  | 0.2 to 0.4   | 0.4 to 0.8   | 0.8 to 1.6   |
| Residential buildings 8 h night | 0.1 to 0.2   | 0.2 to 0.4   | 0.4 to 0.8   |

## Consultation

- 6.3.37 Initial consultation was undertaken with the local Environmental Health Practitioner (EHP) at RDC to agree the assessment methodology and the locations for the measurement of baseline noise data.
- 6.3.38 The construction and operational noise and vibration assessment methodology has been based on that described in the EIA Scope and Methodology Report. No specific comments in the scoping opinion were made in relation to the noise and vibration assessment.

## Limitations

- 6.3.39 It was not possible to obtain access to undertake baseline data collection at three locations that had been requested by the EHP at RDC. In lieu of survey information at these locations, data from a comparable proxy site was utilised as detailed in Table 6.9.
- 6.3.40 At the current design stage detailed construction information and programmes were not available to inform the construction noise assessment. However, sufficient information has been provided in order to undertake an indicative assessment of construction noise as described in 6.5.1.

## 6.4 Baseline

### Baseline Data Collection

- 6.4.1 Given that the significance of any effect will be determined, in part, by the relative noise increase, it is necessary to understand the existing baseline noise environment. In general terms, the baseline environment in respect to noise is described in Table 6.8.
- 6.4.2 Baseline noise levels have been determined from measurements carried out at representative locations. Some of the measurements were short term attended measurements, whereas others were long term unattended monitoring surveys set up over a number of representative days/weeks and supplemented with some attended monitoring.
- 6.4.3 The measurement locations are detailed and described in **Table 6.8** and noise monitoring locations are presented in Volume 4, Figure 6.1.

**Table 6.8 - Description of Noise Monitoring Locations**

| Location                      | Measurement Type      | Description of Noise Climate   |
|-------------------------------|-----------------------|--|
| Barnes, 11 Glenleigh Walk     | Long term un-attended | The dominant noise source at the time of attendance was distant road traffic. Other sources included industrial noise bird song.   |
| Rutley Close                  | Short term attended   | The dominant noise source at the time of attendance was road traffic. Other noise sources included bird song.  |
| Goodgrooms, Church Lane       | Long term un-attended | The dominant noise source at the time of attendance was agricultural noise. Other noise sources included bird song.  |
| Udiam farm, Junction Road     | Long term un-attended | The dominant noise source at the time of attendance was road traffic noise. Other noise sources included light aircraft and bird song.   |
| Udiam Cottages, Junction Road | Short term attended   | The dominant noise source at the time of attendance was road traffic noise from the B2244 Junction Road. Other noise sources included bird song and intermittent aircraft noise. |

6.4.4 It was not possible to undertake measurements at all of the agreed monitoring positions due to restrictions on access.

6.4.5 **Table 6.9** identifies the monitoring locations omitted from the survey and the substitute measurement location used to provide representative data.

**Table 6.9 - Omitted Noise Monitoring Locations**

| Location                | Site used to provide substitute data for the assessment |
|-------------------------|---|
| A - Redlands            | Location 3 - Good Grooms, Church Lane                   |
| B - Robertsbridge Abbey | Location 3 - Good Grooms, Church Lane                   |
| C - Moat Farm           | Location 3 - Good Grooms, Church Lane                   |

### Noise Measurement Results

6.4.6 The results of the unattended and attended noise surveys are summarised in **Table 6.10** and **Table 6.11**.

**Table 6.10 – Summary of Unattended Noise Monitoring**

| Location                      | Date                     | Time Period | Typical Measured<br>L <sub>Aeq,t</sub> (dB) | L <sub>A10</sub> (dB) | L <sub>A90</sub> (dB) | L <sub>Afmax</sub> (dB) |
|-------------------------------|--------------------------|-------------|---|-----------------------|-----------------------|-------------------------|
| 1 - Barnes, 11 Glenleigh Walk | 07/11/2013 to 12/11/2013 | 0700 – 1900 | 51  | 50                    | 43                    | 89                      |
|                               |                          | 1900 – 2300 | 45  | 46                    | 36                    | 79                      |
|                               |                          | 2300 - 0700 | 45  | 41                    | 29                    | 69                      |
| 3- Goodgrooms, Church Lane    | 07/11/2013 to 12/11/2013 | 0700 – 1900 | 52  | 77                    | 46                    | 77                      |
|                               |                          | 1900 – 2300 | 51  | 73                    | 52                    | 73                      |
|                               |                          | 2300 - 0700 | 52  | 74                    | 46                    | 74                      |
| 4- Udiam farm, Junction Road  | 07/11/2013 to 12/11/2013 | 0700 – 1900 | 53  | 55                    | 49                    | 68                      |
|                               |                          | 1900 – 2300 | 63  | 53                    | 46                    | 64                      |
|                               |                          | 2300 - 0700 | 52  | 51                    | 49                    | 61                      |

**Table 6.11 – Summary of Attended Noise Monitoring**

| Location                          | Date       | Start Time/ End time | Average Measured<br>L <sub>Aeq(15min)</sub> (dB) | L <sub>A10</sub> (dB) | L <sub>A90</sub> (dB) | L <sub>Afmax</sub> (dB) |
|-----------------------------------|------------|----------------------|--|-----------------------|-----------------------|-------------------------|
| 2 - Rutley Close                  | 14/11/2013 | 14:15                | 54   | 56                    | 44                    | 79                      |
| 5 - Udiam Cottages, Junction Road | 14/11/2013 | 15:05                | 59   | 63                    | 44                    | 83                      |

6.4.7 The full measurement data are provided in Volume 2, Appendix 5.

## 6.5 Predicted Effects

### Predicted Construction Noise Effects

- 6.5.1 At this stage of the project, the exact details of the techniques and programmes that will be used during the construction of the proposed railway line are not finalised. However, RVR has provided information regarding the likely activities that will be utilised during construction (see Section 2.8). This information allows an indicative assessment to be carried out, with a more detailed review possible once the methodologies, plant selection and programme have been finalised.
- 6.5.2 Based on the information on likely construction activities, work locations, operational times, noise source data from BS 5228 and a number of assumptions; construction noise levels have been predicted at nearby noise sensitive receptors. All noise modelling has been carried out in accordance with the prediction methodology of BS 5228 and details of all assumptions and key input data are provided in **Volume 2, Appendix 5**.
- 6.5.3 It has also been assumed that the construction work will be confined to daytime periods only, with the exception of the construction of highway level-crossings which are expected to include some night-time working. The construction works are not expected to generate continuous high levels of noise for the whole duration of the works given the BPM approach and the linear nature of the construction areas i.e. the works will only be at the closest approach to a particular receptor for a small part of the overall works programme.
- 6.5.4 Table 6.12 details the appropriate example significance criteria calculated in accordance with Table 6.2 for each receptor, the predicted construction noise levels and an assessment of the likely significance of construction works.

**Table 6.12 - Significance Construction Noise**

| Receptor Location        | Assessment Period (T)    | BS 5228 “ABC Method” Significance Criteria (Db) | Highest Predicted Construction Noise Level L <sub>aeq,T</sub> (Db) | Magnitude Of Effect |
|--------------------------|--------------------------|---|--|---------------------|
| Barnes,11 Glenleigh Walk | Daytime (0700 – 1900)    | 65  | 66   | Moderate Adverse    |
|                          | Evening (1900 – 2300)    | 55  | -  | -                   |
|                          | Night time (2300 – 0700) | 50  | -  | -                   |
| Rutley Close             | Daytime (0700 –          | 65  | 70   | Moderate            |

| Receptor Location             | Assessment Period (T)    | BS 5228 "ABC Method" Significance Criteria (Db) | Highest Predicted Construction Noise Level $L_{aeq,T}$ (Db) | Magnitude Of Effect |
|-------------------------------|--------------------------|---|---|---------------------|
|                               | 1900)                    |   |   | Adverse             |
|                               | Evening (1900 – 2300)    | 55  | 51  | Minor Adverse       |
|                               | Night time (2300 – 0700) | 50  | 51  | Moderate Adverse    |
| Goodgrooms, Church Lane       | Daytime (0700 – 1900)    | 65  | 67  | Moderate Adverse    |
|                               | Evening (1900 – 2300)    | 55  | -   | -                   |
|                               | Night time (2300 – 0700) | 50  | -   | -                   |
| Udiam farm, Junction Road     | Daytime (0700 – 1900)    | 65  | 60  | Minor Adverse       |
|                               | Evening (1900 – 2300)    | 55  | 44  | Minor Adverse       |
|                               | Night time (2300 – 0700) | 50  | 44  | Minor Adverse       |
| Udiam Cottages, Junction Road | Daytime (0700 – 1900)    | 65  | 58  | Minor Adverse       |
|                               | Evening (1900 – 2300)    | 55  | 45  | Minor Adverse       |
|                               | Night time (2300 – 0700) | 50  | 45  | Minor Adverse       |
| Redlands                      | Daytime (0700 – 1900)    | 65  | 63  | Minor Adverse       |
|                               | Evening (1900 – 2300)    | 55  | 40  | Minor Adverse       |
|                               | Night time (2300 – 0700) | 50  | 40  | Minor Adverse       |
| Robertsbridge Abbey           | Daytime (0700 – 1900)    | 65  | 62  | Minor Adverse       |
|                               | Evening (1900 – 2300)    | 55  | -   | -                   |
|                               | Night time (2300 – 0700) | 50  | -   | -                   |
| Moat Farm                     | Daytime (0700 – 1900)    | 65  | 55  | Minor Adverse       |
|                               | Evening (1900 – 2300)    | 65  | -   | -                   |
|                               | Night time (2300 – 0700) | 50  | -   | -                   |

6.5.5 The predicted construction noise levels would result in **Minor** to **Moderate** effects at the identified sensitive receptors. It must be noted that these are peak noise levels and would only occur when the works are at the closest approach to the receptor for a minority of the construction period. The noise levels would decrease as the distance between the works increases.

6.5.6 Notwithstanding the above, it should be possible to carry out other less noisy construction works during the weekend, evening and night-time periods without significant effects occurring.

## Predicted Construction Vibration Effects

- 6.5.7 There is the potential for certain construction activities, such as piling, to generate significant vibration levels at nearby receptors.
- 6.5.8 Piling techniques are primarily selected on the basis of the ground conditions expected to be encountered, the loads to be supported and the economics of the system. Taking these constraints into account, the process should be selected that is least likely to give rise to unacceptable vibrations in particular circumstances, such as cfa piling, and to generally avoid such activities during the evening or night periods.
- 6.5.9 Consequently it is unlikely that the construction activities will generate significant levels of vibration at sensitive receptors due to piling. Persistent low levels of vibration could be expected at close proximity to the works but the energy will dissipate rapidly as distance from the source increases.
- 6.5.10 The effect of construction phase vibration has therefore been assessed to be **Negligible**.

## Operational Rail Noise Effects

- 6.5.11 Operational noise calculations have been undertaken for the 2017 timetable operation (which represents the worst case). In summary the assessment is based upon measurements of train pass-by events on the existing K&ESR line and has also taken into account the following variables:
- Number of train movements;
  - Normal speed of trains (25mph); and
  - Distance between the track and the receiver.
- 6.5.12 **Table 6.13** presents the predicted operational noise levels at the identified receptors.

**Table 6.13 - Daytime Operational Train Noise Effects at Dwellings Residential properties day time**

| Location                          | Predicted operational noise levels $L_{Aeq,t}$ (dB) | Baseline noise level $L_{Aeq,t}$ (dB) | With development ambient noise level $L_{Aeq,t}$ (dB) | Change in ambient noise (dB) |
|-----------------------------------|---|---------------------------------------|---|------------------------------|
| 1 - Barnes, 11 Glenleigh Walk     | 42  | 52                                    | 52  | <1                           |
| 2 - Rutley Close                  | 43  | 54                                    | 54  | <1                           |
| 3- Goodgrooms, Church Lane        | 41  | 49                                    | 50  | 1                            |
| 4- Udiam farm, Junction Road      | 39  | 52                                    | 52  | <1                           |
| 5 - Udiam Cottages, Junction Road | 39  | 56                                    | 56  | <1                           |
| A - Redlands                      | 37  | 49                                    | 49  | <1                           |
| B - Robertsbridge Abbey           | 38  | 49                                    | 49  | <1                           |



| Location      | Predicted operational noise levels $L_{Aeq,t}$ (dB) | Baseline noise level $L_{Aeq,t}$ (dB) | With development ambient noise level $L_{Aeq,t}$ (dB) | Change in ambient noise (dB) |
|---------------|---|---------------------------------------|---|------------------------------|
| C - Moat Farm | 36  | 49                                    | 49  | <1                           |

6.5.13 The predicted noise levels show that the operation of the railway will result in a maximum change in ambient noise level of 1dB LAeq. This is assessed as a **Negligible** effect at the nearest receptors.

6.5.14 As the railway is not proposed to operate during the night no night time noise effects will occur.

#### **Operational Rail Vibration Effects**

6.5.15 The majority of the vibration sensitive receptors are more than 60m away from the new railway track, therefore vibration effects are considered to be unlikely at any of these locations. Those receptors located within 60m are also unlikely to experience significant levels of vibration due to the low running speeds and the low number of movements of the trains.

6.5.16 The effect of operational vibration has therefore been assessed to be **Negligible**.

#### **Mitigation**

6.5.17 Mitigation measures identified as part of this assessment will be incorporated in a Construction Environmental Management Plan for the Scheme (see draft document in Volume 2, Appendix 4) and form a Nuisance Management Plan. This document forms the link between the EIA and construction and creates a management structure to ensure the implementation of this mitigation.

#### **Construction Noise and Vibration**

6.5.18 As part of the implementation of BPM a range of measures will be incorporated during construction to minimise the potential effects to nearby sensitive receptors. Some examples of BPM from BS5228 include:

- Unnecessary revving of engines will be avoided and equipment will be switched off when not in use;
- Internal haul routes will be kept well maintained;
- Drop heights of materials will be minimised;
- Plant and vehicles will be sequentially started up rather than all together;
- As far as reasonably practicable, sources of significant noise will be enclosed;
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas;
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications; and
- Screening e.g. noise barriers and blinds will be used as appropriate.

6.5.19 RVR will work closely with RDC to ensure noise and vibration effects are minimised through the use of appropriate work practices and the implementation of appropriate mitigation measures.

6.5.20 The actual reduction in noise level achieved by the mitigation set out below cannot be quantified at this stage; therefore, the effect of construction noise is still ranked as between **Minor** and **Moderate**.

### **General Requirements**

6.5.21 The contractors will be required to control noise and vibration levels during construction so that sensitive noise receptors (residents, community users and susceptible commercial activities) are protected from excessive levels as far as reasonably practical. The control of noise and vibration will generally be achieved through the use of BPM as described in the following paragraphs. The noise and vibration assessment assumes the use of best practice with respect to management of construction activity.

6.5.22 In establishing criteria, controls and working methods the contractors will be required to address the guidance in the Approved Code of Practice BS 5228.

### **Working Hours**

6.5.23 Given that much of the construction work will take place on undeveloped land and some significant distance from noise sensitive receptors, it is not considered necessary to adopt blanket restrictions on working hours. For some locations there may be a need to limited working early in the morning or late in the day/at night but this will be agreed with RDC on a case by case basis.

### **Quiet Working Practices**

6.5.24 As part of the implementation of BPM the following measures will be adopted where appropriate:

- Selection of low noise plant and working methods;
- Proper maintenance of plant and equipment;
- Avoidance of percussive piling as far as possible in areas sensitive to noise;
- Turning off plant and vehicle engines when not in use;
- Use of screening and enclosure of plant wherever practicable when working in the vicinity of sensitive receptors; and
- Strategic use of hoardings, screens and barrier options where appropriate.

6.5.25 Detailed mitigation measures for night-time works will be discussed with RDC as the detailed design and the construction arrangements are refined. On this basis, the significant construction noise effects that have been identified will be mitigated as far as it is reasonable practicable. For the purposes of the ES, however, all predicted construction effects are deemed residual at this stage.

### **Construction Vibration**

6.5.26 None of the existing buildings located close to the proposed construction sites are likely to contain vibration sensitive equipment.

6.5.27 There is a low probability that occupants of buildings in proximity to the piling works may be exposed to levels of vibration that could give rise to adverse comment.

### **Operation**

6.5.28 No effects have been identified due to operational noise and vibration, as such, no mitigation is required.

---

## 6.6 Residual Effects

- 6.6.1 The residual noise effects from construction of the scheme are between **Minor** and **Moderate** during the peak construction activities. The effect will be reduced when works are occurring at locations away from the receptor locations.
- 6.6.2 Residual construction vibration effects are considered to give rise to **Negligible** effects at the nearest receptors.
- 6.6.3 Operational noise and vibration has been assessed to have a **Negligible** effect at all receptors therefore no residual effects are predicted.

## 6.7 Conclusions

- 6.7.1 Construction activities related to the Scheme are not expected to result in significant noise and vibration effects during the day or night time periods.
- 6.7.2 The control of construction noise and vibration will generally be achieved through the use of BPM. The noise and vibration assessment assumes the use of best practice with respect to management of construction activity.
- 6.7.3 Due to the low number of train movements along the new route, increases in noise levels due to the operational Scheme will not result in a significant effect at any sensitive receptors.

## 7.0 Air Quality

### 7.1 Introduction

- 7.1.1 This air quality assessment chapter has considered the potential effects that the proposed scheme could have on local air quality. Air quality is an important consideration in development proposals as emissions into the air can have wide ranging significant effects on human health and the wider natural environment.
- 7.1.2 A baseline assessment of local air quality has been undertaken to establish existing and historic air quality conditions in the Rother District and surrounding area. The assessment has considered air quality effects of the proposed scheme during construction from both fugitive dust and construction traffic.

### 7.2 Planning Policy and Context

#### Air Quality Strategy

- 7.2.1 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland<sup>16</sup> (AQS) sets the framework for government policy on air quality in the UK. The AQS sets out air quality standards and objectives to be achieved and introduces a policy framework for tackling fine particles. In setting air quality objectives, due account was taken of health and socio-economic cost-benefit factors, together with consideration of the practicalities of achieving such targets. Air quality objective levels are set out in legislation in the Air Quality (England) Regulations 2000<sup>17</sup>, as amended<sup>18</sup>.
- 7.2.2 Although achievement of air quality objectives is not a statutory requirement for local authorities, they reflect statutory limits outlined in the Air Quality Standards Regulations 2010<sup>19</sup><sup>20</sup>, which require the Secretary of State to achieve EU limit values set out in EU Ambient Air Quality Directives.

**Table 7.1 - UK National Air Quality Objectives**

| Pollutant                      | Objective  | Measured as  | Date for achievement |
|--------------------------------|--|--------------|----------------------|
| Particles (PM <sub>10</sub> )  | 50 µg/m <sup>3</sup> (not to be exceeded more than 35 times/ year) | 24-hour mean | 31 December 2004     |
|                                | 40 µg/m <sup>3</sup>   | Annual mean  | 31 December 2004     |
| Particles (PM <sub>2.5</sub> ) | 25 µg/m <sup>3</sup>   | Annual Mean  | 2020                 |

<sup>16</sup> Department of the Environment, Food and Rural Affairs, et al, 2007, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Volume 1 s.l, s.n.

<sup>17</sup> The Air Quality (England) Regulations 2000 (2000 No. 928)

<sup>18</sup> The Air Quality (England) (Amendment) Regulations 2002 (2002 No. 3043)

<sup>19</sup> The European Parliament and the Council of the European Union, 2008, Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air and cleaner air for Europe. Official Journal of the European Union L152/2 11.6.2008.

<sup>20</sup> The European Parliament and the Council of the European Union, 2004, Directive 2004/107/EC of the European Parliament and of the Council of 15 May 2005 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. (Fourth Daughter Directive). Official Journal of the European Union L23/3 26.1.2005.

---

## Planning and Guidance

### National Planning Policy Framework

7.2.3 The NPPF replaced existing national planning policies relevant to air quality such as Planning Policy Statement PPS1 Delivering Sustainable Development and PPS23: Planning and Pollution Control (see below for information).

7.2.4 In relation to air quality, paragraph 124 of the NPPF states:

*"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."*

### Rother District Local Plan (Adopted 2006)

7.2.5 The Rother District Local Plan sets out a Key Structure Plan with 21 criteria for the 21<sup>st</sup> Century. S1 of the Plan states that:

*"In order to meet the needs for development and change in the plan area in a way that is more environmentally sustainable in the longer term, all planning activities and development decisions should take account of the following criteria. Where appropriate, local planning authorities may require proposals for development to demonstrate how far they contribute to the achievement of these criteria".*

7.2.6 The criteria relating to air quality are: "protecting and enhancing air quality, including the reduction of air pollution and the emission of greenhouse gases".

## 7.3 Methodology

### Air Quality Assessment Methodology for Roads

7.3.1 Road traffic can be considered a primary source of emissions to air. The combustion of fuel in vehicles leads to a number of harmful by-products which can affect air quality in the vicinity of roads. Areas with high traffic volumes or near to major roads can often experience elevated pollutant levels, particularly in the form of nitrogen dioxide (NO<sub>2</sub>) and particulates (PM<sub>10</sub>).

7.3.2 The Highways Agency has developed a procedure for assessing the significance of traffic volumes on local air quality in their Design Manual for Roads and Bridges (DMRB)<sup>21</sup>. The procedure is designed to assess potential effects resulting from changes in road use, including realignment, expansion and increased traffic flow. An assessment of effects from the proposed development has been carried out in accordance with the following methodology.

7.3.3 The DMRB methodology adopts four assessment levels, each requiring a more detailed and in depth approach. If a source or the potential change in traffic volumes can be deemed to be insignificant at any level, no further assessment is required.

---

<sup>21</sup> The Highways Agency, 2007, Design Manual for Roads and Bridges, Volume 11, Environmental Assessment: Section 3 Environmental Assessment Techniques, Part 1, Air Quality.

- 7.3.4 The initial scoping stage includes a mixture of qualitative and quantitative techniques to gather data and evaluate potential emissions and impacts on local air quality. The scoping stage includes:
- The identification of key locations (sensitive receptors) that might experience a change in air quality as a result of the proposed changes or development;
  - The examination/determination of existing and future air quality conditions near the road or development, to assess the existing impacts and background levels of pollutants. This includes determination of any local Air Quality Management Areas (AQMA) in the region; and
  - The determination of existing traffic conditions and projected traffic conditions for the year the change or development is scheduled for completion. Information required includes, traffic volumes in terms of Annual Average Daily Traffic (AADT), traffic composition and average vehicle speeds.
- 7.3.5 This information is assessed to ascertain significant changes and potential effects based on set criteria defined in the DMRB methodology. These include:
- A change in road alignment of 5m or more;
  - Daily traffic flows changing by 1,000 AADT or more;
  - Heavy duty vehicle (HDV) flows changing by 200 AADT or more; and
  - The daily average speed changing by 10km/h or more, or the peak hour speed changing by 20km/h or more.
- 7.3.6 Should the affected roads fall within these criteria, or there are no sensitive receptors within 200 metres of the road, the effects to air quality can be considered to be 'neutral' or of 'insignificant' effect, and no further assessment is required.
- 7.3.7 If the changes to the road traffic are somewhat higher, then a further simple assessment is required using a DMRB screening tool, which provides basic estimations of pollutant concentrations at sensitive receptors based on traffic flow and composition.
- 7.3.8 Three scenarios are commonly considered to assess potential pollutant concentrations and effects from a development, the baseline or existing situation, the projected situation with the completed development and the projected situation without the development.
- 7.3.9 The three scenarios allow any direct effects from the development to be established, should the effects be of significance or estimated to exceed national air quality objective levels then a detailed assessment may be required. A detailed assessment involves a far more in-depth assessment using a sophisticated computer model which considers all the variables that influence pollutant emission and dispersion (meteorology, diurnal traffic flows etc.).

### **Construction Dust Assessment Methodology**

- 7.3.10 Dust emissions during demolition and construction activities have the potential to give rise to effects on sensitive locations such as residential properties. Key sources of air pollution from construction sites include:
- Dust created by demolition and crushing activities;
  - Earthmoving and remediation activities;
  - General construction activities, which may include, concrete mixing, cutting, grinding etc.; and
  - Dust and exhaust emissions from haulage vehicles on site and on local roads.



- 7.3.11 Given the variability of construction sites and the range of activities undertaken, making an accurate assessment of the dust and air pollutants generated is not always feasible or practicable. Instead, a more qualitative assessment is undertaken to examine potential areas of concern and identify the Best Practicable Means (BPM) for eliminating, minimising and mitigating potential emissions.
- 7.3.12 The Greater London Authority (GLA) Best Practice Guidance document<sup>22</sup> for controlling dust and emissions from construction and demolition sites provides useful information on managing and mitigating construction dust emissions. This document has been used as a basis for assessing potential effects from the proposed development.
- 7.3.13 This assessment identifies potential works that may generate dust and incorporates a list of appropriate mitigation measures to control them.

### **Assessment Criteria**

- 7.3.14 The potential effects of a development or proposal are described and assessed by comparing estimated pollutant concentrations both with the AQS objectives and with established criteria used to determine significance.
- 7.3.15 The key criteria for assessing air pollution levels are the AQS objectives, as these represent the statutory limits for the protection of human health as defined by the European Union and UK Governments. Therefore, the defining significance criteria is derived in relation to these figures. Should emissions from a source or development have the potential to exceed the Objectives either in the present or future, they can be considered to be significant.
- 7.3.16 In addition to the AQS objectives there are other criteria for assessing significance which are commonly used and based on magnitude of change. A development could for example, have a significant effect on local air quality without exceeding the objectives. For the purposes of this report, descriptors for impact magnitude definitions and impact descriptors developed by Environmental Protection UK have been used, primarily because they consider effects in terms of the magnitude of change from existing concentrations and also relative to the AQS objectives.

### **Impact Magnitude**

- 7.3.17 The Environmental Protection UK (EPUK) Guidance<sup>23</sup> provides an example of criteria for magnitude of change and related impact descriptors as a result of a development. In the absence of other specific guidance it forms the basis for this assessment.
- 7.3.18 The criteria set out in **Table 7.2** were developed by the Institute of Air Quality Management (IAQM) for annual mean PM<sub>10</sub> and NO<sub>2</sub>. The criteria can also be applied to the number of days above 50 µg/m<sup>3</sup> PM<sub>10</sub>. However no descriptors have been developed for the one-hour mean objective for NO<sub>2</sub>. **Table 7.2** presents the magnitude of change in air pollutant concentration descriptors and **Table 7.3** presents the impact descriptors that take account of the magnitude of changes (both positive and negative) and the concentration in relation to the air quality objective.

<sup>22</sup> Greater London Authority, 2006, Best Practice Guidance: The Control of Dust Emissions from Construction and Demolition, London: Greater London Authority.

<sup>23</sup> Environmental Protection UK, (2010), Development Control: Planning for Air Quality (2010). Available: [http://www.iaqm.co.uk/text/guidance/epuk/eq\\_guidance.pdf](http://www.iaqm.co.uk/text/guidance/epuk/eq_guidance.pdf), Accessed November 2013.

**Table 7.2 – Air Quality Impact Magnitude Thresholds**

| Impact magnitude for changes in pollutant concentration as a percentage of the assessment level |                             |
|---|-----------------------------|
| Magnitude of Change   | Annual Mean                 |
| Large   | Increase/decrease >10%      |
| Medium  | Increase/decrease 5% to 10% |
| Small   | Increase/decrease 1% to 5%  |
| Imperceptible   | Increase/decrease <1%       |

**Table 7.3 – Air Quality Impact Descriptors**

| Air quality impact descriptors for changes to annual mean nitrogen dioxide and PM <sub>10</sub> concentrations at a receptor |                         |                     |                        |      |
|--|-------------------------|---------------------|------------------------|------|
| Absolute Concentration in Relation to Objective/Limit Value  | Change in Concentration |                     |                        |      |
|  | Small<br>1% to 5%       | Medium<br>5% to10%  | Large                  | >10% |
| Increase with Scheme   |                         |                     |                        |      |
| Above Objective/Limit Value <i>With Scheme</i> (>40 µg/m3)   | Slight Adverse          | Moderate Adverse    | Substantial Adverse    |      |
| Just Below Objective/Limit Value <i>With Scheme</i> (36-40µg/m3)   | Slight Adverse          | Moderate Adverse    | Moderate Adverse       |      |
| Below Objective/Limit Value <i>With Scheme</i> (30-36 µg/m3)   | Negligible              | Slight Adverse      | Slight Adverse         |      |
| Well Below Objective/Limit Value <i>With Scheme</i> (<30 µg/m3)  | Negligible              | Negligible          | Slight Adverse         |      |
| Decrease with Scheme   |                         |                     |                        |      |
| Above Objective/Limit Value <i>With Scheme</i> (>40 µg/m3)   | Slight Beneficial       | Moderate Beneficial | Substantial Beneficial |      |
| Just Below Objective/Limit Value <i>With Scheme</i> (36-40µg/m3)   | Slight Beneficial       | Moderate Beneficial | Moderate Beneficial    |      |
| Below Objective/Limit Value <i>With Scheme</i> (30-36 µg/m3)   | Negligible              | Slight Beneficial   | Slight Beneficial      |      |
| Well Below Objective/Limit Value <i>With Scheme</i> (<30 µg/m3)  | Negligible              | Negligible          | Slight Beneficial      |      |

<sup>1</sup> Environmental Protection UK, (2010), Development Control: Planning for Air Quality (2010). Available: [http://www.iaqm.co.uk/text/guidance/epuk/eq\\_guidance.pdf](http://www.iaqm.co.uk/text/guidance/epuk/eq_guidance.pdf), Accessed November 2013.

## Significance

7.3.19 The significance of any changes in local air quality that are predicted, based on background pollutant concentrations and predicted traffic flows, can be established through the consideration of the following factors:

- Geographical extent (local, district or regional);
- Duration (temporary or long term);
- Reversibility (reversible or permanent);
- Magnitude of pollution concentration changes;
- Exceedance of standards (e.g. air quality objectives); and
- Changes in pollutant exposure.

## Consultation

7.3.20 RDC was consulted in September 2013, on the suitability of the air quality assessment methodology for the proposed scheme.

7.3.21 The Council agreed that the effects from construction traffic would need to be assessed, although it was agreed that the additional traffic movements are likely to be considered 'neutral' or of insignificant effect when the DMRB Screening Methodology is applied.

7.3.22 It was also agreed that a qualitative assessment of fugitive dust emissions for the construction period would be appropriate in addition to mitigation proposals to minimise any potential nuisance effects of fugitive dust emissions.

## 7.4 Baseline

7.4.1 RDC completed its first review and assessment of air quality in 2000. The report concluded that air quality objective levels would be met throughout the District.

7.4.2 The Council published an Updating and Screening Assessment in 2012 and a Progress Report in 2013; both of the reports confirmed the original findings in 2000 that all objective limits would be met throughout the District.

### Local Monitoring

7.4.3 Continuous automatic monitoring is undertaken by RDC and East Sussex County Council (ESCC) at two sites within the District.

7.4.4 An automatic monitor is located on De La Warr Road, approximately 17km south of the Scheme site and measuring NO<sub>2</sub> and PM<sub>10</sub>. Recent monitoring data from this location is shown in **Table 7.4** and show that the NO<sub>2</sub> and PM<sub>10</sub> air quality objectives have been met in recent years. The second monitor is located at Rye Harbour (approximately 22km to the south-east) and measures ozone only.

**Table 7.4 - Annual Mean Concentrations at the De La Warr Road Site**

| Year | Concentration PM <sub>10</sub> | PM <sub>10</sub> Objective | Concentration NO <sub>2</sub> | NO <sub>2</sub> Objective |
|------|--------------------------------|----------------------------|-------------------------------|---------------------------|
| 2010 | 25                             | 40                         | 25                            | 40                        |
| 2011 | 25                             | 40                         | 22                            | 40                        |
| 2012 | 20                             | 40                         | 27                            | 40                        |

- 7.4.5 RDC carries out NO<sub>2</sub> monitoring at a number of locations throughout the District using diffusion tubes. The majority of these are located at the kerbside and the busiest roads and road junctions between the carriageway of residential properties. The monitoring results indicate that the air quality objective for NO<sub>2</sub> has been met across the District in recent years.
- 7.4.6 Twenty-seven diffusion tubes are used to monitor NO<sub>2</sub> concentrations within the District; the highest concentration of NO<sub>2</sub> monitored during 2012 was measured near the A259 at Bexhill-on-Sea (37.3 µg/m<sup>3</sup>), which is located 17km south of the Scheme.
- 7.4.7 No changes or developments have been identified by RDC which are likely to negatively affect future air quality in the district; therefore pollutants are not likely to exceed the air quality objectives in future years.

### **Background Pollutant Concentrations**

- 7.4.8 The DMRB methodology requires background pollutant concentration data (i.e. concentrations not including local pollutant sources such as roads), that are factored to the year of assessment, to which the model adds contributions from nearby roads.
- 7.4.9 Background concentrations of NO<sub>x</sub>, NO<sub>2</sub>, and PM<sub>10</sub> were obtained from the UK-AIR: Air Information Resource (<http://www.airquality.co.uk>) for the relevant 1km x 1km grid squares covering the study area.
- 7.4.10 This provided pollutant background data for the assessment year at the beginning and the end of the new rail line, which are presented in Table 7.5 and Table 7.6.

**Table 7.5 - Pollutant Background Concentrations 578500,124500**

| Pollutant Background Concentrations (µg/m <sup>3</sup> ) for Grid Reference 578500, 124500 |      |      |
|--|------|------|
|  | 2013 | 2017 |
| NO <sub>x</sub> (µg/m <sup>3</sup> )   | 11.2 | 9.7  |
| NO <sub>2</sub> (µg/m <sup>3</sup> )   | 8.8  | 7.6  |
| PM <sub>10</sub> (µg/m <sup>3</sup> )  | 14.1 | 9.7  |

**Table 7.6 - Pollutant Background Concentrations 573500,123500**

| Pollutant Background Concentrations (µg/m <sup>3</sup> ) for Grid Reference 573500, 123500 |      |      |
|--|------|------|
|  | 2013 | 2017 |
| NO <sub>x</sub> (µg/m <sup>3</sup> )   | 12.6 | 10.8 |
| NO <sub>2</sub> (µg/m <sup>3</sup> )   | 9.8  | 8.5  |
| PM <sub>10</sub> (µg/m <sup>3</sup> )  | 13.1 | 10.8 |

## 7.5 Predicted Effects

### Temporary

#### Construction Traffic Effects

- 7.5.1 The traffic generation over the construction period is anticipated to be very small and well below the DMRB assessment criteria threshold of an additional 200 HGV vehicles (AADT).
- 7.5.2 Construction traffic effects will therefore have no significant effect on local air quality.

#### Construction Effects

- 7.5.3 The construction works will run from Northbridge Street in the west to the B2244 Junction Road in the east. The construction site borders primarily greenfield land and a small number of residential properties located in close proximity at Northbridge Street and Salehurst.
- 7.5.4 There are few buildings and limited tall vegetation in the immediate vicinity of the proposed construction site and therefore any screening from dusty construction activities will be unlikely.
- 7.5.5 Dust emissions from the construction site and haulage routes are most likely during the restoration of embankments and cuttings, this will be the most significant earthworks associated with this type of construction work. This work will need to be carried out from Northbridge Street to join the existing rail embankment that is located 500m west of Salehurst. Restoration of the existing rail line will require vegetation removal and relaying of new rail track.
- 7.5.6 Groundworks involving the break up and removal of sections of the highway will be required only for the three level crossings located on Northbridge Street, the A21 and Junction Road. Works here will be minimal as only small sections of the roads will require break-out to make way for each level crossing. Approximately 30m<sup>3</sup> of waste will be generated at each of the level crossings. The dust emissions class for this quantity of excavated material is low and is likely to pose a low risk of dust soiling effects at receptors in close proximity.
- 7.5.7 It is estimated that an area of 16,000m<sup>3</sup> of earthworks will be necessary for the construction of the 1.6km of new embankment. The dust emissions class for this activity is low and is likely to pose a low risk of dust soiling effects at receptors in close proximity. However one property is located within 10m of these earthworks, Salisbury Villa on Northbridge Street, which is likely to be at a medium risk of dust soiling effects.
- 7.5.8 Over the construction period, the materials that will be used on site will include approximately 300m<sup>3</sup> of prefabricated sleepers and rails. The laying of these rail track materials onto the ballast is not likely to generate significant amounts of dust. The dust emissions class<sup>24</sup> for this quantity of material arising from construction is low and is likely to pose a low risk of dust soiling effects at receptors in close proximity.

<sup>24</sup> Institute of Air Quality Management (2012); Guidance on the Assessment of the Impacts of Construction and the Determination of their Significance, Table 3, p.20; January 2012, v1.1

- 7.5.9 The daily vehicle movements associated with the transport of materials to and from the site will be small. Vehicles will access the site from the A21 and Junction Road; these access routes being located away from the vicinity of sensitive receptors. The dust emissions class<sup>25</sup> for this activity is likely to be medium on the neighbouring road network. **Table 7.7** below summarises the risk of dust effects at the site.

**Table 7.7 - Summary of the risk of dust effects for construction activities**

| Effect                          | Demolition risk | Earthworks risk | Construction risk | Track-out risk |
|---------------------------------|-----------------|-----------------|-------------------|----------------|
| Dust soiling & PM <sub>10</sub> | Low             | Medium          | Low               | Medium         |
| Ecological                      | Low             | Medium          | Low               | Medium         |

### Significance of Dust Effects

- 7.5.10 Using the IAQM construction dust criteria<sup>26</sup>, the sensitivity of the surrounding area of the construction site is considered to be low. The surrounding area has a low density of residential and commercial properties; however there are a number of properties at Newbridge Street and Salehurst that would be within 200m of the construction works. These settlement areas may also be affected by track out haulage routes.
- 7.5.11 The River Rother is in close proximity and runs parallel to the entire length of the construction site and is likely to pose a medium ecological risk to dust effects.
- 7.5.12 The following sections summarise the magnitude of dust effects around the construction site without mitigation. The assessment has been completed based on the sensitivity of the surrounding area, the risk of each activity giving rise to dust effects and the likely effectiveness of mitigation measures at reducing the risk of dust effects. Any PM<sub>10</sub> impacts are unlikely to affect compliance with the national air quality objectives.

### Permanent Operational Effects

#### Operational Traffic Effects

- 7.5.13 The traffic generation over the operational period is anticipated to be very small and well below the DMRB assessment criteria threshold of an additional 1,000 vehicles (AADT).
- 7.5.14 Operational traffic effects will therefore have **no significant** effect on local air quality.

#### Operational Steam Locomotive Effects

- 7.5.15 There is currently no guidance on the assessment of air quality effects resulting from the operation of steam locomotives; however given that a maximum of only eight return train journeys are forecast per day and that there are existing low pollutant background concentrations in the area, the resulting emissions are considered to have a **negligible** effect on local air quality.

<sup>25</sup> Institute of Air Quality Management (2012); Guidance on the Assessment of the Impacts of Construction and the Determination of their Significance, Table 4, p.21; January 2012, v1.1

<sup>26</sup> Institute of Air Quality Management (2012), Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance, Table 6, p.24; January 2012, v1.1



## 7.6 Cumulative Effects

- 7.6.1 A development on Station Road, located approximately 500m to the south of the proposed track reinstatement, could be under construction at the same time as the proposed Scheme. The development will comprise 1,300m<sup>2</sup> of business units and 17 dwellings. However, it is considered unlikely that cumulative effects will result due to the fact that construction traffic will enter the sites at different parts of the A21.

## 7.7 Mitigation

- 7.7.1 Best practice would be implemented on-site to minimise any nuisance impacts from fugitive dust during the construction phase of the proposed scheme. Such measures could include but not be limited to those listed below which are also included in the draft CEMP (Volume 2, Appendix 4).

### Mitigation of Dust Impacts from Earthworks and Material Storage

- Dampening down dusty stockpiles during dry periods;
- Targeted use of sprinklers on potentially dust generating activities to prevent the escape of fugitive dust;
- Cutting, grinding or sawing equipment used in conjunction with suitable dust suppression techniques such as water sprays;
- Re-vegetation of earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Removal of vegetative cover in small sections to control the area of exposed soil; and
- Minimisation of drop heights from loading shovels, hoppers and other loading or handling equipment and water sprays would be used on such equipment.

### Mitigation of Dust Impacts from Vehicle Movements

- Heavily-used construction site access routes would be kept free from dust and surfaces damped down during protracted periods of dry weather;
- Wheel wash facilities provided at each exit from the construction site to the local road network. Vehicles carrying loose materials to/ from the site should be free of mud and dust, and covered to minimise the risk of any spillage onto the highway; and
- Water assisted dust sweepers used on access and local roads to remove any material tracked out of the Site and inspections carried out on a regular basis.

## 7.8 Residual Effects

- 7.8.1 Following the deployment of fugitive dust mitigation on site and on transport routes, no significant residual dust effect is expected.
- 7.8.2 **Table 7.8** summarises the risk of dust impacts at the site following the implementation of mitigation measures.

**Table 7.8 - Summary of the risk of dust impacts with mitigation measures**

| Effect                          | Demolition risk | Earthworks risk | Construction risk | Track-out risk |
|---------------------------------|-----------------|-----------------|-------------------|----------------|
| Dust soiling & PM <sub>10</sub> | Low             | Low             | Low               | Low            |
| Ecological                      | Low             | Low             | Low               | Low            |

---

## **7.9 Conclusion**

- 7.9.1 An assessment has been carried out on the air quality effects that are likely as a result of the construction and operation of the Scheme.
- 7.9.2 RDC currently has a good air quality environment compared to more urbanised Boroughs. There are no exceedances of national air quality objectives and therefore no AQMAs declared in the Borough.
- 7.9.3 The background pollutant concentrations in the vicinity of the proposed rail line are well below the national air quality objectives. The construction-phase traffic emissions are likely to have a negligible effect on local air quality.
- 7.9.4 Operational-phase impacts would result from eight steam locomotives per day that would use the rail line and a very small increase in resulting road traffic. The impact of the additional number of locomotives using the rail line is assessed to be insignificant.
- 7.9.5 During construction of the proposed scheme, there is potential for nuisance dust effects from fugitive dust generation on the site. However, following the implementation of the mitigation measures any nuisance dust effects would be minimised and would not be significant.

## 8.0 Landscape and Visual

### 8.1 Introduction

#### Background and Structure of the Landscape and Visual Chapter

- 8.1.1 This chapter considers the landscape and visual impacts of the Scheme.
- 8.1.2 The proposed alignment runs through the floodplain of the River Rother and the entire site is situated within the High Weald Area of Outstanding Natural Beauty (AONB). Parts of the original railway, constructed in 1896 and closed in 1961, are defined by linear stands of mature vegetation which contribute positively to the existing character of the area, while other sections have been removed and are no longer apparent in the landscape. The original alignment of the railway is shown on the Historic Maps presented in Volume 4, Figure 2.5.
- 8.1.3 The principle of reinstating the missing section of track is recognised by Policy EM8 in the Rother District Local Plan (Adopted 2006), which states that the Scheme will be supported, subject to the proposals certain criteria including that:
- “It has an acceptable impact on the High Weald Area of Outstanding Natural Beauty”*
- 8.1.4 Consequently, one of the key considerations for this chapter is the potential effects of the Scheme on the landscape character and natural beauty of the High Weald Area of Outstanding Natural Beauty.

### 8.2 Scope of Assessment

- 8.2.1 Prior to the submission of the Scope and Methodology Report, a preliminary site visit and an initial desk-top assessment were undertaken. This concluded that ‘significant effects’, as are required to be identified under EIA Regulations, were unlikely to extend beyond a distance of 2km. This was due to a number of factors, including the nature of the surrounding landform, the high level of screening provided by the existing vegetation around the site and the relatively low elevation of the development proposals. The Scope and Methodology Report therefore identified the receptors that were likely to be affected by the Scheme, and it was acknowledged that the main focus of the assessment would be conducted within approximately 2km of the proposed alignment.
- 8.2.2 The actual visibility was then verified by extensive site investigations and recorded by a full photographic survey. This was used to refine the viewpoints and the receptor groups identified in the Scope and Methodology Report. The photographic survey forms part of the assessment of the baseline conditions presented in Volume 4, Figure 8.4.
- 8.2.3 The assessment of the potential landscape and visual impacts considers:
- the landscape features that may be affected by the proposals;
  - the existing and historic contributions made by the railway to the character and local distinctiveness of the area;
  - the extent of the area from which the proposals may be visible;
  - representative views towards the site from publicly available viewpoints within the valley and more elevated positions overlooking the site;
  - private views from groups of residential properties;
  - views from the listed buildings, conservation areas and scheduled ancient monuments adjacent to the site, particularly from within the setting of the listed Robertsbridge abbey (impacts on the settings to these features will be considered in more detailed in section 5: archaeology and cultural heritage); and

- Where appropriate, seek to identify mitigation measures to minimise any significant impacts on the landscape features or views that contribute positively to local character, ensuring that any new planting is compatible with and reinforces the existing character of the AONB.

## **Planning Policy and Guidance**

### **National Planning Policy Framework**

- 8.2.4 Within the NPPF, twelve core land-use planning principles are identified. Paragraph 17 recognises that:

*“Within the overarching roles that the planning system ought to play, a set of core land-use planning principles should underpin both plan-making and decision-taking.”*

- 8.2.5 Of the 12 principles, Principle 5 applies to landscape and visual and recognises that planning should:

*“...Take account of the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it.;...”*

- 8.2.6 Chapter 7, ‘Requiring good design’, paragraph 56 recognises:

*“The Government attaches great importance to the design of the built environment. Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people.”*

- 8.2.7 Paragraph 58 states:

*“Local and neighbourhood plans should develop robust and comprehensive policies that set out the quality of development that will be expected for the area. Such policies should be based on stated objectives for the future of the area and an understanding and evaluation of its defining characteristics. Planning policies and decisions should aim to ensure that developments:*

*“...are visually attractive as a result of good architecture and appropriate landscaping.”*

- 8.2.8 Chapter 10, ‘Meeting the challenge of climate change, flooding and coastal change’ discusses local plans taking climate change into account and recognises in paragraph 99 that:

*“Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which is vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure”.*

- 8.2.9 Chapter 11, ‘Conserving and enhancing the natural environment’, paragraph 109 states:

*“The planning system should contribute to and enhance the natural and local environment by:  
...Protecting and enhancing valued landscapes, geological conservation interests and soils;”...*

8.2.10 Paragraph 113 recognises:

*“Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.”*

8.2.11 Paragraph 114 states:

*“Local planning authorities should:*

*...Set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure.”, and;...”*

8.2.12 Paragraph 125 states that:

*“By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

8.2.13 The policies in the NPPF apply from the date of publication, replacing all previous national guidance in the form of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG).

**Rother District Local Plan (Adopted 2006)**

8.2.14 The current Local Plan is the Rother District Local Plan 2006. The following policies are relevant to the consideration of potential Landscape and Visual effects.

8.2.15 Extracts of Policy DS1: ‘In determining whether development is appropriate in a particular location, proposals should accord with the following principles:

*“(vi) It avoids prejudicing the character and qualities of the environment, particularly the High Weald Area of Outstanding Natural Beauty and undeveloped coastline;*

*(vii) it protects sites of recognised nature conservation importance, particularly of internationally and nationally important sites, as defined on the Proposals Map;*

*(viii) it protects historic parks and gardens and Battle battlefield, as defined on the Proposals Map;*

*(ix) it respects the importance of the countryside in terms of its distinct landscape character, natural resources, woodland and agriculture;*

*(x) it protects ancient woodland from development that would prejudice its ecological and landscape value;*

*(xi) it ensures that development is safe from flooding, including by restricting development in flood risk areas and not increasing such risk elsewhere;*

*(xii) it protects vulnerable countryside gaps between settlements, as elaborated upon by Policy DS5.”*

8.2.16 Extracts of Policy GD1 relevant to this Technical Report are as follows: ‘All development should meet the following criteria:

*“(iv) it respects and does not detract from the character and appearance of the locality;*

*(v) it is compatible with the conservation of the natural beauty of the High Weald Area of Outstanding Natural Beauty;*

*(vi) it respects the topography, important views to and from the site and retains site features that contribute to the character or amenities of the area;*

*(vii) it protects habitats of ecological value and incorporates, wherever practicable, features that enhance the ecological value of the site, with particular regard to wildlife refuges or corridors, or fully compensates for any necessary loss;*

*(viii) it does not prejudice the character, appearance or setting of heritage features, notably scheduled ancient monuments and sites of archaeological importance, listed buildings, conservation areas, registered historic parks and gardens, the registered battlefield at Battle, or other buildings and spaces of historic importance;*

*(xiv) where significant development of agricultural land is unavoidable, it makes use of poorer quality land (grade 3b, 4 and 5) in preference to that of higher quality except where this would be inconsistent with other sustainability considerations;*

*(xv) it takes account of flood risk and in the areas of flood risk, as shown on the Proposals Map, it is expected to minimise and manage the risk to flooding”*

8.2.17 Policy EM8 indicates that an extension to the Kent & East Sussex Steam Railway from Bodiam to Robertsbridge, along the route identified on the Proposals Map, will be supported, subject to a proposal meeting the following criteria:

*“(i) it must not compromise the integrity of the floodplain and the flood protection measures at Robertsbridge;*

*(ii) it has an acceptable impact on the High Weald Area of Outstanding Natural Beauty;*

*(iii) it incorporates appropriate arrangements for crossing the A21, B2244 at Udiam, Northbridge Street and the River Rother.”*

### **8.3 Methodology**

8.3.1 The Landscape and Visual assessment methodology has principally be developed in accordance with the *Guidelines for Landscape and Visual Impact Assessment (GVLIA)*<sup>27</sup> (Third Edition), published jointly by the Landscape Institute and the Institute of Environmental Management & Assessment in April 2013. Compared to the previous edition of the GLVIA, the new guidance places increased emphasis on ‘clarity and simplicity in approach and the importance of professional judgement’ and clearly reasoned justification of the conclusions reached. This change of emphasis is reflected in the assessment methodology used.

8.3.2 Where appropriate the potential beneficial effects due to the historic value of the restored railway are also considered as part of the evaluation of impacts. The Scheme has the potential

<sup>27</sup> Landscape Institute and the Institute of Environmental Management & Assessment, (2013), *Guidelines for Landscape and Visual Impact Assessment (GVLIA)* (3<sup>rd</sup> Edition).



to generate interest for some receptors, increasing viewer enjoyment of the character of the steam railway and the surrounding landscape.

### **Study Area**

- 8.3.3 The study area for the assessment was defined by the Zone of Theoretical Visibility (ZTV) for the Scheme. It is common practice to define the theoretical extent of the area from which a Scheme may be visible using digital terrain data. However, this tends to be generated using only landform data and does not take into account any screening that vegetation or the built environment may provide. The process therefore identifies the worst-case scenario and the actual extents of visibility are often much less extensive.
- 8.3.4 The preliminary site visit established that the potential visibility of the Scheme is strongly influenced by the substantial areas of vegetation present within the surrounding landscape. The visibility of the Scheme was therefore identified using a topography plan of the neighbouring area and recent aerial photographs in order to identify potential viewpoints. The Topography Plan and the Visual Appraisal Plan are presented in Volume 4, Figure 8.2 and 8.3.
- 8.3.5 The actual visibility was then verified by extensive site investigations and recorded by a full photographic survey. This was used to refine the locations of viewpoints to be assessed and the receptor groups identified in the Scope and Methodology Report.

### **Assessment Methodology**

- 8.3.6 In addition to following the Guidelines for Landscape and Visual Impact Assessment consideration has been given to the following:
- *Photography and Photomontage in Landscape and Visual Impact Assessment* (Landscape Institute Advice Note 01/11); and
  - *Landscape Character Assessment – Guidelines for England and Scotland* (The Countryside Agency and Scottish National Heritage, 2002).
- 8.3.7 Further useful guidance is provided by WebTAG, the Department for Transport's (DfT) web-based guidance for the appraisal of the impacts of transport schemes on landscape and townscape character and Volume 11 of the Design Manual for Roads and Bridges (DMRB). While the proposed Scheme is not specifically road traffic related, it is nevertheless a linear transportation feature, so limited reference to this guidance has been made where relevant.
- 8.3.8 The guidelines state that there is no standard methodology for the quantification of landscape and visual impacts. The methodology therefore needs to be appropriate and proportionate to the specific site and needs to be established incorporating the necessary degree of professional judgment. This assessment therefore considers impacts upon:
- The physical landscape resources of the site and its immediate surroundings;
  - The visual amenity of views towards the site; and
  - The consequential effects on the surrounding landscape or settlement character.
- 8.3.9 The Scheme is likely to have effects upon the physical landscape attributes of the site, on the visual amenity of views from and towards the site and consequential effects on the landscape character of the surrounding areas. These effects may be positive or negative depending on the baseline conditions of the receiving environment. In accordance with the published guidance, landscape (elements and character) and visual impacts are assessed separately. The significance of the impacts will depend upon the magnitude of the impact and the sensitivity of the landscape and visual receptors.

8.3.10 The sensitivity of the receptors and the magnitude of the anticipated changes have been determined as part of the assessment. The assessment has then considered ways to eliminate, reduce or mitigate any significant adverse landscape or visual effects on the environment and ways to maximise opportunities for landscape and visual enhancements. The assessment therefore considers the landscape and visual effects during the following phases:

- During construction;
- On completion of the construction; and
- 15 years after completion when mitigation is fully established (residual effects).

8.3.11 The methodology consists of three stages. Firstly the sensitivity of the landscape or visual receptor is considered. The magnitude and the nature of the impacts are then assessed. Both the sensitivity of the receptor and the magnitude of the impacts are used to identify the significance of the effect. Impacts may be positive or negative, direct or indirect and may be short, medium or long-term in duration. The long-term or residual effects likely to result from the proposals (those that remain after the establishment of the mitigation measures) are presented at the end of the assessment.

8.3.12 The guidance does not provide absolute criteria for the evaluation of landscape and visual impacts, so this is based upon the experience and professional judgment of a chartered landscape architect, using a methodology that conforms to the guidelines. In order to provide a structured and consistent approach, the criteria used in this assessment are set out below.

8.3.13 This assessment considers landscape and visual matters as separate issues, where landscape impacts relate to physical changes to the landscape and visual impacts relate to changes in available views. It is necessary to bring these two assessments together in order to identify any changes that the proposals may have on landscape character. Where appropriate, the assessment then also considers the potential of any cumulative effects.

### **Landscape Impacts**

8.3.14 Landscape impacts relate to physical changes to the nature and quality of the individual landscape elements and characteristics on the site itself and the consequential effect of these changes on the landscape or townscape character of the surrounding areas. Landscape Receptors are individual elements or groups of elements which will be directly or indirectly affected by the proposals. These elements consist of natural and cultural factors and include topography, vegetation, watercourses, public rights of way, buildings, historic features and land use, and the effects that these have on the character of the site.

### **Landscape Sensitivity**

8.3.15 The factors used to define the sensitivity of the landscape receptors are:

- Landscape Quality (or Condition) – the physical state of repair of the individual element;
- Landscape Value (or Importance) – the relative value that is attached to the individual landscape element;
- Contribution to Landscape/Settlement Character – the contribution of an individual element or group of elements to the local sense of place;
- Scope for Replacement – the ability or otherwise to replace an individual element or group of elements; and
- Main Trends for Change – the degree of stability or level of change being experienced by the landscape.

8.3.16 Where necessary, variations of these characteristics within the local landscape/townscape and within the site need to be identified. The criteria used to assess the sensitivity of the landscape elements or receptors are set out in **Table 8.1**.

**Table 8.1 - Sensitivity of Landscape Receptors**

| Sensitivity       | Receptor   |
|-------------------|--|
| <b>Very High</b>  | Elements in very good condition and/or with particularly distinctive or positive contribution to a high quality local or regional character. This may include internationally important landscape features |
| <b>High</b>       | Elements in good or above average condition and/or that make strongly positive contribution to landscape character. May include nationally important landscape features                                    |
| <b>Medium</b>     | Elements in reasonably good condition and/or that make an average contribution to the local character, which may include locally important landscape features  |
| <b>Low</b>        | Elements in below average condition and/or that are not particularly distinctive local features  |
| <b>Negligible</b> | Elements in very poor condition and/or that do not contribute positively to local character  |

### Magnitude of Landscape Effects

8.3.17 The criteria for assessing the magnitude of landscape effects are based upon the degree of physical change that will occur as a result of the proposals, the compatibility of these changes with the overall trends for change within the landscape and the consequential effects that these changes may have on the landscape or settlement character. The criteria used to assess the magnitude of the landscape impacts are set out in **Table 8.2**.

**Table 8.2 - Magnitude of Landscape Impacts**

| Magnitude         | Impact   |
|-------------------|--|
| <b>Major</b>      | Dominant or Total change to baseline character or condition  |
| <b>Moderate</b>   | Clearly Noticeable change to baseline character or condition |
| <b>Minor</b>      | Perceptible change to baseline character or condition        |
| <b>Negligible</b> | Barely Perceptible change to baseline character or condition |
| <b>No Change</b>  | No change to baseline character or condition                 |

8.3.18 Landscape Character results from a recognisable pattern of landscape (both natural and man-made) and visual factors, based principally upon topography, land use, landscape or street pattern, typical building types and historic associations. A description of the typical characteristics of the surrounding landscape character area is given in the baseline assessment.

8.3.19 The sensitivity of any given landscape character area to change is dependent on a complex range of factors, many of which are rather subjective in nature. The principal factors are:

- The baseline quality and condition of the Character Area;
- The activities of the viewers within the receptor area;
- The physical, visual and historic links between the site and the receptor area;
- The proximity of proposals to the receptor area;
- The degree of physical change to a receptor area; and
- The nature and extent of public and private views towards the site from the receptor area.

8.3.20 The magnitude of any impacts on landscape character is dependent on the scale and nature of the physical changes arising from the proposals and the degree to which these changes affect the perceptions of the overall amenity and character of an area.

## Visual Impacts

8.3.21 The GLVIA guidance defines visual impacts as ‘the changes that arise in the composition of available views as a result of changes to the landscape, to people’s responses to the changes, and to the overall effects with respect to visual amenity’.

### Visual Sensitivity

8.3.22 The sensitivity of visual receptors and views will be dependent on:

- The location and context of the viewpoints;
- The expectations, occupation or activity of the receptor; and
- The importance of the view.

8.3.23 The more sensitive receptors are therefore likely to include:

- Occupiers of residential properties with views affected by the development;
- Users of outdoor recreational facilities including public rights of way, whose attention or interest may be focused on the landscape; and
- Communities where the development results in changes in the landscape setting or valued views enjoyed by the community.

8.3.24 The criteria used to assess the sensitivity of the visual receptors are set out in **Table 8.3**.

**Table 8.3 - Sensitivity of Visual Receptors**

| Sensitivity       | Receptor  |
|-------------------|---|
| <b>Very High</b>  | Receptors with a very strong interest in their visual environment / views of particularly high scenic value / views with a very low tolerance or capacity to incorporate the types of changes being considered. This may include residents or visitors to internationally important features                            |
| <b>High</b>       | Receptors with a strong interest in their visual environment / views of high scenic value / views with very few adverse elements in the composition of the view. This may include residents or visitors to national valued countryside or walkers on long distance footpaths.   |
| <b>Medium</b>     | Viewers with a particular interest in their visual environment / views of high scenic value / views where there are some adverse elements but these do not form a clearly apparent part in the composition of the view. This may include residents or visitors to regionally or locally valued countryside              |
| <b>Low</b>        | Receptors with a moderate interest in their visual environment / views of moderate scenic value / views where existing adverse elements form a noticeable part in the composition of the view. This may include people travelling in cars or other modes of transport whose attention may be focussed on visual amenity |
| <b>Negligible</b> | Viewers with only a passing or momentary interest in their everyday surroundings / may include motorists or people at their place of work, whose attention is focussed on other activities  |

### Magnitude of Visual Impacts

8.3.25 In the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude or scale of visual change is described by reference to:

- The distance of the viewpoint from the proposed development;
- The extent of the area over which the changes would be visible;
- The angle of view in relation to the main activity of the receptor;
- The nature of the view in relation to the sequence of views experienced in arriving at the viewpoint;

- The scale of change in the view with respect to the loss or addition of features in the view and changes in its composition including the proportion of the view occupied by the proposed development;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and
- The duration and nature of the effect, whether temporary or permanent, intermittent or continuous.

8.3.26 Criteria used to assess the magnitude of the visual impacts are set out in **Table 8.4**.

**Table 8.4 - Magnitude of Visual Impacts**

| Magnitude         | Effect  |
|-------------------|---|
| <b>Major</b>      | Dominant or Total change to composition of baseline view  |
| <b>Moderate</b>   | Clearly Noticeable to composition of baseline view        |
| <b>Minor</b>      | Perceptible to composition of baseline view               |
| <b>Negligible</b> | Barely Perceptible change to composition of baseline view |
| <b>No Change</b>  | No change to View   |

## Effect Significance

8.3.27 The significance of the effect is determined by a combination of the sensitivity of the receptor or receiving environment and the magnitude of the predicted changes. The scale shown in Significance Matrix in **Table 8.5** has been adopted to assess the significance of both the landscape and the visual impacts. The basis of this scale is derived from case studies and professional experience in accordance with the LI/IEMA guidance.

**Table 8.5 - Significance Matrix**

| Value/ Sensitivity | Magnitude of Impact  |            |          |          |            |
|--------------------|----------------------|------------|----------|----------|------------|
|                    | Neutral or No Change | Negligible | Minor    | Moderate | Major      |
| <b>Very High</b>   | Neutral              | Slight     | Moderate | Large    | Very Large |
| <b>High</b>        | Neutral              | Slight     | Slight   | Moderate | Large      |
| <b>Medium</b>      | Neutral              | Neutral    | Slight   | Slight   | Moderate   |
| <b>Low</b>         | Neutral              | Neutral    | Neutral  | Slight   | Slight     |
| <b>Negligible</b>  | Neutral              | Neutral    | Neutral  | Neutral  | Slight     |

8.3.28 The objective of the impact assessment should be to identify any significant effects that are likely to arise as result of the proposals. An effect is deemed to be significant when it is assessed as being moderate, large or very large. These effects would be important considerations in the decision making process. Where such effects are identified, appropriate mitigation measures have been identified in order to eliminate, reduce or compensate for the long-term or residual effects of the proposals.

## Existing, Baseline and Future Conditions

8.3.29 The identification of baseline conditions must take into account predicted changes that would occur prior to the construction or opening of the Scheme, and that are entirely independent of the proposed Scheme. The baseline for impacts for the construction of the Scheme is therefore the situation as it is predicted to be at the start of construction.

---

## **Limitations**

8.3.30 The following limitations have applied to the assessment:

- All of the alignment of the dismantled railway is in private ownership and to date permission to enter any of the land has not been granted by the owners. Therefore, the baseline assessment has had to be undertaken from adjacent public rights of way and using recent aerial photographs of the site;
- Site surveys were undertaken in July 2012 and November 2013 in order to consider seasonal variations in visibility and site character. Where the visibility of the Scheme is entirely controlled by narrow belts of deciduous vegetation, it is possible that the Scheme would be somewhat more visible during these periods of full leaf fall than is shown by the photographic survey; and
- Wherever possible, the assessment of impacts on the visual amenity from private residential viewpoints has been undertaken from the affected properties, but where this is not achievable due to the lack of access, the anticipated impacts have been interpolated from nearby public viewpoints.

8.3.31 However, by slightly amending the assessment methodology and taking a worst-case or precautionary approach to the baseline data, it is possible to ensure that the findings of the assessment are sufficiently robust so as not to be adversely affected by the identified limitations. Consequently, it is not anticipated that these limitations will significantly influence the overall conclusions reached by this assessment.

### **Identifying Potential Impacts- Direct, Indirect and Cumulative**

8.3.32 Direct effects are those effects where the Scheme causes an impact or change experienced by a receptor as a result of a single primary act, for example, construction of new infrastructure changing the appearance of the landscape.

8.3.33 Indirect effects are those effects that are not a direct result of the Scheme, but are the result of two or more stages of change resulting from a single original effect. An example could be where a scheme that affects groundwater levels, changing the water level of a nearby wetland, which then has an adverse effect on the ecology of that wetland. The scheme would not directly affect the ecology of the wetland, but by affecting groundwater would indirectly affect the ecology at that location.

8.3.34 Assessments should be undertaken on the basis of the most likely design and assume the worst-case scenario in terms of environmental impacts where applicable. The assessment should consider construction, operation and maintenance of the Scheme.

8.3.35 Cumulative effect is defined as "both the combined effects of different development activities within the vicinity of the Scheme and those different aspects of a single development on a particular receptor"<sup>28</sup>. As such these effects should be defined as intra and inter-project effects.

### **Mitigation Measures, Enhancements and Residual Effects**

8.3.36 Mitigation measures should be identified for the purposes of making a significant effect non-significant. Only mitigation measures that are committed to by the Scheme and are deliverable are assessed for their effectiveness to reduce significant adverse effects. Mitigation measures

---

<sup>28</sup> Department for Communities and Local Government (2006), Environmental Impact Assessment: A guide to good practice and procedures.



that have been recommended, but cannot be guaranteed to be implemented by the Scheme, may be identified in the report but should not be used to assess the reduction in an adverse effect (although a description of their efficacy and the rationale for their non-inclusion should be provided). Mitigation measures that cannot be committed to by the Scheme should be described as non-incorporated mitigation.

- 8.3.37 Mitigation measures described in the ES will be included in the proposed Scheme design and draft Construction Environmental Management Plan (CEMP). The draft CEMP will describe the methods and management structure implemented by the Scheme to ensure the incorporation of mitigation identified in the ES in the scheme construction/ detailed design. The CEMP is described as draft as it is a working document that would be adopted by the contractor for the purposes of the construction phase.

### **Consultation**

- 8.3.38 Initial consultations were undertaken prior to the submission of the Scope and Methodology Report with the County Landscape Officer and the High Weald AONB Unit. The following issues were identified by the County Landscape Officer:

- The assessment methodology should be based on the GLVIA;
- Reference should be made to East Sussex Landscape Assessment. However it was noted that this was in the process of being updated and the revised guidance for the area may not be available in time for the assessment;
- There are many public footpaths and bridleways close to the proposed route. Key views from each of these needs to be considered, especially those adjacent to the River Rother, Robertsbridge Abbey and on the higher valley slopes in addition to views from the vicinity of Robertsbridge Abbey and Salehurst;
- The setting of the Listed Abbey needs to be considered as well as the potential impact on tranquillity in this rural valley.

- 8.3.39 The assessment of the baseline conditions and the potential effects of the Scheme includes consideration of these factors.

## **8.4 Baseline**

- 8.4.1 The baseline landscape and visual conditions surrounding the site are illustrated by reference to Landscape and Visual Assessment (LVA) Photographs (in Volume 4, Figure 8.4). These provide a visual record of the existing site and the contribution that it makes to local landscape character.

### **Areas of Outstanding National Beauty**

- 8.4.2 The site lies within the High Weald Area of Outstanding Natural Beauty (AONB), which covers 80% of the district. The primary purpose of AONB designation remains rooted in natural beauty, though landscape study has advanced since National Parks and Access to the Countryside Act 1949, 'most notably through the widening of archaeological and ecological interest from individual sites to landscape-scale systems. Despite its widespread usage in legislation 'Natural Beauty' has never been formally defined. Government guidance relating to AONBs provides useful non-technical definition: 'Natural Beauty' is not just the look of the

landscape, but includes landform and geology, plants and animals, landscape features and the rich history of human settlement over the centuries<sup>29</sup>.

8.4.3 The original railway line constructed in 1896 and closed in 1961, forms part of the historic landscape setting in this area and the remnants of the railway have remained as readily identifiable features within the existing landscape.

8.4.4 The High Weald AONB is a large and highly valued landscape, within which the following features are considered to be the key components of character<sup>30</sup>:

- Geology, landform, water systems and climate: deeply incised, ridged and faulted landform of clays and sandstone. The ridges tend east-west, and from them spring numerous gill streams that form the headwaters of rivers. Wide river valleys dominate the eastern part of the AONB. The landform and water systems are subject to, and influence, a local variant of the British sub-oceanic climate.
- Settlement: dispersed historic settlements of farmsteads and hamlets, and late medieval villages founded on trade and non-agricultural rural industries.
- Routeways: ancient routeways (now roads and Rights of Way) in the form of ridge-top roads and a dense system of radiating droveways. The droveways are often narrow, deeply sunken, and edged with trees, hedges, wildflower-rich verges and boundary banks.
- Woodland: the great extent of ancient woods, gills, and shaws in small holdings, the value of which is inextricably linked to long-term management.
- Field and heath: small, irregularly shaped and productive fields often bounded by (and forming a mosaic with) hedgerows and small woodlands, and typically used for livestock grazing; small holdings; and a non-dominant agriculture; within which can be found distinctive zones of heaths and inned river valleys.

8.4.5 The primary purpose of AONB designation remains rooted in natural beauty, though landscape study has advanced since the National Parks and Access to the Countryside Act 1949, 'most notably through the widening of archaeological and ecological interest from individual sites to landscape-scale systems. Despite its widespread usage in legislation 'Natural Beauty' has never been formally defined. Government guidance relating to AONBs provides a useful non-technical definition: "Natural Beauty" is not just the look of the landscape, but includes landform and geology, plants and animals, landscape features and the rich history of human settlement over the centuries<sup>31</sup>.

8.4.6 The original railway line, constructed in 1896 and closed in 1961, forms part of the historic landscape setting in this area and the remnants of the railway have remained as readily identifiable features within the existing landscape.

<sup>29</sup> Countryside Agency (now Natural England). (2001), Areas of Outstanding Natural Beauty: A guide for AONB partnership members (CA24).

<sup>30</sup> High Weald AONB Management Plan 2004: A 20-year strategy, (2004), Available: <http://www.highweald.org/downloads/publications/3-high-weald-aonb-management-plan-1st-edition-2004/file.html>, Accessed November 2013.

<sup>31</sup> Countryside Agency (now Natural England). (2001), Areas of Outstanding Natural Beauty: A guide for AONB partnership members (CA24).

---

## **National Landscape Character Assessment**

8.4.7 At the national level, the site lies within National Character Area (NCA) 122: High Weald, as defined by Natural England in 2011. The key characteristics of this NCA are set out below:

- Hilly terrain of ridges and valleys, numerous major ridges run east to west and are deeply dissected by tributaries of rivers that rise in the High Weald forming a network of small, steep sided ridges and valleys.
- Slightly acid, loamy and clayey soils with impeded drainage are predominant.
- The majority of the area is defined as Agricultural Land Classification grade 3, with some grade 4 but very little grades 1 & 2.
- The source of a number of major rivers in the south-east and has a dendritic drainage pattern with numerous small streams forming the headwaters of the main rivers.
- The High Weald contains some 7% of all the ancient woodland cover in England, numerous small woods and sinuous gills, interconnected by narrow shaws.
- Fields are bounded by shaws (narrow bands of ancient woodland), woodlands and hedgerows.
- Field patterns are small and irregular shaped and appear set within the woodland areas, with associated dispersed and isolated settlement.
- Habitat distribution and coverage centres around the various woodlands, with notable areas of unimproved and semi-improved grassland and heathlands. Wetland habitats are also important within the river valleys and also the widely distributed clay ponds.
- The experience of tranquillity (CPRE map of Tranquillity 2006) is greatest away from the main transport corridors; the pastoral, heavily wooded and intimate character of the landscape has a strong sense of tranquillity.
- The Intrusion Map (CPRE 2007) shows the extent to which rural landscapes are intruded on from urban development, noise (primarily from traffic) and other sources of auditory and visual intrusion. Disturbance is localised and centred along main roads.

8.4.8 The National Character Areas provide the context for more detailed local or site specific assessments.

### **Local Landscape Character**

8.4.9 At the local level, the landscape character of the area surrounding the proposals is considered by the East Sussex Landscape Character Assessment, published in 2010. The Scheme spans two Landscape Character Areas (LCA) identified by the assessment, with the western end of the scheme identified within the Upper Rother Valley and the eastern end within the Lower Rother Valley. The key characteristics of these two areas are summarised below.

8.4.10 Key characteristics of the Lower Rother Valley:

- The main Rother valley is broader and less well defined than the Tillingham valley, with long views across to Kent;
- The unspoiled Tillingham valley, has a contrasting flat, open floor and steep, well-wooded sides;
- Rivers and larger channels are hidden behind raised grassy floodbanks whilst smaller ditches are almost invisible from a distance;
- The open aspect of the large rectangular fields on the valley slopes gives particular emphasis to the sporadic hedgerow trees;
- Rolling wooded country surrounds fields on slopes;
- The area is one of the most remote and unspoiled in East Sussex;
- Significant houses and designed landscapes and parkland enhance the area; and

- Many dwellings are thatched, and many have pastel coloured weatherboarding.

8.4.11 The following special features are identified within the Lower Rother Valley LCA:

- Ancient inland sea cliffs at Rye, Playden and Oxney;
- Bodiam Castle and the Tenterden Steam Railway dominate the valley;
- The designed landscapes of Brickwall, Peasmarsh Place and Great Dixter;
- Poplars near Bodiam emphasize the flatness of the valley bottoms;
- Active coppicing at Peasmarsh; and
- Orchards.

8.4.12 The following landscape action priorities are identified by the East Sussex Landscape Character Assessment for the Lower Rother Valley LCA:

- Consider opportunities for developing a landscape renewal strategy;
- Restoration of the river to a more natural habitat: seasonal flooding, re-excavation of meanders that have been filled in, creation of undisturbed inlets, replanting and a reduction of dredging in some areas;
- Conservation and restoration of parklands, coppice woodlands and traditional orchards;
- Conservation of the Tillingham Valley as a tract of particularly fine, remote and unspoilt landscape;
- Improvement of footpath access along the main valleys;
- Restoration of hedgerow and tree pattern in arable areas where possible; and
- Conservation of villages and traditional buildings, including village tree conservation plans.

8.4.13 The overall vision for the Lower Rother Valley LCA is:

*“A quiet, remote area with the rivers and valleys enriched and diversified by areas of wetland, seasonal flooding and restored tree cover. The area set in a rich rural tapestry of woods, fields, parklands and traditional orchards with managed tourism and recreation.”*

8.4.14 The key characteristics of the Upper Rother Valley are identified as:

- The upper half of the largest valley system in the High Weald;
- Flat-floored main valley broadening eastwards;
- Relatively open valley floor with small, winding, partly tree-lined river;
- Rolling, richly wooded landscape centred on main valley;
- Rother regularly floods turning the whole valley bottom into a huge sheet of water;
- Strong pattern of ghyll woods as well as many larger woods;
- Substantial remote countryside and areas of exceptional remoteness;
- Settlements and main roads mainly along ridges on edges of the area;
- Villages have great character and variety often with Landmark churches;
- Fine views across valley;
- Iron industry relics hidden in woods;
- ‘Picturesque’ farms and cottages; and
- Designed landscapes and parkland.

8.4.15 The following special features are identified:

- Stonegate a compact, remote and unspoiled village on secondary ridge;

- Robertsbridge-Northbridge Street on unusual site (for High Weald) straddling valley; notable main street with many old buildings; and
- Wadhurst Park.

8.4.16 The following landscape action priorities are identified by the East Sussex Landscape Character Assessment for the Upper Rother Valley LCA:

- Strengthen the edge of Heathfield-Broad Oak-Burwash with tree planting. Resist further ribbon development, or development on sites affecting views from the north;
- Control gentrification, by means of advice and education, as well as development control;
- Encourage woodland management and restoration with the assistance of advice and grant-aid; and
- Consider traffic control and management schemes on some lanes, particularly in remote areas. Predict and control rat-running.

8.4.17 The overall vision for the Upper Rother Valley LCA is:

*“A remote valley set in a rich, rolling landscape, creating fine views from settlements enhanced by quiet lanes and by-ways.”*

8.4.18 There is the potential for the landscape action priorities identified above and the overall vision of the two areas to provide a useful guide to the appropriate design and mitigation of the scheme.

### **Site Context**

8.4.19 The site lies between the settlements of Robertsbridge and Bodiam and close to the smaller settlements of Northbridge Street and Salehurst, in the rural landscape of East Sussex. Land use in the area is predominantly agricultural, with both grazing land and arable on the floodplain and the gentle valley slopes. The high proportion of woodland in this region means that there are also some substantial areas in forestry use. The site itself runs through the floodplain of the River Rother, which is predominantly in pasture adjacent to the original alignment of the railway.

### **Topography**

8.4.20 The landform surrounding the proposed alignment of the Scheme is shown on the Topography Plan (Volume 4, Figure 8.2). This shows the general elevation of the landform within the study area and the local ridgelines that tend to control the availability of views towards the Scheme.

8.4.21 The River Rother runs west to east through the floodplain, which is quite extensive in this low, flat bottomed valley, with the land lying below 10m Above Ordnance Datum (AOD). As the ground starts to rise on either side of the floodplain, it becomes more gently rolling and to the south side of the valley, land rises to between 60m and 80m AOD in a series of hills. To the north, land rises towards Silver Hill at an elevation of 110m AOD. A ridgeline runs eastwards from this high point approximately 1km to the north of the Scheme at 65m - 70m AOD. It is evident that this ridgeline is likely to have a strong influence on the availability of views towards the Scheme from the north. To the south the landform rises towards Snagshill and Staplecross.

### **Vegetation and Ancient Woodland**

8.4.22 The landscape within the study area largely remains an ancient landscape of small scale fields cleared from the originally vast areas of ancient woodland. Large areas of the ancient

woodland survive and in addition, there are many small copses and mature hedgerow trees throughout the area.

8.4.23 There are no ancient woodlands within or close to the site area, however, there are a high number of tall hedgerows with mature trees and some small copses, and the River Rother corridor is well vegetated along some stretches.

8.4.24 The former extant railway embankments have become, well vegetated since the closure of the railway in 1961. This has allowed the establishment of some fairly large trees in the 50 years that have passed. However, the more mature specimens tend to be found along the edges of the embankment and within the surrounding landscape. It is assumed that the mature trees pre-date the closure of the railway.

### **Visual Receptors**

8.4.25 Views towards the alignment of the Scheme are potentially possible from a large number of viewpoints within the study area. The locations of potential representative viewpoints were initially identified by reference to the Topography Plan and recent aerial photographs of the surrounding area. The availability of views was then verified by field surveys in the summer and autumn of 2013.

8.4.26 The principal areas with views towards the Scheme are identified on the Visual Appraisal Plan (Volume 4, Figure 8.3), along with the area where views are partially or totally obscured by vegetation. Based on these areas, the potential visual receptors of the Scheme were identified. Effects on the following individual and groups of receptors are therefore considered as part of the assessment in section 8.6.

### **Settlements:**

- Northbridge Street - west of A21 (Receptor Group i);
- Robertsbridge (Receptor Group ii);
- Northbridge Street - east of A21 (Receptor Group iii); and
- Salehurst (Receptor Group iv).

### **Properties Outside Settlements:**

- Moat Farm (Receptor Group v);
- Park Farm and Park Cottages (Receptor Group vi);
- Udiam Farm (Receptor Group vii);
- Udiam Cottages (Receptor Group viii);
- Properties adjacent to remains of Robertsbridge Abbey (Receptor Group ix);
- Ivy Cottage (Receptor Group x);
- Properties at Redlands (Receptor Group xi); and
- Properties at Salehurst Park (Receptor Group xii).

### **Roads:**

- The Clappers / Northbridge Street;
- A21;
- Church Lane;
- Rocks Lane;
- Beech House Lane;
- Fair Lane / Redlands Lane; and
- Junction Road.



---

## Public Rights Of Way

8.4.27 The network of Public Rights of Way within the study area is shown on Figure 2.3, Volume 4.

### Visual Amenity

8.4.28 The baseline visual amenity is illustrated by reference to Landscape and Visual Assessment (LVA) Photographs in Figure 8.4, Volume 4. These provide a record of the existing visibility of the site and the contribution that the extant landscape features along the dismantled railway makes to local landscape character. A selected number of locations have then been identified as representative 'Assessment Viewpoints', which are now described in more detail.

8.4.29 The descriptions below identify the key features and character of the baseline views, the distance of the viewpoint from the alignment of the proposed reinstatement and the approximate elevation of the viewpoint:

#### **LVA Photograph 1: Looking north-west from The Clappers**

*Distance from Scheme: 150m; Approximate Elevation: Below 10m AOD.*

8.4.30 This viewpoint from next to the cricket ground shows the pattern of vegetation along the valley floor and the location of the disused railway line. Users of the lane can see glimpse views of the existing vegetation on the disused railway embankment.

#### **LVA Photograph 2: Showing existing section of track at Robertsbridge**

*Distance from Scheme: 0m; Approximate Elevation: Below 10m AOD.*

8.4.31 This viewpoint shows the existing track current stop point and the embankments of the new line which are well vegetated.

#### **LVA Photograph 3: Looking north along The Clappers**

**Distance From Scheme: 20m; Approximate Elevation Below: 10m AOD.**

8.4.32 This viewpoint shows the well vegetated road which marks the current stop point of the existing track and the start of the site. Users of the road can see vegetation around the disused railway line.

#### **LVA Photograph 4: Looking south-east from bridge on Northbridge Street**

*Distance from Scheme: 40m; Approximate Elevation: Below 10m AOD.*

8.4.33 This viewpoint shows the road approach from the north to the start of the site, it clearly illustrates the existing vegetation along the disused railway track. Road users experience close and open views of this vegetation and the location of the old railway crossing from this location. This is Assessment Viewpoint A.

#### **LVA Photograph 5: Showing remains of existing bridge over River Rother**

*Distance from Scheme: 5m; Approximate Elevation: Below 10m AOD.*

8.4.34 This viewpoint shows the position of the old railway bridge. Through the field section in the centre, the flood defence features are clearly visible.

---

**LVA Photograph 6: Looking north-east from The Clappers**

*Distance from Scheme: 200m; Approximate Elevation: Below 10m AOD*

- 8.4.35 This viewpoint shows the openness of floodplain landscape in this area compared to the more vegetated general landscape. The A21 is visible in the background. Road users experience limited glimpse views of the disused railway from this location, as foreground vegetation screens views to the north, particularly in summer.

**LVA Photographs 7 And 8: Existing buildings along Northbridge Street**

*Distance from Scheme: 150m; Approximate Elevation: Below 10m AOD.*

- 8.4.36 This viewpoint looks at the character of Northbridge Conservation Area and illustrates that there is no view towards the site from these areas due to both other buildings and vegetation.

**LVA Photograph 9: Looking south-west towards Robertsbridge From A21**

*Distance from Scheme: 100m; Approximate Elevation: 10m AOD.*

- 8.4.37 This viewpoint illustrates the open character of this part of the floodplain and shows the flood defence embankment and railings. Views from this location are very open due to the lack of foreground vegetation. Looking south-west across the fields towards properties in Robertsbridge, motorists travelling at relatively high speeds on the A21 experience transient, glimpse views of the route of the disused railway. This is Assessment Viewpoint B.

**LVA Photograph 10: Showing buildings with views towards The Scheme**

*Distance from Scheme: 0m; Approximate Elevation: Below 10m AOD.*

- 8.4.38 This viewpoint shows the openness of the floodplain landscape in this area compared to the more heavily vegetated general landscape beyond.

**LVA Photograph 11: Looking towards properties along Northbridge Street**

*Distance from Scheme: 100m; Approximate Elevation: Below 10m AOD.*

- 8.4.39 This viewpoint shows the Conservation Area buildings well enclosed by vegetation and the engineered river banks along this stretch. There are very few public views, apart from surrounding roads.

**LVA Photograph 12: Looking north along A21 from River Rother bridge**

*Distance from Scheme: 110m; Approximate Elevation: Below 10m AOD.*

- 8.4.40 This view already contains engineered elements with bridge railings in foreground and shows the well vegetated roadside. The former alignment of the railway line used to pass through the landscape at around the point of the modern day speed restriction signs.

**LVA Photograph 13: Looking north-east from A21 Bridge over River Rother**

*Distance from Scheme: 200m; Approximate Elevation: 10m AOD.*

- 8.4.41 Looking north-east across the fields towards buildings on the edge of Salehurst, the character of the floodplain starts to become more enclosed. Due to clumps of vegetation in the

foreground, motorists travelling on the A21 experience transient, glimpse views of the disused railway line route. Footpath 30 and 31 are visible from this location and walkers have close views of the disused railway route, crossing the old track-bed where they meet.

**LVA Photograph 14: Looking north-west across floodplain from The A21**

*Distance from Scheme: 300m; Approximate Elevation: 10m AOD.*

- 8.4.42 This viewpoint shows an open view from the A21 with views of the bridge and some engineered elements in the floodplain in the foreground and then beyond towards the buildings on the edge of Northbridge Street. Motorists travelling at relatively high speeds would experience transient, glimpse views of the existing disused railway location. This is Assessment Viewpoint C.

**LVA Photograph 15: Looking south-west from Church Lane**

*Distance from Scheme: 175m; Approximate Elevation: Below 10m AOD.*

- 8.4.43 This side of the A21 is more enclosed compared to other side, which is less vegetated, with more buildings. Users of the lane experience views limited by high hedgerows, which block the lower views except where there are gateways (photo 18 shows gateways on Church Lane). As you get higher up in elevation you can see over the hedgerows and more views become available. This is Assessment Viewpoint D.

**LVA Photograph 16: Showing character of properties along Church Lane**

*Distance from Scheme: 175m; Approximate Elevation: Below 10m AOD.*

- 8.4.44 This viewpoint shows the character of buildings on Church Lane which have private views from upper storeys of the disused railway line.

**LVA Photograph 17: Showing existing properties in Rother View**

*Distance from Scheme: 190m; Approximate Elevation: 10m AOD.*

- 8.4.45 This viewpoint shows the character of buildings in Rother View, which have private views from upper storeys of the disused railway line route.

**LVA Photograph 18: Looking south-east from footpath to Rother View**

*Distance from Scheme: 175m; Approximate Elevation: Below 10m AOD.*

- 8.4.46 Users of the footpath generally experience the enclosure of vegetation in this area but as you get higher you can see over hedgerows in some places, especially through gateways on Church Lane as illustrated by this viewpoint. The riverside vegetation is visible from here and there are some glimpse views of the location of the disused railway.

**LVA Photograph 19: Looking south-east from Church Lane**

*Distance from Scheme: 175m; Approximate Elevation: Below 10m AOD.*

- 8.4.47 From this viewpoint, users of Church Lane experience open views towards the disused railway. The railway passes very close to the river at this point, through the group of trees in the centre of the photograph. This is Assessment Viewpoint E.

---

**LVA Photograph 20: Looking south from field gateway on Church Lane**

*Distance from Scheme: 150m; Approximate Elevation: 15m AOD.*

8.4.48 This viewpoint is situated just to the west of Salehurst. The existing disused railway runs along the edge of the wheat and through the large tree clump in the centre of the view. Some buildings are visible on the edge of Salehurst, though only the upper storeys can be seen. Users of the lane experience full views of the disused railway location, due to the lack of foreground vegetation. This is Assessment Viewpoint F.

**LVA Photograph 21: Showing properties along Church Lane in Salehurst**

*Distance from Scheme: 150m; Approximate Elevation: 15m AOD.*

8.4.49 This viewpoint shows that the edge of Salehurst here is well vegetated and views of the disused railway line are screened out.

**LVA Photograph 22: Showing enclosed character of Salehurst**

*Distance from Scheme: 150m; Approximate Elevation: 20m AOD.*

8.4.50 This viewpoint shows that the edge of Salehurst here is well vegetated and views of the disused railway line are screened out.

**LVA Photograph 23: Looking south from Public Footpath No.34c**

*Distance from Scheme: 150m; Approximate Elevation: 20m AOD.*

8.4.51 This viewpoint shows a wide panorama in a very rural, slightly elevated position. Users of the footpath experience views of the site over about a quarter of this view and these are possible because of the uncharacteristically low hedgerows in this location. There are views of the buildings around the Abbey and Moat Farm to the left. The small clump of central vegetation shows the location of the pond. This is Assessment Viewpoint G.

**LVA Photograph 24: Public Bridleway No.36c leading to former Salehurst Halt**

*Distance from Scheme: 5m; Approximate Elevation: Below 10m AOD.*

8.4.52 This viewpoint is located alongside the bridleway, outside the woodland where the actual pathway is located. Due to the muddiness of the pathway within the woodland, which has no views out to the surrounding landscape, users are typically walking along the edge of the woodland instead.

**LVA Photograph 25: Looking north-west into former Salehurst Halt**

*Distance from Scheme: 0m; Approximate Elevation: Below 10m AOD.*

8.4.53 This viewpoint is on Public Bridleway No.36b users of the bridleway looking towards the former Salehurst Halt have open views of the heavily vegetated area that is on and around the disused railway embankments. Although it is not a right of way, there is also evidence of walkers along the old railway track here.

---

**LVA Photograph 26: Looking north-west towards former Salehurst Halt**

*Distance from Scheme: 20m; Approximate Elevation: Below 10m AOD.*

- 8.4.54 From this viewpoint on Public Bridleway no 36b approaching the former Salehurst Halt, users of the bridleway have open views of the mature vegetation around the former Salehurst Halt area.

**LVA Photograph 27: Looking north-west from Church Bridge**

*Distance from Scheme: 130m; Approximate Elevation: Below 10m AOD.*

- 8.4.55 This viewpoint on Public Bridleway no 36b is located on Church bridge, the bridge was historically important for people travelling to Salehurst Church from the south. The vegetation in the centre of the view is around the former Salehurst Halt. Users of the bridleway experience open views of the vegetation along the disused railway line. This is Assessment Viewpoint H.

**LVA Photograph 28: Looking south-west from Beech House Lane**

*Distance from Scheme: 550m; Approximate Elevation: 60m AOD.*

- 8.4.56 This viewpoint illustrates that even from the most elevated viewpoints in the study area, vegetation and the convex shape of the landform tends to screen the valley floor. There is a small gap between the trees, which allows a glimpse view down into the valley. Lane users do not experience views of the disused railway during the summer months due to the intervening vegetation belt, which has some tall trees. It is possible that there may be some glimpsed views in winter.

**LVA Photograph 29: Looking south from Public Footpath No.34e**

*Distance from Scheme: 400m; Approximate Elevation: 15m AOD.*

- 8.4.57 The background vegetation in this view shows that trees screen many of the views further up the valley sides. Walkers on the footpath have views of a landscape that is quite open and other vegetation is at a relatively low level. The disused railway line lies behind the small, central line of trees. The building on the left is a residential property on the way to Moat Farm. This is Assessment Viewpoint I.

**LVA Photograph 30: Looking south from Public Footpath 34d**

*Distance from Scheme: 350m; Approximate Elevation: 10m AOD.*

- 8.4.58 From this trackway on the floodplain, a single line of trees is enough to obliterate all views of the valley floor. The disused railway lies behind vegetation in the furthest extent of the field. The more heavily vegetated character with mature trees that is typical of the eastern end of the site is becoming more apparent in this view. Walkers can barely perceive the location of the disused railway, particularly during the summer months.

---

**LVA Photograph 31: Looking south from trackway to Moat Farm**

*Distance from Scheme: 250m; Approximate Elevation: Below 10m AOD.*

- 8.4.59 This viewpoint shows that though the large, open fields have potential for views, the mass of trees act to screen views of the disused railway.

**LVA Photograph 32: Showing residential property to west of Moat Farm**

*Distance from Scheme: 350m; Approximate Elevation: 10m AOD.*

- 8.4.60 This viewpoint illustrates the setting of the buildings around Moat Farm, with lower level views from the buildings obscured by vegetation. There may be private views of the site from upper storeys.

**LVA Photograph 33: Showing character of area around Moat Farm**

*Distance from Scheme: 300m; Approximate Elevation: 10m AOD.*

- 8.4.61 This viewpoint shows the character of the area around Moat Farm and again shows that lower level views are obscured by vegetation.

**LVA Photograph 34: Showing buildings at Moat Farm**

*Distance from Scheme: 300m; Approximate Elevation: 10m AOD.*

- 8.4.62 This viewpoint records the character of the buildings and landscape with the hedgerows and small trees that enclose them.

**LVA Photograph 35: Looking south-east from Bourne Lane**

*Distance from Scheme: More Than 2.0km; Approximate Elevation: 40m AOD.*

- 8.4.63 This viewpoint is situated close to Great Wigsell Farm and quite distant from the site. It illustrates that from further up where there are views into the valley, the small scale fields and mature tree pattern appear as a solid block of woodland and obscure views into the valley floor. Users of the lane experience views of the valley floor as a wooded area and therefore have no views of the site location.

**LVA Photograph 36: Looking south from footpath east of Six Acre Wood**

*Distance from Scheme: 1.2km; Approximate Elevation: 35m AOD.*

- 8.4.64 This viewpoint is located on Footpath No 14b. To the left of the picture the green grass patch is visible next to the buildings at Eyelids. This green grass patch was not visible from other viewpoints and therefore it is concluded that the Eyelids area only has views back towards this location and views to the valley floor would be obscured its heavily wooded appearance.

**LVA Photograph 37: Looking south-east from Public Footpath 14a**

*Distance from Scheme: 1.25km; Approximate Elevation: 40m AOD.*

- 8.4.65 This viewpoint is situated just to the south of Mayfield Farm, walkers on the footpath can just make out the tops of two storey buildings in the valley so there may be views of Udiam Cottages.



**LVA Photograph 38: Looking south-west from Junction Road at Park Farm**

*Distance from Scheme: 790m; Approximate Elevation: 15m AOD.*

- 8.4.66 From this viewpoint at Park Farm the intervening hedgerows when looking towards the disused railway line, effectively screen all views.

**LVA Photograph 39: Looking south-east from access road to Park Farm**

*Distance from Scheme: 800m; Approximate Elevation: 10m AOD.*

- 8.4.67 This viewpoint illustrates the already completed section of the railway line that has already assimilated into the character of the landscape.

**LVA Photograph 40: Looking south-west from track to Park Farm Campsite**

*Distance from Scheme: 450m; Approximate Elevation: 6m AOD.*

- 8.4.68 This viewpoint shows the vegetation along Junction Road to the left of the picture. The larger trees mark where the road crosses the river. Due to the distance and well treed character of the landscape, users of Junction Road and the campsite have very limited views of the location of the disused railway line, especially during the winter months. This is Assessment Viewpoint J.

**LVA Photograph 41: Looking south-west from Junction Road bridge**

*Distance from Scheme: 10m; Approximate Elevation: 6m AOD.*

- 8.4.69 This viewpoint shows clearly the well-vegetated banks of the river that are typical of this landscape along this section. Users of Junction Road experience close and open views of the location of the disused railway line, both through the fields and where it used to cross the road.

**LVA Photograph 42: Looking east along existing track past Udiam Farm**

*Distance from Scheme: 0m; Approximate Elevation: Below 10m AOD.*

- 8.4.70 This photograph illustrates the recently reinstated section of railway to the east of Junction Road. The site would link directly onto this section of track across Junction Road.

**LVA Photograph 43: Looking west from footpath above Udiam Cottages**

*Distance from Scheme: 300m; Approximate Elevation: 30m AOD.*

- 8.4.71 From this viewpoint, users of the footpath can see Udiam Cottages to the left of the photograph. There is consistent vegetation along the roadside and then a group of taller trees where the railway crosses the river and a mass of vegetation along the river bank. The building on the far right is Udiam Farm. This is Assessment Viewpoint K.

**LVA Photograph 44: Looking north along Junction Road from Udiam Farm**

*Distance from Scheme: 100m; Approximate Elevation: 10m AOD.*

- 8.4.72 From this viewpoint users of Junction Road can see the gate entrance to a footpath that runs through the garden of Udiam Farm and the roadside vegetation along this stretch of Junction Road.

---

**LVA Photograph 45: Looking north-west from path west of Junction Road**

*Distance from Scheme: 100m; Approximate Elevation: Below 10m AOD.*

- 8.4.73 From this viewpoint users of this path to the north of Udiam Cottages, have open views of the dark stretch of vegetation across the photograph, which is located on the disused railway embankment.

**LVA Photograph 46: Showing potential views from Udiam Cottages**

*Distance from Scheme: 100m; Approximate Elevation: Below 10m AOD.*

- 8.4.74 This viewpoint shows the character of buildings and the extent of their private views, mainly from upper storeys over the fields to the south of the river.

**LVA Photograph 47: Looking north-west from footpath around Forge Farm**

*Distance from Scheme: 300m; Approximate Elevation: 10m AOD.*

- 8.4.75 From this viewpoint users of the footpath can see the vegetation on the old railway embankment and the poplars at the river crossing. The clearance of vegetation on the ditch has opened up more distant views of the embankment from here. The footpath then crosses the ditch in the centre of the photograph.

**LVA Photograph 48: Looking north-west from entrance to Forge Farm**

*Distance from Scheme: 500m; Approximate Elevation: 15m AOD.*

- 8.4.76 This is not a public viewpoint. The vegetation running across the view is not the extant railway embankment but the edge of the farm, though most of the buildings have been demolished. The higher group of trees are where the existing railway bridge crosses the river. The disused railway is beyond the river so there are no views likely from this location.

**LVA Photograph 49: Looking west from footbridge on Public Footpath No.1**

*Distance from Scheme: 100m; Approximate Elevation: Below 10m AOD.*

- 8.4.77 From this viewpoint users of the footpath can see the poplars at the river crossing and the vegetation on the extant railway embankment, with some gaps for farm access through the vegetation. This is Assessment Viewpoint L.

**LVA Photograph 50: Showing existing railway bridge over River Rother**

*Distance from Scheme: 0m; Approximate Elevation: Below 10m AOD.*

- 8.4.78 This photograph shows the remains of the existing railway bridge over the River Rother and the dense vegetation along the extant embankment.

---

**LVA Photograph 51: Looking east from edge of Fowlbrook Wood**

*Distance from Scheme: 100m; Approximate Elevation: Below 10m AOD.*

- 8.4.79 This viewpoint shows the river to the south of the disused railway. The vegetation on the left is along the river and ditch. The central part shows vegetation on the railway embankment. To the right, Udiam Cottages are visible due to the openness of this view.

**LVA Photograph 52: Looking north-west from Public Footpath No. 2b**

*Distance from Scheme: 150m; Approximate Elevation: 10m AOD.*

- 8.4.80 From this viewpoint users of the footpath can see vegetation along the river in the middle ground, with possibly some glimpses through gaps in the vegetation to the embankment beyond in winter time.

**LVA Photograph 53: Looking north from Public Bridleway 39c**

*Distance from Scheme: 300m; Approximate Elevation: 20m AOD.*

- 8.4.81 This viewpoint is situated to the east of remains of Robertsbridge Abbey and helps to illustrate the setting of the Abbey. There is no public access to the Abbey itself. Users of the bridleway do not have views of the valley due to foreground vegetation. This is Assessment Viewpoint M.

**LVA Photographs 54 And 55: Buildings forming setting to Abbey Remains**

*Distance from Scheme: 250m; Approximate Elevation: 20m AOD.*

- 8.4.82 These photographs show the character of the existing buildings forming part of the setting to the remains of Robertsbridge Abbey. The Abbey walls are visible in photo 55, just to the right of the pillar light.

**LVA Photograph 56: Looking north-west from bridleway west of abbey**

*Distance from Scheme: 250m; Approximate Elevation: 20m AOD.*

- 8.4.83 This viewpoint shows the fencing which demarcates the edge of the Scheduled Ancient Monument. To users of the bridleway, the vegetation along the river is visible in front of the disused railway vegetation, which can only just be seen through the gap in the centre of the view. Church Bridge bridleway is marked by the poplars to the left. This is Assessment Viewpoint N.

**LVA Photograph 57: Looking north from bridleway along Redlands Lane**

*Distance from Scheme: 250m; Approximate Elevation: Below 10m AOD.*

- 8.4.84 From this viewpoint the poplars mark the approximate location of the bridge, users of the bridleway can see gaps in the low hedgerow looking through to glimpses, especially in the centre, of the location of the disused railway.

---

**LVA Photograph 58: Showing potential views from properties in Salehurst**

*Distance from Scheme: 250m; Approximate Elevation: Below 10m AOD.*

- 8.4.85 This viewpoint shows properties along the edge of Salehurst. In contrast to Photograph no 59 which is a summer view, it shows that as the leaves come off, more glimpses from upper storeys towards the disused railway are revealed.

**LVA Photograph 59: Looking towards Church Bridge from Redlands Lane**

*Distance from Scheme: 250m; Approximate Elevation: Below 10m AOD.*

- 8.4.86 This viewpoint shows Salehurst mostly hidden in the trees during the summer months, with very limited views even from upper storeys. The dense clump of vegetation in front of the church is located around the area of Salehurst Halt. There is no vegetation on the river along this stretch. The view here is available to lane users only through a field gateway, where the footpath joins the lane.

**LVA Photograph 60: Looking north from Fair Lane west of Redlands**

*Distance from Scheme: 300m; Approximate Elevation: 15m AOD.*

- 8.4.87 This viewpoint shows the upper storeys of buildings at Northbridge Street and to the left some at Robertsbridge. The route of the disused railway runs across the central, greener fields in the view. Users of Fair Lane and the footpath have views of the disused railway through the central part of this view. Foreground vegetation screens part of the view but due to the topography there are views of the existing trackway vegetation. This is Assessment Viewpoint O.

**LVA Photograph 61: Showing character of Redlands**

*Distance from Scheme: 400m; Approximate Elevation: 10m AOD.*

- 8.4.88 This viewpoint shows the character of the buildings along the southern edge of the valley. There are no views from the buildings due to the low level vegetation surrounding them.

**LVA Photograph 62: Looking north from Public Footpath No.50c**

*Distance from Scheme: 1.1km; Approximate Elevation: 20m AOD.*

- 8.4.89 This viewpoint is situated above Salehurst Park Farm. To the left, the white specks are properties in the upper part of Northbridge Street, which are just visible in the winter months. Users of the footpath have no views to the lower valley and Salehurst even in winter.

**LVA Photograph 63: Looking north from edge of Wellhead Wood**

*Distance from Scheme: 750m; Approximate Elevation: 30m AOD.*

- 8.4.90 This viewpoint is not a public one as the footpath itself is within the wood and has no views out. However, there is evidence of walkers using the field edge rather than the footpath here. In the centre of the view, the trees around the Abbey are visible though there are no views into the buildings and no views to the valley floor beyond in this part of the photograph. To the right there is a group of trees that surround Ivy Cottage but the vegetation visible beyond the grass

field is along the river and beyond that some taller trees located just outside the disused railway embankment extents.

**LVA Photograph 64: Looking north-east from Public Bridleway No.4**

*Distance from Scheme: 450m; Approximate Elevation: 30m AOD.*

- 8.4.91 This is Assessment Viewpoint P. It is situated to the south of Ivy Cottage, the footpath runs along the edge of the woodland and bridleway users have open views of the low hedgerows and trees along the river and the embankment beyond.

**LVA Photograph 65: Looking north-east from Public Footpath No. 46d**

*Distance from Scheme: 1.2km; Approximate Elevation: 65m AOD.*

- 8.4.92 This viewpoint is located adjacent to Maynard's Wood and for users of the footpath the whole of the floodplain appears to be wooded. The character of the southern side of the valley is well wooded and where there are views from open, agricultural fields, the successive lines of trees on the valley floor merge to appear as a solid block of woodland.

**LVA Photograph 66: Zoomed extract from photograph 65**

*Distance from Scheme: 1.2km; Approximate Elevation: 65m AOD.*

- 8.4.93 This zoomed extract shows that Bodiam Castle is just visible in distance, apparently set in a well vegetated landscape. This vegetation totally screens views of the completed stretch of the rail link to the east of the Scheme.

**LVA Photograph 67: Looking north from Public Footpath No.56**

*Distance from Scheme: 1.75km; Approximate Elevation: 40m AOD*

- 8.4.94 This footpath runs south from Poppinghole Lane towards Salehurst Park Farm, to the west of Little Deadman's Wood. Salehurst Park Farm is just visible, along with the cottages in that area. There are distant views towards the upper storeys of properties at Salehurst and the Church to the left of the central tree clump. The lower part of the valley appears completely wooded from this location, so footpath users have no views towards the valley bottom.

**LVA Photograph 68: Looking north from Poppinghole Lane**

*Distance from Scheme: 2.2km; Approximate Elevation: 40m AOD.*

- 8.4.95 This viewpoint is situated just to the north of Newpond Farm in a hedgerow gap on Poppinghole Lane. Users of the lane have distant views towards the Rother valley, but the valley floor is completely screened by a combination of intervening vegetation and the landform.

**Site Character**

- 8.4.96 The landscape character background of the study area is considered in section 8.1. As the site is located in the floodplain of the River Rother, flood events are commonplace and recent flood defence measures are a clearly evident part of the landscape character at the Robertsbridge end of the route.

8.4.97 In contrast to the surrounding landscapes the floodplain is much less heavily vegetated in the western site area, as can be seen in photographs 6 and 9, (Figure 8.4, Volume 4). Due to the low lying land, the reduced vegetation and the small embankments and railings as a result of flood defence, this landscape has a slightly different character. The landscape here is perhaps less sensitive to change than the surrounding, ancient and intricate pattern of small fields and woodland. Further east the floodplain becomes increasingly vegetated. The effect of this vegetation is to further screen views of the valley bottom from the surrounding landscape.

### **Baseline Landscape Character of Scheme Alignment**

8.4.98 Based on the existing landscape and visual conditions along the alignment of the scheme, the character of the land through which the scheme would run has been sub-divided into seven sections. These are shown in Figure 8.1, Volume 4 Landscape and Visual Overview Map and are summarised below.

#### **Section 1: Open Floodplain to the North of Robertsbridge**

8.4.99 This section of the proposed alignment is very open in character, with water meadows and the grassy flood defence bunds running around the edges of the floodplain to protect adjacent properties. The bunds have a somewhat artificial, linear appearance and although they are a fairly recent addition to the landscape, they now form part of the character of this section. The eastern edge of the meadows is bounded by the relatively recent A21 bypass road which runs on embankment across the valley. The roadside is heavily vegetated except for the gaps at bridge points that allow views into this open, floodplain landscape.

8.4.100 To the north, the flood defence bunds and the vegetation along the edge of the floodplain restricted most views from the properties in Northbridge Street. From Robertsbridge to the south, views are generally restricted to upper storey of the properties in Fair Lane and Fayre Meadow, but there are clear views across the area from Public Footpath 30c.

#### **Section 2: Enclosed Floodplain to the South of Northbridge Street**

8.4.101 This short section is somewhat more enclosed than the more open areas of open floodplain on either side. It is a complex area, with Public Footpath No 31, the A21 road and a drainage ditch crossing the landscape. Prior to the construction of the road, this would have been part of the open floodplain, but it is now separated by the road embankment.

8.4.102 The river pumping station located immediately south of the river forms part of the flood defence features that, along with the road, strongly influence the character of this section. These features have taken priority in this landscape and become part of its character. In addition to views from the A21, there are views into this character section from field gateways along Church Lane and from properties in Northbridge Street to the north.

#### **Section 3: Open Agricultural Landscape South of Church Lane**

8.4.103 The character of this section is fairly open, with low hedgerows along water courses and open ditches. The original presence of the railway has predominantly been removed, with the exception of the small section lying within the central tree group. There is no public access across the area, so the closest views are from Church Lane, where tall hedgerows only allow views from gateways. All other views are from higher points in Northbridge Street and tend to be private views from upper storeys of residential properties.



---

## **Section 4: Original Location of Salehurst Halt**

- 8.4.104 This character section is much more heavily vegetated than the sections to the west, with wide belts of vegetation on either side of the disused railway embankment and along the eastern field boundary along Public Bridleway No 36. The trees on either side of the embankment pre-date the railway closure and they contribute to the well wooded, mature character typical of the wider landscape. The old track bed itself is now colonised by scrubby vegetation. The bridleway crosses the disused railway at the eastern end of this character section. To the north lies the settlement of Salehurst, although there are very limited views into the character section, due to the mature vegetation along the southern edge of the settlement.

## **Section 5: Partially Enclosed Landscape East of Church Bridge**

- 8.4.105 This character section is slightly more open than the Salehurst Halt section, but there are still a good proportion of mature trees within hedgerows, around the pond and along the river. There is no evidence of the disused railway from adjacent public viewpoints as the track bed has been removed to increase the size of the fields. The pond and surrounding vegetation lies immediately to the south of the original alignment of the railway.
- 8.4.106 There is some inter-visibility between Robertsbridge Abbey (and the residential properties adjacent to it) and Salehurst Church across this section, but views are partially obscured by the riverside vegetation, particularly in summer. This connection was historically important and was probably the basis for the location of Bridleway No 36 and Church Bridge which lies immediately to the western boundary of this section.

## **Section 6: Existing Embankment North-East of Robertsbridge Abbey**

- 8.4.107 This character section is typical of the well wooded character of the wider landscape along the eastern part of the proposed reinstatement. The hedgerows are typically tall including frequent mature trees and the river side is populated by mature trees along its banks. The disused railway embankment is mostly intact through this section, running to the north of the river with mature trees on either side, with the smaller, post-closure vegetation along the track-bed.
- 8.4.108 At the eastern end lies the existing railway bridge over the river, which, along with the embankment, is a long established part of this landscape, positively contributing to the character of the landscape through this section and beyond. There is little settlement here, with an occasional isolated farm and no roads. The nearest Rights of Way are located to the south of the river and therefore, views are typically screened by the riverside vegetation, particularly in summer.

## **Section 7: Existing Embankment North-West of Udiam Cottages**

- 8.4.109 This character section is slightly more open than section 6, with the area characterised by an open water channels such as the one alongside Public Footpath No. 2. Trees along the disused railway embankment are not as mature as the section to the west, so it is concluded that much of this vegetation has grown up since the railway closure. Within the landscape, from similar elevations, it is hard to distinguish between the vegetation and the embankment itself, as the embankment is concealed by the vegetation. With the river to the north of the embankment, there are open views from the public footpath network to the south. Other public views are available from a few locations along Junction Road. Private views are limited to the upper storeys at Udiam Cottages and isolated farms as there is very little settlement adjacent to this section.

- 8.4.110 These baseline characteristics will be used to inform the identification of appropriate mitigation measure that are identified as necessary by the assessment of potential effects.

#### **Changes Likely Prior to Implementation of the Scheme**

- 8.4.111 No changes to the landscape described in the LVA Photographs, (with the exception of minor growth of vegetation and winter/ summer leaf cover) are anticipated prior to the commencement of works on the Scheme.

### **8.5 Predicted Effects**

- 8.5.1 The assessment of the potential effects of the scheme is set out in Volume 4, Figure 8.6: Assessment of Landscape and Visual Impacts (A-P).
- 8.5.2 Visual effects are broadly more notable towards the western end of the route where there are many more receptors in Robertsbridge, Northbridge Street and Salehurst. There are also a number of Public Rights of Way close to the track in this area. There will be a change to the composition of the view for some of these receptors, though in most cases this change will not mean a major change in the overall character of the view. This is because many of the elements proposed are already present, such as grassy flood defence embankments, fencing and signposts along the settlement edge.
- 8.5.3 Exceptions are bridleway 36b and footpath 34c. From these locations, the change in view would be experienced very close to the reinstated route, with the embankment and crossings changing the views to include many more engineered elements. There are also some views on the edge of Northbridge Street from a small group of properties and along the lane through gateways, where this increase in engineered elements will slightly alter the composition view looking the south.
- 8.5.4 Further east, there are some views from local footpaths above Moat Farm Cottages and Udiam Cottages and although these are more distant, the landscape here is more rural in appearance and the embankment may appear more obvious in the landscape. Udiam Cottages and Udiam Farm are likely to experience an opening up of the view towards the existing embankment to the east of the route.
- 8.5.5 Landscape effects are concerned here with landscape character and broadly speaking the embankment would appear similar to the existing flood bunds in the landscape close to Robertsbridge but would appear more intrusive in the more rural landscapes to the east. An assessment of the effects on each landscape character sections is set out below:

#### **Section 1: Open Floodplain to North of Robertsbridge**

- 8.5.6 This section is very open in character, with water meadows and the grassy flood defence bunds that have now become part of the landscape character. The A21 road runs on an embankment and influences character along with housing, fencing and other settlement edge features. Although the Scheme will extend the settlement edge features further across these meadows, the embankment feature would not appear obtrusive in this context.

#### **Section 2: Enclosed Floodplain to South of Northbridge Street.**

- 8.5.7 This section is more enclosed in character, though with similar features including water meadows and the grassy flood defence bunds that have now become part of the landscape character. The A21 road runs on a well vegetated embankment and influences character along with housing, fencing and other settlement edge features. Although the Scheme will extend the settlement edge features further across these meadows, the embankment feature would not appear obtrusive in this context.

---

### **Section 3: Open Agricultural Landscape South of Church Lane.**

- 8.5.8 This section is fairly open, rural landscape with low hedgerows along ditches and watercourses. Most remnants of the railway are no longer evident and the Scheme will therefore introduce a new engineered feature into this landscape which will appear initially rather alien on completion of the works. Longer term effects on this landscape character will depend upon the extent to which mitigation planting to screen the bund can be incorporated.

### **Section 4: Original Location of Salehurst Halt.**

- 8.5.9 This section is much more heavily vegetated than the landscapes to the west. The old track bed has mature trees on either side that pre-date the railway closure, so it is anticipated that most of these will be retained. However, there will be some localised clearance to access and construct the new platform. Some loss of vegetation will be perceptible along this edge of Salehurst but this would not be expected to alter landscape character, as this landscape is thickly vegetated throughout this section.

### **Section 5: Partially Enclosed Landscape East of Church Bridge.**

- 8.5.10 This section is slightly more open than the previous section but there are still a good proportion of mature trees in hedgerows around the pond and river. No remaining features of the railway are visible, so the engineered embankment would appear as a rather alien feature in this rural landscape. This would result in some degree of change to landscape character as perceived from viewpoints to the north and west. Viewpoints to the south around Robertsbridge Abbey would be less able to perceive this change due to the riverside vegetation.

### **Section 6: Existing Embankment North East of Robertsbridge Abbey.**

- 8.5.11 This long section of existing embankment is well wooded in character with frequent mature trees in the tall hedgerows and along the river banks. The disused railway is mainly intact with mature trees either side of the former track-bed that pre-date the railway closure. Removal of scrub along the track bed and some tree works to facilitate construction will be required, but the landscape character would remain largely unaffected here. It is anticipated that the majority of the existing mature trees either side of the line will be retained, screening views of the changes. Short term gaps in vegetation created during construction will be infilled as part of the planting proposals.

### **Section 7: Existing Embankment North West of Udiam Cottages.**

- 8.5.12 This section is slightly more open than Section 6 and is characterised by open water channels adjacent to the disused railway embankment. Trees along the railway embankment are not as mature as the previous section to the west, so they have probably established since the railway closure. Tree clearance to allow restoration of the bridge and the track bed will be more extensive here, particularly in the section for the 450m long Passing Loop. This is likely to open up views of the changes from the Public rights of way to the south, Udiam Cottages and some of Junction Road. There will be some change in character, though the restoration of the railway could be considered a positive change as links with the past are re-connected.

## **8.6 Cumulative Effects**

- 8.6.1 In assessing cumulative effects, other developments will be identified through consultation with the local planning authorities on the basis of those that are:
- Under construction;
  - Permitted applications, but not yet implemented;
  - Submitted applications not yet determined; and,
  - Identified in the relevant development plan (and emerging development plans).
- 8.6.2 Cumulative effects should be considered through the following questions:
- Will any individual receptor or receptor group experience multiple effects of the same type from this and other projects (inter-project impacts)?
  - Will any individual receptor or receptor group experience several different types of impact from this project (intra-project impacts)?
  - Will different impacts occur that would interact and therefore alter their significance?
  - Will the impacts of this project on any individual receptor or receptor group compound similar impacts from another recent project, or will they be compounded by the impacts of a future project already planned?
  - Will any cumulative effects that are identified be temporary or permanent?
- 8.6.3 Based on information provided by the local authority of developments that fit the criteria for consideration, there is nothing that would be likely to result in a cumulative effect.

## **8.7 Mitigation**

- 8.7.1 It is anticipated that planting measures will be provided wherever it would mitigate a significant effect and would be both feasible and appropriate. However, these measures will need to be coordinated with other issues, such as the on-going function of the flood defence measures, in particular hydraulic connectivity across the embankment. Consequently, there are some uncertainties about the form and location of the planting proposals at this stage. Details of planting locations, areas for natural regeneration and species selection will be covered within the Landscaping Scheme which is likely to be conditioned as part of any planning approval.
- 8.7.2 Chapter 9: Ecology of this report recommends the following measures which relate to landscape and habitat mitigation works:
- **Woodland:** A minimum 1.5ha of native broadleaved woodland to be planted alongside the railway line to be planted from a mix of native tree of species of local provenance. This will be planted in a linear block to run through previously un-wooded areas of the arable fields to provide connectivity with the woodland remaining on the rail embankments. An additional 1.5ha to be planted as a single block within an area of improved grassland.
  - **Scrub:** A minimum 1 ha of scrub habitat will be planted alongside the railway line to be primarily made up of native species of local provenance. This would ideally be in a single linear block alongside the rail route and within habitats currently improved grassland or arable.
  - **Hedgerows:** In order to ensure that the current value of the woodland and scrub on the old line as 'linking habitat' is not reduced a number of hedgerows and shaws will be bolstered so that viable wildlife links are maintained.

- 8.7.3 In addition to the habitat creation the Scheme would utilise fencing composed of a single strand horizontal wire fencing which would minimise visual impact compared with mesh fencing.
- 8.7.4 The level crossing would need to be kept clear of trees and shrub over 1.5m high to provide clear visibility for trains and crossing users.
- 8.7.5 The detailed planting proposals will seek to incorporate the recommendations identified by the ecology chapter. Opportunities for the following mitigation measures have therefore been identified, within the seven character sections along the proposed route of the railway reinstatement:

#### **Section 1: Open floodplain to north of Robertsbridge**

- 8.7.6 The objective within this section should be to retain the open character of the floodplain, but to help to assimilate the embankment into the landscape using landscape features already found within the vicinity. As a linear feature, the reinstated embankment will be similar in appearance to the flood defence bunds. The mitigation measures should therefore seek to create grassy mounds, with the fencing and other infrastructure seeking to minimise the introduction of alien forms. Some limited individual tree planting may be appropriate to screen views of any signalling equipment from key locations.

#### **Section 2: Enclosed floodplain to south of Northbridge Street**

- 8.7.7 The principal views into this section are from the A21, Public Footpaths 30a, 30b and 31 and from Northbridge Street. Views will be increased by the creation of the new crossing on the A21, and the principal construction access points will also be formed within this area. The loss of vegetation from the embankments to the A21 should be minimised wherever possible.
- 8.7.8 The reinstated embankment will create a number of isolated field corners and the track-bed will be visible against the vegetation along the river. The planting of low hedgerows along the embankment and tree planting into the field corners would help to integrate the Scheme into the landscape, compensating for the loss of trees required to form the A21 crossing. However, the on-going function of the flood defence system could be compromised by this, so it is not possible to include these measures as part of the application. The approach therefore, will be to simply grass the new embankments.

#### **Section 3: Open agricultural landscape south of Church Lane**

- 8.7.9 There are slightly elevated views of this section from the properties in Northbridge Street and from viewpoints along Church Lane. Away from the river corridor, the landscape is relatively open in character, with open drainage ditches allowing views across the floodplain. From elevated viewpoints the track-bed will form a somewhat alien feature running across the agricultural landscape. The mitigation measures therefore should consist of low native hedgerow planting along the foot of the embankment, with occasional groups of trees similar to those along the river corridor.

#### **Section 4: Original location of Salehurst Halt**

- 8.7.10 This section is currently well-vegetated with a mixture of mature trees and other and semi-mature vegetation. The proposed restoration of the Salehurst Halt is anticipated to include a single platform allowing passengers to alight and walk through to Salehurst along the existing bridleway route. The construction details should seek to maintain as much track-side vegetation as possible.



---

## **Section 5: Partially enclosed landscape east of Church Bridge**

- 8.7.11 This section of the original track-bed has been almost totally removed, leaving a highly rural landscape, across which there is currently some inter-visibility between Robertsbridge Abbey and the Church of St Mary the Virgin in Salehurst. The mitigation measures should consist of native hedgerow planting along the foot of the embankment, but limited numbers of trees in order to maintain inter-visibility. There may also be opportunities to provide habitat links between the small pond immediately to the south of the railway alignment and the surround wildlife corridors.

## **Section 6: Existing embankment north-east of Robertsbridge Abbey**

- 8.7.12 This section of the route follows the existing well-vegetated embankment that runs to the north of the river corridor. There is no public access to this section, but from aerial photographs it is evident that there are mature trees along either side of the original track-bed, with smaller, less significant vegetation in between. The construction methodology should seek to minimise any unnecessary damage to the mature trees along either side of the route, with the mitigation measures gapping-up any resultant breaks in the vegetation.

## **Section 7: Existing embankment north-west of Udiam Cottages**

- 8.7.13 The existing vegetation along this section of the Scheme is somewhat less mature than in section 6, but it nevertheless is still a strong feature within the local landscape. The mature trees along the embankment may pre-date the closure of the railway, but much of the other vegetation is likely to have developed since it was dismantled. The construction methodology should generally seek to minimise any unnecessary damage to the vegetation along either side of the embankment. However, there may be benefits to maintaining any gaps that are created in order to provide views to and from the trains. This may be particularly relevant on the northern side where there could be the desire for views from Park Farm campsite.
- 8.7.14 This area could also accommodate the temporary construction compound. This should be sited away from the public footpath to the south of the scheme and where it will not be detrimental to the owners of Udiam Cottages. Any temporary access from Junction Road should seek to minimise vegetation loss from the roadsides.
- 8.7.15 The indicative planting proposals are shown on the Landscape Strategy (Volume 4, Figure 8.5). These proposals have been coordinating with the requirement identified in the other chapters to ensure that they are feasible and deliverable as part of the proposals. The drawings, together with the reasoned justifications above, provide the basis for assessing the longer-term residual landscape and visual effects of the Scheme.

## **8.8 Residual Effects**

- 8.8.1 This section identifies the effects that would remain following establishment of the mitigation measures (in this case 15yrs from completion of the works). These are referred to as the 'residual effects'.
- 8.8.2 The residual effects on the physical landscape attributes along the route are considered in more detail elsewhere in this document. This assessment therefore concentrates on the impact of the scheme on the local character of the reinstated route and the long-term contribution that this might have on the wider character of the High Weald AONB.
- 8.8.3 Following incorporation of the mitigation measures identified in section 8.6, it is anticipated that the magnitude and significance of the residual visual effects will be reduced, as set out in Table 8.6. As the feasibility of all the mitigation measures is not certain at this point due to



hydraulic connectivity issues across the embankment, the worst case scenario has been adopted in Table 8.6.

**Table 8.6 - Residual Landscape Effects (refer to Figure 8.6, Volume 4 for locations of A-P)**

| Receptor | Description of Mitigation Measures                                      | Magnitude of Residual Effect | Significance of Residual Effect |
|----------|---|------------------------------|---------------------------------|
| A        | Natural regeneration of vegetation in foreground and new tree planting. | MINOR                        | SLIGHT                          |
| B        | Grass seeding of embankments.   | MINOR                        | SLIGHT                          |
| C        | Grass seeding of embankments and tree planting around crossing points.  | MINOR                        | NEUTRAL                         |
| D        | Grass seeding of embankments and tree planting around crossing points.  | MINOR                        | SLIGHT                          |
| E        | Grass seeding of embankments.   | MINOR/ MODERATE              | SLIGHT/ MODERATE                |
| F        | Grass seeding of embankments.   | MINOR/ MODERATE              | SLIGHT/ MODERATE                |
| G        | Grass seeding of embankments.   | MINOR                        | MODERATE                        |
| H        | Natural regeneration and tree planting                                  | NEGLIGIBLE/ NEUTRAL          | SLIGHT/ NEUTRAL                 |
| I        | Grass seeding of embankments and tree planting                          | MINOR/ NEGLIGIBLE            | SLIGHT                          |
| J        | Natural regeneration and tree planting                                  | NEGLIGIBLE/ NO CHANGE        | NEUTRAL                         |
| K        | Natural regeneration and tree planting                                  | MINOR/ MINOR BENEFIT         | SLIGHT/ MODERATE                |
| L        | Natural regeneration and tree planting                                  | NEGLIGIBLE/ MINOR            | SLIGHT/ NEUTRAL                 |
| M        | Natural regeneration and tree planting                                  | NEGLIGIBLE                   | SLIGHT/ NEUTRAL                 |
| N        | Hedgerow and tree planting  | NEGLIGIBLE/ MINOR            | NEUTRAL                         |
| O        | Hedgerow and tree planting  | MINOR                        | SLIGHT                          |
| P        | Natural regeneration and tree planting                                  | NEGLIGIBLE                   | NEUTRAL                         |

## 8.9 Conclusion

- 8.9.1 A number of limitations have been identified for this assessment. However, taking a worst-case or precautionary approach to the baseline data, it is possible to ensure that the findings of the assessment are sufficiently robust so as not to be adversely affected by the identified limitations. Consequently, it is not anticipated that these limitations have significantly influenced the overall conclusions reached by this assessment,
- 8.9.2 In accordance with best practice, mitigation measures have been incorporated into the Scheme in order to reduce or remedy the any significant effects identified by the assessment. Consequently, the residual effects of the Scheme would not result in any significant adverse impacts, as set out in Table 8.6. There is the potential for some of the impacts to progressively change from adverse to beneficial as the mitigation measures mature and become fully established.

- 8.9.3 The majority of the Scheme is identified within the Lower Rother Valley landscape character area. The proposed restoration of the railway supports the vision for managed tourism in the area and the capacity of the landscape to absorb the section of the Kent and East Sussex Railway that has already been restored demonstrates a historical precedent. In addition, there are opportunities to support the Landscape Action Priorities for hedgerow and tree restoration and river restoration as part of the mitigation strategy for the Scheme. Consequently, it is concluded that the landscape would not be degraded as a result of the proposed changes due to the existing high level of woodland cover, and the ability of the proposals to retain the visually significant vegetation within the permanent land take of the Scheme.
- 8.9.4 The section of the Scheme at the Robertsbridge end of the line is identified within the Upper Rother Valley landscape character area. This LCA is noted for its sense of 'remoteness', but the area through which the Scheme will pass does not exhibit these quality qualities due to the proximity of the existing areas of settlement and the A21 road. The cherished quality of the Upper Rother Valley will not therefore be adversely affected by the Scheme. Provided that the detail of the bridges and other infrastructure is sympathetically designed, the historical appeal of the railway will give rise to attractive views with nostalgic associations. Furthermore, there are opportunities to support the Landscape Action Priorities for the area with tree and hedgerow planting as part of the mitigation strategy
- 8.9.5 The proposed reinstatement of the railway could reinforce the historic landscape character, enabling a greater appreciation of the landscape by a considerably wider selection of users. The route would provide a means of enjoying the landscape qualities of the AONB and provide opportunities for wider education about the AONB and its values. Any reduction in traffic on rural roads due to the re-connection of the railway could then help to improve perceived tranquillity in the landscape.
- 8.9.6 This assessment has identified that the Scheme would have an acceptable impact on the character of the High Weald AONB. Consequently, it is concluded that the Scheme would be compatible with the relevant landscape criterion set out in Policy EM8 of the adopted Rother District Local Plan.

## 9.0 Ecology and Nature Conservation

### 9.1 Introduction

- 9.1.1 This chapter describes the desk study and field surveys undertaken to establish the ecological baseline within the study area of the proposed Scheme, together with an assessment of impacts on all significant ecological receptors. Mitigation measures to avoid or minimise effects are described, and an assessment of residual impacts made.

#### Legislation and Policy

- 9.1.2 European Community directives and international agreements concerning biodiversity which are relevant to the proposed scheme are:
- Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) as amended (92/43/EFC);
  - EC Directive on the Conservation of Wild Birds (Birds Directive 1979) as amended (79/409/EEC);
  - Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979);
  - Bohn Convention on the Conservation of Migratory Species of Wild Animals (1979);
  - Convention on Biological Diversity; and
  - Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council to establish a framework in the field of water policy).
- 9.1.3 The European directives and conventions are transposed into UK law through various Acts and Regulations. The key protective legislation relevant to the proposed scheme is as follows:
- Conservation of Habitats and Species Regulations 2012 (known hereafter as the "Habitat Regulations");

*'The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned'.*

- 9.1.4 The primary National legislation covering the protection of habitats and species is the Wildlife and Countryside Act:
- Wildlife and Countryside Act 1981 (as amended)
- 'The act makes it an offence (with exception to species listed in Schedule 2 to intentionally: kill, injure, or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built (also under the Natural Environment and Rural Communities Act 2006), or; take or destroy an egg of any wild bird.'*

*In addition 'The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals'.*

9.1.5 Also of relevance to the proposed development is.

- Protection of Badgers Act 1992

The act states that ‘...all the following are criminal offences: to wilfully kill, injure, take, possess or cruelly ill-treat a badger; to attempt to do so; or to intentionally or recklessly interfere with a sett’.

### **Planning and Guidance**

9.1.6 A summary of the national, regional and local planning policies relevant to nature conservation at the site is given below:

#### **National Policy**

##### **NPPF Section 11: Conserving and Enhancing the Natural Environment**

9.1.7 The NPPF replaces all existing Planning Policy Statements (PPS). The PPS of relevance to this technical report which has been superseded is PPS9: Biodiversity and Geological Conservation. Section 11 of the NPPF states:

*‘The planning system should contribute to and enhance the natural and local environment by: protecting and enhancing valued landscapes, geological conservation interests and soils; recognising the wider benefits of ecosystem services; minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures’.*

9.1.8 Section 11 of the NPPF sets out policy guidance in relation to nature conservation within the overarching principle of ensuring that biological and geological diversity are conserved and enhanced as an integral part of social, environmental and economic development. The NPPF is supported by ODPM Circular 06/2005 'Government Circular on Biodiversity and Geological Conservation — Statutory Obligations and their Impact within the Planning System. The Circular states that:

*‘the potential effects of a development, on habitats or species listed as priorities in the UK Biodiversity Action Plan (BAP)88, and by Local Biodiversity Partnerships, together with policies in the England Biodiversity Strategy, are capable of being a material consideration in ..... the making of planning decisions’.*

#### **UK Biodiversity Action Plan**

9.1.9 The UK BAP was published in 1994 to comply with obligations under the Convention on Biological Diversity (The Biodiversity Treaty, 1992). It described the UK’s biological resources and committed to developing detailed plans to conserve these resources i.e. Habitat Action Plans and Species Action Plans. The most up to date targets and actions, including latest progress reports, for UK HAPs and SAPs can be viewed on the DEFRA website. Running parallel to this, Local Planning Authorities (LPAs) promoted habitat and species conservation at a county and district/borough level through their development of Local BAPs (LBAPs).

9.1.10 Since the publication of these BAPs, new strategies and frameworks have resulted in the devolvement of biodiversity issues and changes in the terminology used to describe these habitats and species in England. This has been brought about through the replacement of the previous England Biodiversity Strategy with Biodiversity 2020: A Strategy For England's Wildlife and Ecosystem Services (2011) and the replacement of the UK BAP itself with the UK Post-2010 Biodiversity Framework (2012).

9.1.11 All previous UK BAP species and habitats are still of material consideration in the planning process but are now referred to as Habitats and Species of Principal Importance for the Conservation of Biodiversity in England as listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The promotion of priority habitats and species in LBAPs are also of material consideration in the planning process.

### **Local Policy**

#### **Rother District Local Plan (Adopted 2006)**

9.1.12 Policy GD1 states '*All development should meet the following criteria: it protects habitats of ecological value and incorporates, wherever practicable, features that enhance the ecological value of the site, with particular regard to wildlife refuges or corridors, or fully compensates for any necessary loss.*'

## **9.2 Methodology**

### **Assessment**

9.2.1 Throughout this document the assessment has followed guidance developed by the Chartered Institute for Ecology and Environmental Management in '*Guidelines for Ecological Impact Assessment*' (CIEEM, 2006) hereafter referred to as the 'CIEEM Guidelines'.

9.2.2 The assessment process is as follows:

- Identification of features of ecological interest (as far as is possible within the constraints of this site);
- Identification of key attributes of the feature(as far as is possible within the constraints of this site);
- Identification of the level of importance of the feature(as far as is possible within the constraints of this site);
- Identification of the legal protection offered to the feature;
- Identification of activities in the proposal that may impact on the features;
- Characterisation of the potential impacts;
- Assessing the significance of the effect on the nature conservation interest of the feature;
- Assessing the legal implications of the impact;
- Outlining the proposed mitigation measures; and
- Assessing the residual impacts of the proposals.

## Identification of features of ecological interest

- 9.2.3 The identification of ecological receptors that could be impacted by the Scheme has been informed by a process of desk based appraisal and field survey. An initial Extended Phase 1 Habitat Survey (where land was accessible) and desk study was undertaken to determine potential constraints.
- 9.2.4 Due to the lack of direct access the identification of receptors has come through the use of: existing data, feedback from consultees and from expert judgement. Assumptions have been made to assess the presence/absence, distribution and abundance of habitats and legally protected species (see Table 9.4).
- 9.2.5 Identification of all statutory sites which may be indirectly affected by the Scheme was undertaken at the initial desk study stage through interrogating the data sets held on Defra's MAGIC Map website.

## Identification of the level of importance of the feature

- 9.2.6 Professional judgement was used to allocate a level of importance to each feature identified within the site and zone of influence in relation to the total resource at a given geographical scale, and taking account of its legal and policy status. Evaluation of each feature's importance has taken account of:
- CIEEM guidance on evaluation;
  - Legislative and regulatory lists (e.g. Wildlife and Countryside Act 1981 (as amended) Schedules, and Habitats Directive Annexes);
  - Species and Habitats of Principal Importance for Biodiversity, Section 41 NERC Act/Biodiversity Action Plan (BAP) lists;
  - Local context
  - County floras; and
  - National inventory for ancient semi-natural woodland (ASNW).
- 9.2.7 Features were allocated a scale of importance level from Site, Local (i.e. Rother District Council), County (i.e. East Sussex), National through to International level. This level of importance was then used to assess the significance of potential impacts.

## Spatial and temporal scope of the assessment

- 9.2.8 In accordance with the CIEEM 'Guidelines for Ecological Impact Assessment' the ecology assessment applies to a 'zone of influence' associated with the Scheme within which direct or indirect impacts may occur.

**Table 9.1 – Zone of Influence for Sites, habitats and Species**

| Designation   | Zone of Influence   |
|---|---|
| Statutory Designated Sites  | 10km  |
| Non-Statutory Designated Sites  | 2km   |
| Riparian habitats and species (i.e. floodplain habitats, otter, water vole, fish, crayfish) | 500m upstream and downstream of new and widened bridge structures |
| Ponds, badger, bats, wintering birds, breeding birds, great crested newts, invertebrates    | 500m from extent of permanent and temporary land take             |
| All other habitats and species (i.e. woodland, hedgerows, individual trees, reptiles)       | Within areas of permanent and temporary land take only            |



## Identification of activities that could affect features

9.2.9 The activities associated with construction and the operation of the Scheme have been considered for each feature individually, using professional judgement and experience to characterise how each activity may affect that feature. The results of other assessments e.g. noise and hydrology have been used to inform the assessment of ecological impacts. A summary of activities and associated impacts is presented in Table 9.2.

**Table 9.2– Summary of activities and associated impacts**

| Construction                          | Associated Impacts  |
|---------------------------------------|---|
| Embankment works                      | Direct mortality  |
| Creation of sub-base for haul road    | Habitat loss  |
| Ballasting                            | Fragmentation   |
| Flood defence embankment              | Disturbance   |
| Creation of compound                  | Air quality   |
| Construction bridges and culverts     | Reduction in water quality,<br>Habitat loss<br>Disturbance  |
| Construction of level crossings       | Disturbance   |
| Operation                             | Associated Impacts  |
| Operation of functioning rail service | Direct mortality<br>Disturbance<br>Reduction in air quality |
| Management/maintenance of vegetation  | Habitat modification Disturbance<br>Direct mortality        |

9.2.10 Characterisation of impacts has been carried out in accordance with the CIEEM Guidelines as follows:

- Extent/magnitude: quantified where possible;
- Direct or indirect effect and positive or negative;
- Reversibility: irreversible or reversible;
- Frequency: single event, recurring or constant;
- Duration: short term, medium term or permanent; and
- Likelihood of occurrence: certain/near certain, probable, unlikely, extremely unlikely.

## Assessing the Significance of the Effect on the Value of the Feature

9.2.11 Assessment of significance within this document is defined as 'the geographical scale at which the effect is considered to be a material matter for decision makers in terms of maintaining the nature conservation status (of species) or ecological integrity (of habitats/sites) of the feature resource' (CIEEM, 2006). An effect can therefore be significant at the site, local, county, national or international level. Professional judgement has been employed by ecological experts in making this assessment.

9.2.12 To provide a degree of consistency with other technical disciplines, the levels of significance derived using the CIEEM methodology can be translated approximately to a simplified scale of impact as shown in **Table 9.3**.

**Table 9.3 – Categories of significance**

| CIEEM levels of significance                      | Scale of impact   |
|---|-------------------|
| Not significant/No effect                         | Neutral           |
| Significant at Site level                         | Slight Impact     |
| Significant at Local level                        | Moderate Impact   |
| Significant at County, Regional or National level | Large impact      |
| Significant at International level                | Very large impact |

- 9.2.13 Notwithstanding any assessment of the implications for nature conservation outlined above, some species are afforded legal protection irrespective of their ecological status, e.g. badger. If an unmitigated activity resulted in an offence to a legally protected species, irrespective of its nature conservation status, mitigation would be required to avoid or offset the effect e.g. through development of a suitable method statement or via a licence from Natural England.

#### **Consideration of the 'Three Tests' for European Protected Species**

- 9.2.14 For European Protected Species which could be affected by the Scheme, namely otter, dormouse, bats and great crested newt, consideration has been given to the 'Three Tests' under the Habitat Regulations (& amendments) 2012. Competent Authorities are required to consider, before granting permission or consent for an activity which may affect a European Protected Species (EPS), whether or not there are (i) alternatives to the scheme which would not affect the EPS (ii) there are over-riding reasons of a social or economic nature for the activity to proceed and (iii) the favourable conservation status of the EPS will be maintained.
- 9.2.15 With regard to consideration of alternatives, as the central tenet of the Scheme proposes the reinstatement of the original route of the pre-Beeching railway line there is assumed to be no realistic alternative to the route proposed. In addition to this any viable alternative route, which would still link the sections of track that are already in existence at Robertsbridge and Udiam, would have to cut through many of the same habitats and affect the same species to the same degree as the current proposals. The only habitats that would be likely to be less impacted would be secondary broadleaved woodland on the extant embankments and a pond. Therefore, there are no viable alternatives to the layout of the current scheme that would reduce impacts to any European Protected Species.
- 9.2.16 The over-riding social and economic need for the Scheme is presented in Volume 2, Chapter 14 – Socio-Economics
- 9.2.17 The favourable conservation status of any EPS impacted by the scheme will be maintained through a combination of: displacement, habitat manipulation, translocation and compensation for any habitat loss. This mitigation will be secured through Natural England's licensing system where appropriate.

#### **Outlining Proposed Mitigation Measures**

- 9.2.18 Mitigation measures have been developed to avoid, reduce or offset potential impacts and are based on the following framework for mitigation set out in the CIEEM Guidelines:
- Effect avoidance through design change;
  - Prohibition of damaging activities;
  - Minimisation of potential effect;
  - Habitat creation;
  - Habitat management/improvement;
  - Translocation;
  - Licences/method statements;
  - Programming amendments; and
  - Survey and monitoring.

9.2.19 In addition, a series of Scheme specific principles of mitigation have been identified:

- Provide mitigation on a scale which is proportional to impacts;
- Deliver best practice approaches;
- Integrate the requirements of habitats and species;
- Ensure that a suitable management regime is in place;
- Mitigation to contribute to landscape character and the farmed landscape;
- Mitigate in-situ or as close to the site as possible;
- All temporary habitat loss to be re-instated; and
- Contribute to local and UK BAP targets and other local initiatives where appropriate.

9.2.20 Where reasonably practical to do so, mitigation measures and compensation have been developed to avoid potentially significant adverse effects, to reduce potential effects that could not be avoided and to offset or compensate for those effects which cannot reasonably be avoided or reduced.

### **Assessing Residual Effects of the Proposals**

9.2.21 The assessment of residual effects is based on the premise that mitigation measures described in this report would be implemented in full, and that there are suitable mechanisms in place to achieve this in the short and long term.

### **Baseline Data Collection**

#### **Data Search**

9.2.22 Desk based consultation was carried out with the Sussex Biodiversity Records Centre (SxBRC) on 4th July 2013 to obtain records for non-statutory designated sites and protected/notable species within 2km of the proposed route.

9.2.23 On-line resources were also consulted throughout the design and assessment process to obtain up to date details of statutory designated sites and other key data e.g. that status and location of priority UK BAP habitats, priorities and targets in the Sussex BAP in the vicinity of the proposed scheme. On-line resources used include:

- Rother District Council Planning Portal;
- Multi-Agency Geographic Information for the Countryside (MAGIC) website;
- National Biodiversity Network (NBN) Gateway website; and
- Sussex Ornithological Society Website.

### **Survey Limitations**

9.2.24 The initial Ecological Appraisal (CLM, Oct 2013) recommended further survey work for a number of different species including: reptiles, great crested newt, dormouse, bats, badger and water vole. However, due to the current access constraints on the site it has not been possible to undertake any of this work.

9.2.25 Due to lack of access there are significant gaps in knowledge of the ecological receptors on the site. This lack of data could alter the process of impact assessment and the conclusions of this report.

9.2.26 Where, as a consequence, the full picture has not been entirely provided via either baseline data or survey work this report makes assumptions of presence/absence and distribution based on the ecology and known habitat requirements of the species 'likely' to be found on the site (Table 9.4).

9.2.27 The assumptions are provided on the understanding that the ecology chapter will be re-drafted once 100% land access is allowed and all of the ecology surveys have been completed.

**Table 9.4 – Assumptions of the presence/ absence and distribution of habitats and legally protected species based on their ecology and accepted habitat requirements**

| Receptor                  | Assumptions of habitat classification type for impact assessment |   |
|---------------------------|--|---|
| Phase 1<br>habitat survey | 1.   | Where access was permitted the on-site habitats were directly viewed and plant species recorded   |
|                           | 2.   | Where no access was permitted the site was viewed remotely and the habitats were assessed to broad type   |
|                           | a.   | Grassland/pasture with homogenous structure and uniform colour of vivid green was taken to be Improved grassland  |
|                           | b.   | Grassland/pasture with diverse structure and variation in colour was taken to be Neutral Grassland/semi-improved  |
|                           | c.   | Visible evidence of recent crop, habitat taken to be Arable   |
|                           | d.   | Woodland assessed as Broadleaved/semi-natural unless conifers visible at distance   |
|                           | e.   | Blocks of shrub species less than 5m in height and less than 50% of the canopy, taken to be Scrub   |
| Reptiles                  | f.   | Any hedgerows, taken to be species rich and able to be classified as 'Important' under the hedgerow regulations   |
|                           | 3.   | Freely available aerial photography was used to support the classification of remotely viewed habitats  |
|                           | 4.   | Areas where reptiles judged to be present include all instances of; woodland edge, south-facing embankments, scrub/rough grassland mosaic,                            |
| Great crested<br>newt     | 5.   | Species likely to be present: adder, grass snake, slow worm and common lizard,  |
|                           | 6.   | Population size, larger populations present in areas of greatest habitat complexity, where insolation is likely to be high and additional foraging resource available |
|                           | 7.   | A High population class size of great crested newts assumed to be present in all ponds within 500m of the route   |
|                           | 8.   | Great crested newts assumed to be present in all suitable terrestrial habitat within 500m of any pond   |
| Dormouse                  | a.   | Suitable terrestrial habitat includes: woodland, scrub, hedgerows, rough grassland  |
|                           | 9.   | Assessment of possible meta populations based on perceived clustering of ponds  |
|                           | 10.  | Presence assumed in all areas where habitat structure is suitable, includes:  |
| Badger                    | a.   | hedgerow with connectivity to woodland,   |
|                           | b.   | hedgerows in the footprint with connectivity to areas of woodland outside the buffer zone suitable for dormice;   |
|                           | c.   | connectivity to large (approximately 10ha) areas of woodland;   |
|                           | d.   | newly planted woodland with either stands of deciduous trees, or connectivity to areas of mature woodland; and  |
|                           | e.   | coniferous woodland with either stands of deciduous trees or connectivity to deciduous woodland.  |
|                           | f.   | Scrub and bramble   |
|                           | 11.  | Any dormouse habitat within the historic route of the rail corridor will have established since the closure of the line   |
| Water vole/<br>otter      | 12.  | Hedgerows; density of 1.3 adult dormice per ha (Bright et al, 2008), woodland; 4-10 adults per ha (Bright et al, Dormouse Conservation Handbook 2nd edition)          |
|                           | 13.  | Estimates of sett numbers based on PTES surveys of UK badger populations in 1997 for Arable II area = 0.3 to 0.4 setts per km <sup>2</sup>                            |
| Breeding birds            | 14.  | All sections of the route will be counted as suitable sett building habitat with higher value placed on sloping rail embankments                                      |
|                           | 15.  | Presence unlikely within isolated farm ponds but assumed present along all sections of running water.   |
|                           | 16.  | Water vole present at low population density of one female territory every 150m and two males to every female.  |
|                           | 17.  | Presence of one otter assumed along the River Rother that runs parallel with the route  |
|                           | 18.  | Assumption that no Schedule 1 species likely to be present, based on results of the data search and habitat suitability   |
|                           | 19.  | Wide assemblage of garden and woodland species assumed present within the proposed route  |

| Receptor | Assumptions of habitat classification type for impact assessment  |
|----------|---|
| Bats     | <p>20. For the purposes of informing the site evaluation and impact assessment it is assumed that there will be one maternity roost of a widespread species and one satellite roosts of individual bats found in mature trees that will be lost to the scheme.</p> <p>21. A single roost of individual bats of a widespread crevice dwelling species is assumed to be present in one of the bridges that cross the route</p> <p>22. Based on the results of the data search and understood roosting requirements the species assumed to be roosting within the impact zone of the route are: brown long-eared <i>Plecotus auritus</i>, Daubenton's <i>Myotis daubentonii</i> and Natterer's <i>Myotis nattereri</i></p> |

### 9.3 Baseline

#### Desk Study

#### Statutory Designated Sites

- 9.3.1 The nearest Natura 2000 site to the proposed scheme is Pevensey Levels SAC which is 14km to the south west whilst the hydrologically linked Dungeness to Pett Level SPA is 15 km to the south east. Due to the relatively small scale of the scheme and the consequent limited effects downstream it is not considered that there will be any impacts from these proposals on these sites.
- 9.3.2 The closest Site of Special Scientific Interest (SSSI) are:
- Parsonage Wood 10km north-east: A Wealden ghyll woodland with damp stream banks and rare bryophytes;
  - Robins Wood 10km north: A linear ghyll woodland supporting rare bryophytes;
  - Ashburnham Park 9.5km south-west: A mediaeval deer park with ancient woodland containing overmature trees and lichen communities;
  - Hemingfold Meadow 9.4km south: A species rich lowland meadow on Wealden clay;
  - Blackhorse Quarry 10km south: A geological SSSI;
  - Brede Pit and Cutting 9.8km south-east: A geological SSSI;
  - River Line 6km south-west: A geological SSSI;
  - Northiam 6.8km east: A geological SSSI; and
  - Darwell Wood 6.9km south-west: A broadleaved woodland SSSI designated for its hornbeam coppice with oak standards.
- 9.3.3 A number of these sites are designated for their woodland interest features and due consideration has been given to any potential impacts of the proposed development. It is not thought that the proposed reinstatement of the railway will have a significant effect on any of the SSSIs.
- 9.3.4 Six of the SSSIs are either 10km distant or very close to this and are therefore scoped out from the impact assessment based on the CIEEM guidelines for Zone of Influence.
- 9.3.5 Of the three sites that are closer than significantly closer than 10km, two are cited for their geological component not for nature conservation. The exception is Darwell Wood (6.9km) which it is felt is still a sufficient distance away from the route that any ecological effect would be too weak to be significant. This assessment is also based on the restricted area of the works footprint and short duration of the proposed works.

#### Non-Statutory Designated Sites

- 9.3.6 There are two non-statutory designated Local Wildlife Sites within 2km of the proposed development and due consideration has been given to any potential impacts of the proposed development.

- Site of Nature Conservation Importance (SNCI) CR20 – South Park Pony Stud Meadows – A series of Biodiversity Action Plan (BAP) habitats, species rich lowland meadows with a number of ponds and two shaws containing species indicative of ancient woodland. 1.5 km north.
- SNCI CR59 – Silverhill & Trough Wood – 21ha of ghyll woodland supporting ancient woodland indicators and straddling a south-west north-east running stream with a steep, species rich gully. 1.8 km north.

9.3.7 Both of these sites are just within the 2Km Zone of Influence distance cited by CIEEM. However, it is judged that they are sufficiently distant from the route for there to be no significant effect from this relatively low impact scheme. This assessment is also based on the restricted area of the works footprint and short duration of the proposed works.

9.3.8 These sites are scoped out from further study and are not included in the impact assessment.

### **Previous Ecological Surveys and Assessments**

9.3.9 CLM undertook an Ecological Appraisal of the proposed route in 2009 and were faced with similar constraints (CLM, 2009).

9.3.10 Sussex Wildlife Trust hold data for Otters and Water Voles along the Rother.

9.3.11 Sussex Ornithological Society hold breeding bird data for the local area.

9.3.12 The Environment hold botanical data for some of the local watercourses.

9.3.13 Nature Conservation Survey: Former Mill Site, Northbridge Street, Robertsbridge ACTA 2007.

9.3.14 Ecological Assessment Report: Forge Farm, Staple Cross the Ash Partnership 2009.

### **Data Search: Species records**

9.3.15 Invertebrates - The biological records search did not reveal any recent records of any protected or BAP invertebrates.

9.3.16 Amphibians - Records for the 2km search area within the past 20 years include four records of great crested newt *Triturus cristatus*. One record from 1999, given a very precise location of Plumtree Cottage, Northbridge Street, Robertsbridge, is within 250m of the proposed route. In contrast, a dedicated Great crested newt survey was undertaken in 2007 at the former mill site off Northbridge Street but none were found although a healthy fish population was cited as a potential reason for this. A total of three ponds are on the line of the proposed development with a further 5 within 250m (one of which is the pond at the former mill site and another, the pond at Plumtree Cottage) and another 2 within 500m. A map showing the location and distance from the proposed route of all suitable ponds within 500m is at Appendix 1.

9.3.17 Reptiles - The SxBRC reports have a number of records within the last twenty years including two of slow-worm *Anguis fragilis*, two of common lizard *Zootoca vivipara*, three of grass snake *Natrix natrix*. A further record for Viviparous lizard was found looking through ecological surveys on the Rother District Council planning portal.

9.3.18 Birds - The report by SxBRC records that the site and its surroundings support reasonable numbers of breeding, overwintering and summer visitor birds typical of grazing marsh, farmland, garden and woodland habitats.

9.3.19 Bats - Within the 2 km search area, the data search gives a number of results for *Chiroptera spp* (bats) as summarised below. A search for the same area on the National Biodiversity Network website found no additional species records.



**Table 9.5 – Results of Data Search for Local Bat Records**

| Common Name             | Latin Name                | Number of records | Type of record |
|-------------------------|---------------------------|-------------------|----------------|
| Bat sp                  | Chiroptera                | 16                | UR, D          |
| Brown Long-eared bat    | Plecotus auritus          | 25                | H, MR, UR, D   |
| Common pipistrelle      | Pipistrellus pipistrellus | 3                 | UR, D          |
| Daubenton's bat         | Myotis daubentonii        | 31                | H, MR, UR, D   |
| Long-eared sp           | Plecotus                  | 15                | UR, D          |
| Nathusius's pipistrelle | Pipistrellus nathusii     | 1                 |                |
| Natterer's bat          | Myotis nattereri          | 39                | MR, UR         |
| Noctule bat             | Nyctalus noctula          | 1                 |                |
| Pipistrelle sp          | Pipistrellus sp           | 19                | UR, D          |
| Serotine                | Eptesicus serotinus       | 5                 | UR, D          |
| Soprano pipistrelle     | Pipistrellus pygmaeus     | 5                 | MR, UR         |
| Unidentified bat        | Myotis                    | 2                 |                |

**Key to type of record**

|     |                   |
|-----|-------------------|
| M/S | Mating/swarming   |
| H   | Hibernaculum      |
| FR  | Feeding roost     |
| MR  | Maternity roost   |
| UR  | Unspecified roost |
| D   | Droppings         |

9.3.20 Dormice - There is only one record for Dormouse within 2km.

9.3.21 Water Vole - The SxBRC report shows two records for water vole within 2km of the site in the last twenty years.

9.3.22 Otter - The SxBRC do not display records for Otter as they are confidential but the Sussex Otter and Rivers Project (SORP) officer reports that there have been a number of recent sightings in the Bodiam area (within 2km).

9.3.23 Badger – The SxBRC report does not show badger records as a matter of policy.

**Baseline Conditions**

**Extended Phase I Habitat Survey**

9.3.24 The majority extrapolated Phase 1 Habitat Survey (see Ecological Appraisal – Volume 3, Report 3) has identified that the land within the footprint of the proposed route is likely to comprise of the following habitats:

**Broadleaved semi natural woodland**

9.3.25 A significant length (approximately 1.56Km) of the dismantled railway is under the cover of broadleaved woodland which appeared to be dominated by ash and oak with an understory of hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, field maple *Acer campestre*, ivy *Hedera helix*, dog rose *Rosa canina* and bramble *Rubus fruticosus*. These species were noted where public rights of way cross the track and the oak and ash could be seen from a distance to be dominating the stretch where the site was visible from the adjacent footpath. Woodland to be lost estimated at 50% of the area covering the route, 3.118ha total, 1.55ha loss

---

### **Dense/continuous scrub**

- 9.3.26 The far eastern, and accessible, section of the line (a 460m section) was more like dense scrub in nature than woodland and typically consisted of hawthorn, birch *Betula spp*, dogwood *Cornus sanguinea*, ash *Fraxinus excelsior*, blackthorn *Prunus spinosa*, oak *Quercus robur*, willow *Salix spp* and spindle *Euonymus europaeus*. Scrub to be lost estimated at 50% of the area covering the route, 0.922ha total, 0.46ha loss.

### **Scattered trees**

- 9.3.27 Mature/ancient in-field oak trees and fallen oaks were noted in grassland adjacent to the footpath. Several mature and ancient trees were also recorded along the riverside with plenty of standing and fallen deadwood showing signs of being used by woodpeckers and invertebrates.

### **Neutral semi-improved and Improved grassland**

- 9.3.28 The grassland is mainly species poor improved grassland, grazed by cattle or horses and/or cut for hay/silage. In fields adjacent to watercourses, some areas of semi-improved grassland lie quite wet and rushy, or appear tussocky. All the grassland fields noted had either been recently cut or were grazed relatively tight at the time of the survey.

### **Standing water**

- 9.3.29 Where the original track bed is no longer under the cover of woodland, and is only evident by the crop marks on the arable land, a pond (Target note 8) lies directly in the path of the proposed reinstatement. Adjacent to the site are fish ponds associated with a 12th Century Abbey. These are marked on the OS Map but could not be seen during the survey. At the eastern end of the route there is a farmland pond 207m to the south, the pond at Moat Farm is 280m to the north of the route and there is a fourth pond 70m north of the route by Salehurst.

### **Running water**

- 9.3.30 The River Rother meanders along the south of the site and is largely under the cover of woodland and/or bankside vegetation at the eastern end of the site. Plant species noted include willow, alder *Alnus glutinosa*, oak, blackthorn, hawthorn, hornbeam *Carpinus betula*, dogrose, ivy, meadowsweet *Filipendula ulmaria*, common hogweed *Heraclium sphondylium*, nettles *Urtica dioica*, creeping thistle *Cirsium arvense*, creeping buttercup *Ranunculus repens*, herb robert *Geranium robertianum*, hemp agrimony *Eupatorium cannabinum*, purple loosestrife *Lythrum salicaria*, hemlock water dropwort *Oenanthe crocata* and pendulous sedge *Carex pendula*.
- 9.3.31 Ordnance survey mapping of the area indicates that there are five sections of drainage ditch that cross the route between the A29 and Moat Farm

### **Arable**

- 9.3.32 The majority of the arable fields along the proposed route was planted to winter barley at the time of the survey.

### **Species-rich hedgerow and Species-rich hedgerow with trees**

- 9.3.33 A network of species-rich hedgerows and hedgerows with trees (typically containing a mix of oak, field maple *Acer campestre*, holly *Ilex aquifolium*, spindle *Euonymus Europoeus*, hazel, hawthorn, blackthorn and ash) connect the site with neighbouring areas of ancient woodland.

---

## **Buildings**

- 9.3.34 At least one of the bridges on the course of the proposed track is likely to offer potential roosting habitat for bats as it is largely extant and located in a relatively undisturbed location

## **Legally protected species**

- 9.3.35 The paragraphs below set out the assumed presence/absence, population size and likely distribution of legally protected species as set out in Table 9.4. Distribution maps for all legally protected species are, where relevant, shown in Figures 9.2-9.6, Volume 4.

### **Great crested newt**

- 9.3.36 The ponds and slow moving ditches have potential for breeding amphibians including great crested newt (see Figure 9.1, Volume 4). Pond 1, located on the proposed route, is surrounded by cultivated arable land which it is considered reduces the opportunities for commuting habitat and for meta-populations to form, unlike the pond at TQ 75751 24305 (Pond 7) which lies next to grassland and scrub. Any marshy areas, tussocky grassland, dry ditches, areas of woodland, grazing pasture and scrubby vegetation nearby or on site represent suitable foraging habitat for great crested newts. As a consequence this species will be utilising all woodland, scrub, grassland and bankside habitat within the footprint of the route as foraging habitat.
- 9.3.37 The data search returned proven presence of GCN at one pond within 250m of the route (Pond 5). The assumption is that Ponds 1, 2 and 3 all contain a medium population of Great crested newts.

### **Reptiles**

- 9.3.38 The site, with its variety of different habitats, currently affords pockets of suitable habitat for all the reptiles recorded nearby including slow-worms, common lizards and grass snakes, particularly in areas of rough grassland, scrub and, for grass snake, riparian habitats. These species as well as adder are assumed to be present along the route on south facing woodland edge, areas of scrub and where the route crosses through semi-improved grassland. The reptile distribution map (Figure 9.4, Volume 4) identifies the areas of reptile habitat.

### **Bats**

- 9.3.39 The river corridor and the linear woodland along part of the old trackbed act as commuting and foraging routes for bats, particularly species such as Pipistrelle and Brown Long-eared bat and the surrounding ponds and areas of rough vegetation provide good foraging habitat. Any more mature trees along the route are likely to provide roosting habitat (Figure 9.5, Volume 4).
- 9.3.40 Where the proposed route crosses ditches and the Rother, such as the site of the derelict metal railway bridge, will find Daubenton's bats foraging and roosting. Natterer's bats will also be found utilising the woodland and farmland throughout the length of the proposed route for foraging. Both species have multiple records at the nearby Bodiam Castle (2.1km NE) and as such many of these individuals will forage and commute throughout the proposed route.
- 9.3.41 A maternity roost of brown long-eared bats is assumed to be present in a mature oak tree within the footprint of the route. A roost of individual Daubenton's bats is assumed to be present in the derelict bridge mentioned above, a roost of individual Natter's bats is assumed to be present in a mature tree within the footprint of the route.

---

### **Dormouse**

- 9.3.42 Dormouse are assumed to be present throughout all contiguous woodland and scrub along the length of the route and to be using all lines of hedgerow and scrub that cross the route linking habitat to the north and south. Dormouse distribution is shown in Figure 9.6, Volume 4.

### **Water Vole**

- 9.3.43 Field signs were absent from the banks of the river where visible but small populations will be utilising any ditches linked to the wider network of water courses. Anecdotal evidence (Burroughs pers comm, 2014) suggests that water voles are present in a network of drainage ditches that crosses the route close to Salehurst. This species is assumed present the network of drainage ditches that cross over the route and along both banks of the River Rother.
- 9.3.44 The table of assumptions indicates a potential population of 20 females and 40 males along 3km of the River Rother as it runs parallel with the route.

### **Otter**

- 9.3.45 The river is considered to be suitable for commuting and foraging otters, although they are likely to be disturbed by people and dogs where the footpath runs adjacent to the river. Otters are present in the catchment and the Sussex Otter and Rivers Project (SORP) officer reports that there have been a number of recent sightings in the Bodiam area (within 2km).
- 9.3.46 Given the recent sightings, the suitability of the habitat and the relatively undisturbed nature of the Rother within the proposed route it is assumed that the route passes through the territory of a single adult.

### **Badger**

- 9.3.47 A badger sett was found towards the eastern end of the site along the line of the proposed track. There are limited foraging opportunities for badger along the trackbed itself but the presence of extensive areas of grassland immediately adjacent to the proposed route and the abundance of badgers throughout East Sussex (0.3 – 0.4 main setts per km<sup>2</sup>) indicates that there will be at least one main sett along the length of the proposed route and numerous outlying setts.

### **Breeding Birds**

- 9.3.48 The woodland and scrub areas are assumed to support good numbers of breeding birds typical of that habitat whilst the farmland holds typical ground nesting species like skylark which are widely recorded within the local area.

### **Evaluation**

#### **Woodland**

- 9.3.49 A significant length of the dismantled railway is under the cover of broadleaved woodland dominated by mature ash and oak with an understory of hazel, hawthorn, field maple, ivy, dog rose and bramble. The linear nature of the woodland provides ecological connectivity through the landscape affording corridors of movement for bats, dormice and other species. This woodland, having grown up on the old embankments and being largely absent in aerial photographs from 1945 is likely to be entirely secondary in nature and as such is judged important at the **Local** level.

---

### Scrub

- 9.3.50 Much of the eastern end of the currently inactive railway comprises relatively mature scrub which not only supports species such as dormouse and bats but also provides valuable linking habitat. As such it is deemed important at the **Local** level.

### Hedgerow

- 9.3.51 In the absence of direct data the assumption of high species richness indicates that all hedgerows within the route could be classified as important under the hedgerow regulations. Such habitats provide an intrinsically valuable ecological resource due to the high diversity of flowering plants and woody vegetation. The hedgerows provide valuable linking habitat for bats, dormouse, reptiles and great crested newts and as such are judged to be valuable at the **Local** level.

### Wetland

- 9.3.52 The western end of the site falls into the area designated as BAP priority habitat – Floodplain grazing marsh. Due, in part, to the relatively impoverished nature of the Floodplain grazing marsh BAP habitat this feature is evaluated as being of importance at a **Local** level.

### Ditches and watercourses

- 9.3.53 The River Rother meanders along the south of the site and is largely under the cover of woodland and/or bankside vegetation at the eastern end. There are several ditches that drain into the river from the site and bordering farmland which support both Otter and Water vole and as such it is judged to be important at the **Local** level.

### Ponds

- 9.3.54 There is an on-site pond and a network of farmland ponds within a 500m buffer of the route which are likely to provide a supporting function to each other for a variety of amphibian and invertebrate species. Three ponds lie directly in the path of the proposed reinstatement and due to the assumed presence of a medium population of great crested newts are deemed to be important at a **Local** level.

### Great Crested Newts

- 9.3.55 There is a positive data search record for this species which are also assumed present at a medium population size in a number of ponds within 250m of the route and within the footprint of the route. These newts are likely to form a single meta-population that will utilise suitable habitats along the route and within the farming landscape around it. As such the population would be of importance at the **District** level.

### Reptiles

- 9.3.56 Parts of the site afford suitable habitat for the reptiles recorded nearby including slow-worms, common lizards and grass snakes, particularly in areas of rough grassland and scrub. Adder also assumed to be present. Population size is likely to be relatively low within the farming landscape but higher across the disused rail embankments. The presence of populations of four reptile species is of importance at the **Local** level.

### Bats

- 9.3.57 The river corridor and the linear woodland along part of the old track-bed are assumed to act as commuting and foraging routes for bats and the surrounding ponds and areas of rough

vegetation provide good foraging habitat. The potential roosting sites in the surrounding areas (the ancient and mature trees and the old buildings and structures), the site will be well used by bats. The mature trees within the route are assumed to contain a maternity roost of a common species (brown long-eared) and numerous satellite roosts of individual bats. The derelict rail bridge is assumed to have an occasional summer roost of a widespread species (Daubenton's).

- 9.3.58 The SxBRC report only records the commoner species of bat within 2km and this, in conjunction with the findings of local bat surveys and the acknowledged lack of records for Annex 2 species in the vicinity, leads to the conclusion of the importance of the site at the **County** level only.

#### **Dormouse**

- 9.3.59 Dormice will use hedgerows for commuting between the substantial blocks of woodland in the vicinity as well as occupying the woodland and scrub habitats on the embankments. There is an assumed population of 13 adults within woodland and scrub within the footprint of the route. Using these assumptions then the site is judged important at the **County** level.

#### **Water Vole**

- 9.3.60 The SxBRC report shows two records for water vole within 2km of the site in the last twenty years although anecdotal evidence from 2014 suggests that they are present within the ditch system that crosses the route. Field signs were absent from the banks of the river but they will utilise both ditch and river banks. The Sussex Otters and Rivers project officer considers that any population present would be in very low numbers and this would potentially make the footprint, especially adjacent to watercourses, important at the **County** level.

#### **Otter**

- 9.3.61 The SxBRC do not display records for Otter as they are confidential. The river is considered to be suitable for commuting and foraging. Otters are present in the catchment and the Sussex Otter and River Project officer reports that there have been a number of recent sightings in the Bodiam area (within 2km). Given the large territories that male otters have and the relative paucity of the species in the south east this would make the parts of the site within 30m of any watercourse important at the **Regional** level.

#### **Badger**

- 9.3.62 A badger sett was found towards the eastern end of the site along the line of the proposed track and the remainder of the site will hold further setts. However, in combination with the relatively high populations of Badger within East Sussex, it is considered of importance only at a **Site** level.

#### **Birds**

- 9.3.63 The report by SxBRC records that the site and its surroundings support reasonable numbers of breeding, overwintering and summer visitor birds typical of small blocks of grazing marsh, farmland, garden and woodland habitat. The habitats along the route are unlikely to provide suitable nesting locations for any schedule 1 species or Red List Birds of Conservation Concern. As such it is considered important at the **Local** level only.



---

## 9.4 Predicted Effects

### Assessment of Effects

- 9.4.1 The following tables set out the predicted effects during the construction and operational phases of the Scheme. Effects are described for each feature in the absence of mitigation, with a summary of the legal/policy implications of each effect.
- 9.4.2 **Table 9.6** describes the effects associated with the construction phase of development and **Table 9.7** describes the effects associated with the operational phase of development.
- 9.4.3 The assessment is based solely on a set of precautionary assumptions regarding presence/absence distribution and population size and will be confirmed or re-drafted once full data is available.

**Table 9.6 – Assessment of Effects at Construction Phase (without mitigation)**

| Ecological Feature       | Proposed Activity/ Effect  | Characteristics of unmitigated effect   | Effect significance without mitigation   |
|--------------------------|--|---|--|
| Woodland                 | Embankment works<br>Creation of track sub base for haul road<br>Level crossing construction<br>Ballasting<br><br>Direct loss of woodland habitat | Extent/magnitude: Permanent loss of approximately 1.55ha of broadleaved woodland.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain     | Construction would result in loss of 50% of all woodland along the route and fragmentation of habitat.<br><br><b>Major adverse effect at a Local level</b>   |
| Scrub                    | Embankment works<br>Creation of track sub base for haul road<br>Level crossing construction<br>Ballasting<br><br>Direct loss of woodland habitat | Extent/magnitude: Permanent loss of approximately 0.46 ha of scrub.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain                   | Construction would result in loss of 50% of scrub habitat along the route and fragmentation of habitat.<br><br><b>Minor adverse effect at a Local level</b>  |
| Hedgerows                | Creation of track sub base for haul road<br>Level crossing construction<br>Ballasting<br><br>Direct loss of hedgerow                             | Extent/magnitude: Permanent loss of short discrete sections of hedge<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Temporary<br>Likelihood of occurrence: Certain                  | Construction would result in potential fragmentation of habitat<br><br><b>Minor adverse effect at a Local level</b>  |
| Wetland                  | Creation of embankment<br>Culvert construction<br>Construction of bridges<br><br>Direct loss of wetland habitat                                  | Extent/magnitude: Permanent loss of approximately 0.4 ha of Floodplain grazing marsh.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain | Construction would result in reduced area of BAP Grazing marsh and fragmentation of habitat.<br><br><b>Minor adverse effect at a Local level</b>   |
| Ditches and watercourses | Culvert construction<br>Construction of bridges<br><br>Negligible loss of ditch habitat  | Extent/magnitude: Negligible<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain  | Construction could result in minor losses in ditch and/or bankside habitat.<br><br><b>Negligible adverse effect at a Local level</b>   |
| Ponds                    | Creation of embankment<br><br>Direct loss of wetland habitat   | Extent/magnitude: Permanent loss of at least three ponds.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain                             | Construction would result in the destruction of three ponds on the line of the proposed route.<br><br><b>Major adverse effect at a Local level</b>   |
| Great crested newt       | Embankment works<br>Creation of sub-base<br><br>Habitat loss<br>Mortality  | Extent/magnitude: Length of route, Loss of three breeding ponds.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible<br>Frequency: One off effect for mortality  | High risk of mortality or injury for those individuals sheltering within habitats lost during construction Significant effect on favourable conservation status, disruption during breeding season. Loss of breeding |

| <b>Ecological Feature</b> | <b>Proposed Activity/ Effect</b>   | <b>Characteristics of unmitigated effect</b>  | <b>Effect significance without mitigation</b>   |
|---------------------------|--|---|---|
|                           |  | occurring at construction, ongoing effect from loss of breeding habitat<br>Duration: Permanent<br>Likelihood of occurrence: Certain   | ponds would have an ongoing major adverse effect on the status of local meta-population.<br><br><b>Major adverse effect at a District level</b>   |
| Reptiles                  | Embankment works<br>Creation of sub-base<br>Ballasting<br>Culvert construction<br><br>Habitat loss<br>Mortality  | Extent/magnitude: Length of route, Mortality or injury of those individual reptiles sheltering within habitats that will be cleared.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible.<br>Frequency: One off effect occurring at construction<br>Duration: Permanent<br>Likelihood of occurrence: Certain   | Very high risk of mortality during clearance works.<br><br><b>Major negative effect at Local level</b>  |
| Birds                     | Creation of compound<br>Embankment works<br>Creation of sub-base<br>Culvert construction<br><br>Habitat loss<br>Disturbance<br>Mortality   | Extent/magnitude: Permanent loss of approximately 2.4 ha of woodland/scrub habitat disturbance to breeding birds during construction period.<br>Direct/Indirect: Direct negative, indirect negative<br>Reversibility: Partially irreversible, constructed embankment and cleared woodland will have benefit for birds.<br>Frequency: One off effect occurring at construction<br>Duration: Permanent and temporary<br>Likelihood of occurrence: Certain           | <b>Minor negative effect</b>  |
| Bats                      | Creation of compound<br>Embankment works<br>Creation of sub-base<br>Culvert construction<br>Construction of bridges<br>Lighting<br><br>Loss of habitat<br>Disturbance<br>Mortality | Extent/magnitude: Permanent loss of approximately 2.4 ha of woodland/scrub habitat. Loss of roosting habitat in derelict railway bridge, loss of maternity roost and satellite roosts for at least three species and disturbance during construction period.<br>Direct/Indirect: Direct negative<br>Reversibility: Irreversible,<br>Frequency: One off effect occurring at construction<br>Duration: Permanent and temporary<br>Likelihood of occurrence: Certain | The majority of the woodland to be cleared is not sufficiently old to provide suitable roosting habitat for bats but it will be good foraging habitat. Equally, at least one of the bridges to be replaced currently provides suitable roosting habitat along with a limited number of trees. Temporary security lighting may also adversely affect bat behaviour.<br><br><b>Major adverse effects at a Local level</b>                                 |
| Dormice                   | Embankment works<br>Creation of sub-base<br><br>Loss of habitat<br>Fragmentation<br>Disturbance<br>Mortality   | Extent/magnitude: Mortality or injury to individuals. Permanent loss of approximately 2.4 ha of woodland/scrub habitat. Fragmentation of potentially valuable linking habitat.<br>Direct/Indirect: Direct negative<br>Reversibility: Mortality/Irreversible, habitat loss disturbance and fragmentation reversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent and temporary<br>Likelihood of occurrence: Certain               | The woodland and hedgerows associated with the site are part of a strategically important link between large blocks of broadleaved woodland either side of the Rother valley. Any work to reduce the ecological viability if this link for Dormice would have an adverse effect on habitat connectivity. Any works outside the hibernation season may also result in mortality of individuals.<br><br><b>Moderate adverse effects at a County level</b> |
| Water vole                | Flood defence works<br>Culvert construction<br>Construction of bridges   | Extent/magnitude: Limited amounts of habitat loss at ditch and river crossings, mortality less likely, disturbance during breeding season.<br>Direct/Indirect: Direct negative  | Loss of ditch/bankside habitats will have an effect .<br><br><b>Negligible adverse effect at a County</b>   |

| Ecological Feature | Proposed Activity/ Effect  | Characteristics of unmitigated effect  | Effect significance without mitigation  |
|--------------------|--|--|---|
|                    | Loss of habitat<br>Mortality   | Reversibility: Irreversible<br>Frequency: One off effect occurring at construction<br>Duration: Permanent and temporary<br>Likelihood of occurrence: Certain   | <b>level</b>  |
| Otter              | Flood defence works<br>Embankment works<br>Culvert construction<br>Construction of bridges<br><br>Loss of habitat<br>Disturbance       | Extent/magnitude: Potential for disturbance from all construction activities in close proximity to the Rother.<br>Direct/Indirect: Direct negative<br>Reversibility: Reversible<br>Frequency: One off effect occurring at construction<br>Duration: Temporary<br>Likelihood of occurrence: Unlikely  | <p>Otters are known to hunt some distance from rivers and may well visit off stream ponds. They are also noted for their aversion to man and their behaviour may well be modified particularly by the presence of bright lights and noise.</p> <p><b>Minor adverse effect at a Regional level</b></p>   |
| Badger             | Flood defence works<br>Embankment works<br>Creation of track sub-base<br>Ballasting<br><br>Loss of habitat<br>Disturbance<br>Mortality | Extent/magnitude: Length of route, Permanent loss of at least one sett during the creation of the track sub-base. Temporary severance of foraging habitat and pathways.<br>Direct/Indirect: Direct and indirect<br>Reversibility: Irreversible<br>Frequency: One off effect occurring at construction but ongoing for noise etc.<br>Duration: Permanent for habitat loss and temporary for noise, lights and vibration.<br>Likelihood of occurrence: Certain | <p>As well as the direct loss of at least one sett there is also potential for increased territorial behaviour/aggression amongst individuals. Some potential for animals to be killed or injured during construction of track sub-base. Noise, lights and vibration may disturb animals especially mothers and young.</p> <p><b>Minor adverse effect at a Site level</b></p> |

**Table 9.7 – Assessment of Effects at Operational Phase (without mitigation)**

| Ecological Feature | Proposed Activity/ Effect   | Characteristics of unmitigated effect   | Effect significance without mitigation  |
|--------------------|---|---|---|
| Woodland           | Operation of functioning rail service<br>Management/maintenance of vegetation<br><br>Habitat modification | Extent/magnitude: Negligible<br>Direct/Indirect: Direct negligible<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Permanent<br>Likelihood of occurrence: Certain | <p>Operation of the railway line would have a negligible effect on the remaining woodland, there will be some maintenance of retained vegetation and increased deposition of sulphur and carbon.</p> <p><b>Negligible adverse effect</b></p>      |
| Scrub              | Operation of functioning rail service<br>Management/maintenance of vegetation<br><br>Habitat modification | Extent/magnitude: Negligible<br>Direct/Indirect: Direct negligible<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Permanent<br>Likelihood of occurrence: Certain | <p>Operation of the railway line would have a negligible effect on the remaining scrub although there will be some maintenance of retained vegetation and increased deposition of sulphur and carbon.</p> <p><b>Negligible adverse effect</b></p> |
| Hedgerows          | Operation of functioning rail service<br>Management/maintenance of vegetation<br><br>Habitat modification | Extent/magnitude: Negligible<br>Direct/Indirect: Direct negligible<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Permanent<br>Likelihood of occurrence: Certain | <p>Operation of the railway line would have a negligible effect on the hedgerows.</p> <p><b>Negligible adverse effect</b></p>   |
| Wetland            | Operation of functioning rail service   | Extent/magnitude: No effect anticipated<br>Direct/Indirect:<br>Reversibility:<br>Frequency:<br>Duration:<br>Likelihood of occurrence:   | <b>No effect anticipated</b>  |

| <b>Ecological Feature</b> | <b>Proposed Activity/ Effect</b>  | <b>Characteristics of unmitigated effect</b>  | <b>Effect significance without mitigation</b>   |
|---------------------------|---|---|---|
| Ditches and watercourses  | Operation of functioning rail service   | Extent/magnitude: Negligible, no direct effect anticipated<br>Direct/Indirect: Indirect negligible  | Operation of the railway line would have a negligible effect on the remaining habitat, very limited potential for one off stochastic pollution events   |
|                           | Habitat modification  | Reversibility: Reversible<br>Frequency: Recurring   |   |
|                           | Accidental spillage of fuel or other pollutant associated with construction activities                  | Duration: Temporary<br>Likelihood of occurrence: Unlikely   | <b>Major adverse effect</b>   |
| Ponds                     | Operation of functioning rail service   | Extent/magnitude: No effect anticipated<br>Direct/Indirect:<br>Reversibility:<br>Frequency:<br>Duration:<br>Likelihood of occurrence:   | <b>No effect anticipated</b>  |
| Great crested newt        | Operation of functioning rail service   | Extent/magnitude: Length of route<br>Direct/Indirect: direct  | Whilst the operation of the railway line would be unlikely to have any effect on great crested newts the maintenance of the track (replacing ballast, signals and cable troughing) could have a minor impact from disturbance |
|                           | Change to flood regime<br>Disturbance   | Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Temporary<br>Likelihood of occurrence: Probable  |   |
|                           |   |   | <b>Negligible effect</b>  |
| Reptiles                  | Operation of functioning rail service   | Extent/magnitude: Length of route<br>Direct/Indirect: direct<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Temporary<br>Likelihood of occurrence: Probable  | Whilst the operation of the railway line would be unlikely to have any effect on reptiles the maintenance of the track (replacing ballast, signals and cable troughing) could have a minor impact from disturbance.           |
|                           |   |   | <b>Negligible effect</b>  |
| Birds                     | Operation of functioning rail service<br>Change to flood regime<br>Management/maintenance of vegetation | Extent/magnitude: Length of route<br>Direct/Indirect: Indirect<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Temporary<br>Likelihood of occurrence: Probable  | Operation of the railway line would have a negligible effect on birds but maintenance of vegetation could have an indirect effect from disturbance and direct disturbance of removal of active nests                          |
|                           | Disturbance   |   | <b>Negligible effect</b>  |
| Bats                      | Operation of functioning rail service<br>Management/maintenance of vegetation                           | Extent/magnitude: Negligible, aside from the limited usage levels the likelihood is that the vast majority of journeys will be undertaken during daylight hours when bats are inactive. Any lighting would be very limited. | Operation of the railway line would have a negligible effect on bats  |
|                           | Disturbance<br>Habitat modification   | Direct/Indirect: Direct negligible<br>Reversibility: Reversible<br>Frequency: Recurring<br>Duration: Temporary<br>Likelihood of occurrence: Certain   | <b>Negligible effect</b>  |
| Dormice                   | Operation of functioning rail service<br>Management/maintenance of vegetation                           | Extent/magnitude: No effect anticipated<br>Direct/Indirect:<br>Reversibility:<br>Frequency:   | <b>No significant effect anticipated</b>  |

| Ecological Feature | Proposed Activity/ Effect  | Characteristics of unmitigated effect   | Effect significance without mitigation   |
|--------------------|--|---|--|
| Water vole         | Operation of functioning rail service<br>Change to flood regime<br>Management/maintenance of vegetation              | Duration:<br>Likelihood of occurrence:<br>Extent/magnitude: No effect anticipated<br>Direct/Indirect:<br>Reversibility:<br>Frequency:<br>Duration:<br>Likelihood of occurrence:   | <b>No effect anticipated</b>   |
| Otter              | Operation of functioning rail service<br>Management maintenance of vegetation<br>Change to flood regime              | Extent/magnitude: No effect anticipated<br>Direct/Indirect:<br>Reversibility:<br>Frequency:<br>Duration:<br>Likelihood of occurrence:   | <b>No effect anticipated</b>   |
| Badger             | Operation of functioning rail service<br>Management maintenance of vegetation<br><br>Disturbance<br>Direct mortality | Extent/magnitude: length of route.<br>Direct/Indirect: Direct<br>Reversibility: Irreversible<br>Frequency: Recurring<br>Duration: Temporary<br>Likelihood of occurrence: Unlikely | Badger mortality highly unlikely as railway will not be running during the usual hours that badgers are above ground<br><br><b>Negligible effect</b> |

## 9.5 Mitigation

- 9.5.1 The proposed scheme includes a number of mitigation measures to avoid, minimise or off-set adverse effects. Enhancement measures which are over and above mitigation recommendations are also included.
- 9.5.2 The mechanism for delivery of ecological compensation will comprise the creation and management of new habitats on privately owned land in agreement with neighbouring landowners and the purchase of land by RVR specifically for creation of habitats.
- 9.5.3 An Ecological Mitigation Plan will be produced to guide all potentially disturbing works but all final mitigation measures will only be agreed and designed once all of the necessary surveys have been completed and necessary European Protected Species Mitigation licences have been obtained from Natural England.

**Table 9.8 – Summary of Habitat Losses and Gains**

| Habitat Type                | Habitat Loss  | Habitat Gain |
|-----------------------------|---|--------------|
| Native broadleaved woodland | 1.55ha  | 3ha          |
| Scrub                       | 0.46ha  | 1ha          |
| Hedgerows                   | 100m  | 100m         |
| Floodplain grazing marsh    | 0.4ha   | 0.4ha        |
| Ponds                       | 3   | 3            |
| Bat roost                   | 1 maternity roost and 2 satellite roosts<br>(1 tree roost and 1 structural roost) | 3            |



---

## **Mitigation and Enhancement Recommendations**

### **Woodland, Scrub, Hedgerows, Ancient Trees and Fallen Deadwood**

#### **Broadleaved Woodland**

- 9.5.4 A minimum 1.5ha of native broadleaved woodland will be planted alongside the railway line to be planted from a mix of native tree of species of local provenance. This will be planted in a linear block to run through previously un-wooded areas of the arable fields to provide connectivity with the woodland remaining on the rail embankments. An additional 1.5ha to be planted as a single block within an area of Improved grassland.

#### **Scrub**

- 9.5.5 A minimum 1 ha of scrub habitat will be planted alongside the railway line to be primarily made up of native species of local provenance. This would ideally be in a single linear block alongside the rail route and within habitats currently Improved grassland or Arable.

#### **Hedgerows**

- 9.5.6 In order to ensure that the current value of the woodland and scrub on the old line as 'linking habitat' is not reduced a number of hedgerows and shaws will be bolstered so that viable links are maintained. It may also be necessary to provide Dormouse crossing points at intervals along the track where total severance would otherwise be unavoidable.
- 9.5.7 The width of land take through hedgerows is the minimum necessary to meet engineering requirements. Retained sections of hedgerow would be safeguarded during construction through use of protective fencing.
- 9.5.8 All hedgerow loss associated with construction of temporary site access would be re-instated following construction.
- 9.5.9 New planting would be carried out between October and February in any given year to improve establishment.
- 9.5.10 The footprint of the Scheme and number of existing trees to be lost is to be kept to the absolute minimum necessary with work, wherever possible, being limited to the area where the trackbed will be laid. Retained trees and their root zones/canopies would be safeguarded during construction through identification of an adequate stand-off zone and protective fencing.

#### **Wetland: Floodplain grazing marsh habitat**

- 9.5.11 In order to directly compensate for the loss of approximately 0.4 ha of this habitat when the railway embankment an equivalent area will be created on land ecologically linked to the current area of habitat. In addition to this extra parcel of land the current habitat area will be enhanced through the creation of scrapes and rills in order to provide better habitat for wintering wildfowl. The precise location of these works will be covered within a Landscaping Scheme.

#### **Ditches and water courses**

- 9.5.12 The expected loss of ditch and watercourse habitat is negligible and what loss there is will be compensated for through the creation of equivalent habitat within the 0.4 ha of Floodplain grazing marsh creation.

---

## **Ponds**

- 9.5.13 Three new permanently wet ponds will be created to mitigate for each of the ponds lost. These ponds will be located in strategic positions to ensure effective habitat connectivity and proximity to existing ponds potentially used by great crested newts and to encourage colonisation by aquatic invertebrates. The precise location of these works will be covered within a Landscaping Scheme.
- 9.5.14 Pond design would follow the Natural England 'Great Crested New Mitigation Guidelines' (2001). New native species planting would be introduced to the ponds to facilitate their establishment prior to translocation of great crested newts and other species, if necessary. It is expected that these plants would colonise remaining areas rapidly during the first growing season.
- 9.5.15 It will be necessary to find suitable sites in the immediate area (i.e. those that do not currently support the species) to which translocation of Great crested newt can take place. RVR have already started to look into the acquisition of suitable sites.

## **Great Crested Newts**

- 9.5.16 Following surveying work using accepted methodologies at suitable seasons to establish more precisely population locations and sizes a European Protected Species Mitigation licence (EPSM) will be obtained once planning permission has been granted. Mitigation will comprise a translocation scheme to relocate individual great crested newts from the development footprint with a trapping strategy designed to reflect relative population size and the types of habitat to be lost/disturbed. Translocated newts would be relocated to dedicated receptor site outside the construction footprint (see above).
- 9.5.17 The creation of new railway embankments, the 2:1 provision of new woodland and scrub habitats (see above) and the creation of a minimum of 0.4 ha of Floodplain grazing marsh with its associated wetland features will provide mitigation for the high value terrestrial habitats lost as a result of construction. In addition hibernacula will be created at suitable sites.
- 9.5.18 All temporary habitat loss would be re-instated and suitable measures put in place during the construction period to ensure the survival of individuals.

## **Reptiles**

- 9.5.19 The creation of up to 1.3 km of new railway embankment will provide the opportunity to create significant extra benefit for reptiles by providing the high insolation, rough grassland and scrub habitat in which all the common species thrive.
- 9.5.20 Mitigation strategy to be based on displacement where there is contiguous habitat of sufficient value and the population is small. This is to be done using habitat manipulation and reptile exclusion fencing during the construction phase.
- 9.5.21 For larger populations and/or no contiguous habitat, reptiles will be translocated to areas of high value habitat along the route. Again this will require habitat manipulation, reptile exclusion fencing and sufficient trapping effort using refugia and releasing individuals to the receptor site. The receptor site will have had suitable habitat created through the establishment/maintenance of tussocky grassland, the encouragement of moderate levels of scrub and bare ground and the provision of artificial hibernacula.

---

## **Birds**

- 9.5.22 As far as possible, vegetation clearance would take place outside the breeding bird season (i.e. March to August inclusive). This will require careful planning and substantial vegetation clearance activity during the autumn/winter period to ensure that this can be achieved. Where vegetation must be removed during the breeding season this should be done under the supervision of a suitably qualified ecologist. The compensation planting of woodland and scrub will also compensate for the loss of nesting habitat for birds.

## **Bats**

- 9.5.23 European Protected Species Licences would be required to deliver mitigation for loss. Mitigation for the loss of any non-breeding roosts will be through provision of purpose built bat boxes and sensitive timing of any operations.
- 9.5.24 In the case of the bridge crossing the Rother an artificial roost should be incorporated into the replacement structure.
- 9.5.25 Mitigation for the loss of tree roosts should be by retention of long sections of the trunk and limbs and fixing these to existing trees as close to their current positions as possible.
- 9.5.26 Replacement roosts would be provided prior to the loss of the existing roost sites and construction related light, noise and vibration would be minimised in the vicinity of the new roost sites by identification and fencing off of suitable 'stand-off' zones. Suitable foraging habitats would be retained, managed and linked to replacement roost locations.
- 9.5.27 The planting of woodland and bolstering of hedgerows and shaws will further enhance continuity of foraging habitat across the area. Furthermore the provision of scrapes in grassland will also enhance foraging potential for species such as Daubenton's and Natterer's bat. A dedicated Landscape Plan will help enhance connectivity with respect to bat foraging habitats and commuting.
- 9.5.28 Only very limited amounts of new lighting are proposed along the route and is not anticipated to disadvantage any species such that no specific mitigation is proposed. Lighting specification will follow BCT guidance

## **Dormouse**

- 9.5.29 Any vegetation clearance would take place between November and March and care will be taken to ensure it is possible for individuals within the area to reach retained habitat. Works which could affect hibernating dormice (for example removal of tree roots and other intrusive works) must be programmed to avoid the hibernation period. Any animals present in areas where habitat loss is unavoidable will be translocated to a predetermined receptor area under an EPSM licence from Natural England
- 9.5.30 Although the planting of woodland and the bolstering of hedges and shaws will offset the loss of Dormouse habitat and provide links to other suitable areas it will be necessary to provide Dormouse 'bridges' where the proposed route entirely severs that link.

## **Water vole**

- 9.5.31 It is not considered necessary to provide mitigation for the minor adverse effects associated with the construction. Whatever loss of any other potential habitat will be compensated for through the creation of up to 0.4 ha of additional Floodplain grazing marsh with its associated ditches and scrapes.

## **Otters**

- 9.5.32 It is not considered necessary to provide mitigation for the minor adverse effects associated with the construction.

---

### **Badger**

- 9.5.33 A disturbance licence in relation to development will be obtained from Natural England and is required to close any sett which might be encountered during survey work undertaken prior to construction and which is directly within the path of the proposed trackbed or associated works.
- 9.5.34 The loss of a main sett will require a new compensation sett to be built. An artificial badger sett would be constructed at least six months prior to loss of the existing main sett and all entrances fitted with one-way gates to exclude badgers prior to closure. The artificial main sett will be located in close proximity to the existing sett to avoid severance of the badger territory. Badgers will not be excluded from the new track but shall be allowed to continue to cross at existing pathways during and after construction as largely nocturnal mammals they are not going to be encountered to any significant degree when trains are running during the day.
- 9.5.35 All temporary habitat loss during construction would be re-instated and the creation of new woodland, scrub, grazing marsh and hedgerow planting will provide suitable badger foraging habitat.

### **Post-Construction Monitoring**

- 9.5.36 Monitoring of mitigation measures would ensure that remedial action can be taken as necessary. Monitoring of European Protected Species (bats, dormouse, great crested newts) would be required as a condition of licencing for a period of time to be specified in the individual licences, anticipated to be a two year period following completion of construction.
- 9.5.37 Additional monitoring of areas of habitat creation would be undertaken for a period of five years.
- 9.5.38 An Ecological Monitoring Plan will be produced prior to construction in order to ensure that the necessary levels of monitoring are undertaken.

## **9.6 Residual Effects**

### **Residual Effects during Construction**

- 9.6.1 With mitigation in place, it is anticipated that the key residual effect would be the displacement of/disturbance to foraging bats as well as birds within the construction corridor and the loss of limited numbers of mature trees which would be partially off-set by the planting of new areas of native woodland and scrub, but cannot be fully mitigated for in the timescales of this assessment.
- 9.6.2 There would also be a residual effect for dormouse in relation to the time it will take for any newly planted woodland and scrub to become established although the period will be shorter than for bats as dormice will readily make use of any scrubby habitat that might develop during the initial growth stages of the trees.

### **Residual Effects during Operation**

- 9.6.3 With mitigation in place, it is anticipated that there would be no residual effect on species by virtue of the creation of suitable alternative foraging and breeding habitat to accommodate species displaced from the proposed route.

---

## **9.7 Conclusions**

- 9.7.1 The base line and subsequent impact assessment of this scheme have been based on a series of assumptions and will be revisited in full once comprehensive base line data has been gathered.
- 9.7.2 The proposed scheme will result in effects on several habitats including woodland, floodplain grazing marsh, ponds, and a number of protected and notable species/species groups including the European Protected Species bats, dormouse and great crested newt and other species, namely badger, birds, water vole and invertebrate fauna.
- 9.7.3 In the light of constraints on present levels of access to the site a package of habitat compensation measures has been developed to minimise the potential footprint of the proposed route where it unavoidably affects ecological receptors. The assumptions about these effects on ecological receptors have been drawn using baseline data, local knowledge and professional opinion.
- 9.7.4 Where unavoidable effects occur, mitigation has been proposed for important species and to create off-site receptor sites and new habitats to ensure no net loss of the ecological resource, in terms of both quality and extent. Licences would also be sought from Natural England where necessary.
- 9.7.5 The creation of habitat mitigation areas has been considered strategically to ensure that new habitats off-set the effects of habitat fragmentation and severance. The loss of woodland and scrub habitats will be compensated for at a scale of 2:1.
- 9.7.6 In order to ensure that all mitigation is undertaken in as efficient a manner as possible further surveying will be necessary:
- 9.7.7 Great crested newts: Natural England will require a survey of all ponds within 500m of the proposed route that will be undertaken in March to June of 2015. An initial presence/absence survey shall need to be done of any receptor pond in the same timeframe.
- 9.7.8 Reptile: All suitable habitats on the route of the proposed track-bed/site compound/access points will need to be surveyed. Dependent on the outcome of this first survey further presence/absence survey work may be required at the receptor site. This work will need to be undertaken during the summer of 2014 in order to ensure that the proposed construction programme remains achievable.
- 9.7.9 Bats: Roost emergence surveys and activity surveys will need to be undertaken along the proposed route from April to October 2014 with further hibernation roost survey work scheduled for December 2014 to February 2015.
- 9.7.10 Dormouse: During April to November 2015 a nest tube survey of the woodland and scrub on the proposed route should be undertaken. A slightly later hazelnut survey (September to December) may be undertaken if circumstances necessitate.
- 9.7.11 Badger: The route of the proposed trackbed will need to be surveyed for active setts as soon as possible (ideally starting February to April 2014) in order to allow for the creation of artificial setts at least 6 months prior to the closure of the active setts.

## 10.0 Water Quality, Hydrology and Hydrogeology

### 10.1 Introduction

- 10.1.1 This chapter summarises the risk and potential effects of the proposed Scheme on tidal, fluvial, overland flow, surface water and groundwater flood risk, as well as drainage and water resource implications and the potential effect on water quality.
- 10.1.2 The route passes through a primarily rural area of East Sussex and the town of Robertsbridge as shown in Figure 2.1, Volume 4. The new railway line would pass over the River Rother and Mill Stream (all Environment Agency Main Rivers), and a number of drainage channels in the River Rother floodplain. The route will require two new bridge crossings and one replacement crossing over the River Rother and a number of additional bridge and culverts for the drainage channels.
- 10.1.3 The railway line crosses Flood Zone 2 (“Medium Probability” with an annual probability of flooding between 0.1% and 1% as defined by National Planning Policy Framework<sup>32</sup>) and Flood Zone 3 (“High Probability” with an annual probability of flooding greater than 1%) associated with these watercourses.
- 10.1.4 A Flood Risk Assessment (FRA) has been carried out in accordance with the NPPF and accompanying Planning Practice Guidance<sup>33</sup> to assess the risk of flooding to the site, and the effect that the proposed development may have on flooding elsewhere, in particular in terms of fluvial flooding from the River Rother. In addition, the site area is greater than 1ha in size, and surface water runoff from the development needs to be managed. This chapter of the Environmental Statement should be read in conjunction with the FRA (Volume 3, Report 4).
- 10.1.5 The FRA was completed by Capita property and Infrastructure Ltd (Capita) in December 2013. In order to assess the flood risk to the proposed scheme, Capita completed hydraulic modelling of the River Rother by amending the Environment Agency model of the River Rother that was completed by Hyder in 2011. It is assumed that the modelling and FRA is correct at the time of writing.
- 10.1.6 The risk and implications of flooding during a range of return period fluvial flood events prior to, and following development are assessed. Drainage of surface water from the railway line should be considered with the Environment Agency, and the requirements for new infrastructure to ensure no increase in the risk of flooding from any source, in order to satisfy national and local policy requirements, are identified.
- 10.1.7 The risk and potential consequences of flooding from secondary sources such as overland flow and groundwater flooding is also considered. The effect of the railway line on water resources is assessed in comparison with existing land uses on the site.
- 10.1.8 Under the Water Framework Directive, a Catchment Flood Management Plan (CFMP) has been produced by the Environment Agency for the River Rother catchment. This chapter assesses the potential effect of the new railway line on water quality.
- 10.1.9 This chapter should be read in conjunction with other chapters of the Environmental Statement relating to Land Quality (Volume 2, Chapter 11), in particular the potential effect of pollution on controlled waters, and Ecology and Nature Conservation (Volume 2, Chapter 9) for further details of the environmental effects on water bodies.

<sup>32</sup> Department for Communities and Local Government (2012), *National Planning Policy Framework*.

<sup>33</sup> Department for Communities and Local Government, *Flood Risk and Coastal Change Planning Practice Guidance*, 2014.



---

## **Planning and Guidance**

### **National**

- 10.1.10 The NPPF replaces all existing Planning Policy Statements (PPS) and Planning Policy Guidance (PPG). The two PPSs of relevance to this technical report that have been superseded include PPS23: Planning and Pollution Control and PPS25: Development and Flood Risk and more recently the Technical Guidance to the NPPF<sup>34</sup>.
- 10.1.11 The NPPF is supported by a Planning Practice Guidance<sup>35</sup>, which focuses on Flood Risk and Coastal Change. The majority of principles defined in PPS25 concerning the management of flood risk have been carried forward in the Planning Practice Guidance, including the Sequential and Exception tests and guidelines for assessing the effect of climate change.
- 10.1.12 Given the timing of the NPPF implementation in relation to this EIA and the absence of detailed technical guidance to replace PPS23, it is deemed that they remain appropriate documents to support the assessment process.

### **Regional**

#### **South East Plan**

- 10.1.13 The regional tier of planning policy was abolished by section 109 of the Localism Act 2011. The South East Plan was partially revoked on the 25th March 2013.
- 10.1.14 The sections of the South East Plan that still stand do not affect the proposed scheme in terms of water quality, hydrology or hydrogeology.

#### **Environment Strategy for East Sussex**

- 10.1.15 The Environment Strategy for East Sussex<sup>36</sup> was developed for the East Sussex Strategy Partnership by the Environment Strategy Group, a network of organisations and individuals to help and deliver the Sustainable Community Strategy, Pride of Place.
- 10.1.16 The Environment Strategy is the adopted vision for East Sussex until 2026. There are ten environment principles for East Sussex. Principle 3 related to the water and environment.
- 10.1.17 Environment Policy 3: Protect and enhance the diverse inland, coastal and marine habitats of the county and the wildlife they support, making them more resilient to climate change, reversing biodiversity loss, and help create healthy seas and sustainable fisheries.

### **Local**

#### **Rother District Local Plan (Adopted 2006)<sup>37</sup>**

- 10.1.18 The Rother District Local Plan includes several policies specific to the water environment, including;

---

<sup>34</sup> Communities and Local Government (March 2012) Technical Guidance to the National Planning Policy Framework

<sup>35</sup> Communities and Local Government (March 2014) Flood Risk and Coastal Change Planning Practise Guidance

<sup>36</sup> East Sussex Environment Strategy Group (July 2011) Environment Strategy for East Sussex, Adopted

<sup>37</sup> Rother District Council (2006) Rother District Local Plan, Adopted July 2006

10.1.19 Policy DS1: In determining whether development is appropriate in a particular location, proposals should accord with the following principles:

- Priority is given to making best use of urban land, especially through the re-use of previously developed land/buildings;
- Best use is made of existing infrastructure, including transport, community facilities and mains drainage;
- It protects sites of recognised nature conservation importance, particularly of internationally and nationally important sites, as defined on the proposals map;
- It respects the importance of the countryside in terms of its distinct landscape character, natural resources, woodland and agriculture;
- It protects ancient woodland from development that would prejudice its ecological and landscape value; and
- It ensures that development is safe from flooding, including by restricting development in flood risk areas and not increasing such risk elsewhere.

10.1.20 Policy GD1 All development should meet the following criteria:

- It protects habitats of ecological value and incorporates, wherever practicable, features that enhance the ecological value of the site, with particular regard to wildlife refuges or corridors, or fully compensates for any necessary loss;
- The infrastructure and facilities necessary to serve the development are available, or suitable provision is made as part of the development, in accordance with policy gd2;
- It provides adequate and appropriate means for foul and surface water drainage, with suitable alleviation and mitigation measures where necessary and does not prejudice water quality; and
- It takes account of flood risk and in the areas of flood risk, as shown on the proposals map, it is expected to minimise and manage the risk to flooding.

10.1.21 Policy EM8: An extension to the Kent and East Sussex Steam Railway from Bodiam to Robertsbridge, along the route identified on the Proposals Map, will be supported, subject to a proposal meeting the following criteria:

- it must not compromise the integrity of the floodplain and the flood protection measures at Robertsbridge;
- it has an acceptable impact on the High Weald Area of Outstanding Natural Beauty; and
- it incorporates appropriate arrangements for crossing the A21, B2244 at Udiam, Northbridge Street and the River Rother.

---

## **Rother District Local Plan (2011-2028)**

- 10.1.22 The Local Plan for Rother District Council is currently in the process of being prepared, and will contain strategic objectives and Core Policies for the Borough for the next 20 years.
- 10.1.23 It is noted that the policies of the Local Plan adopted in 2006 have been 'saved' and they remain part of the statutory 'development plan'. Hence, they continue to be applied for the purposes of development management until rescinded as and when relevant policies in the new Local Plan (2011-2028) are adopted.
- 10.1.24 Policy DS1, GD1 and EM8 all mentioned previously are noted as being saved and are not planned to be changed within the Rother District Council, Local Plan Core Strategy, Schedule of Main Modification. Moreover, policies DS1, GD1 and EM8 will be placed within the Core Strategy (adoption anticipated in May 2014) as part of the Local Plan (2011-2028).

### **Guidance**

#### **Contractor Guidance**

- 10.1.25 Guidance on good practice is provided in the Construction and Industry Research and Information Association (CIRIA) manual entitled '*Control of water pollution from construction sites: Guide to good practice*'.

#### **Pollution Prevention Guidelines**

- 10.1.26 The Environment Agency has written a range of Pollution Prevention Guidance Notes (PPGs). Each PPG gives advice on the law and good environmental practice, to help reduce environmental risks from business activities. The relevant PPGs include:
- PPG1: Introducing Pollution Prevention;
  - PPG2: Above ground oil storage tanks;
  - PPG3: Use and design of oil separators in surface water drainage systems;
  - PPG4: Treatment and disposal of sewage where no foul sewer is available;
  - PPG5: Works and maintenance in or near water;
  - PPG7: Safe Storage - The safe operation of refuelling facilities
  - PPG8: Safe storage and disposal of used oils.
  - PPG6: Working at construction and demolition sites;
  - PPG13: Vehicle washing and cleaning;
  - PPG21: Pollution incident response planning; and,
  - PPG22: Dealing with spills.

### **Statutory Assessments**

#### **Catchment Management Plan Rother and Romney Catchment<sup>38</sup>**

- 10.1.27 The Scheme falls under two areas in the Rother and Romney Catchment Flood Management Plan. The CFMP identifies policy options for area of the catchment subject to varying degrees of flood risk.

---

<sup>38</sup> Environment Agency (December 2009) Rother and Romney Catchment Flood Management Plan. Summary Report

- 10.1.28 The western end of the Scheme falls into Sub Area 1 'Robertsbridge and Etchingham' of the CFMP, where Policy Option 3 'areas of low to moderate flood risk where we are generally managing existing flood risk effectively' is the vision and preferred policy for the area.
- 10.1.29 The proposed Scheme outside of Robertsbridge falls into Sub Area 6 'Rural Rother' of the CFMP, where Policy Option 6 'areas of low to moderate flood risk where we will take action with others to store water or manage run-off locations that provide overall flood risk reductions or environmental benefits is the vision and preferred policy for the area.'

### **Local Flood Risk Management Strategy**

- 10.1.30 East Sussex County Council have issued a draft of the Local Flood Risk Management strategy for 2013-2016. It is a high level, statutory document that sets out East Sussex County Council's approach to limiting the impacts of local flooding across the county. It promotes greater partnership working arrangements between those organisations with a responsibility for managing local flood risk and provides a strategic framework within which the 'Risk Management Authorities' must work.
- 10.1.31 East Sussex County Council is the Lead Local Flood Authority and the document is consistent with the Environment Agency's National Strategy for flooding and coastal erosion. The local Strategy has been prepared in partnership with a number of key stakeholders including the 'Risk Management Authorities' for East Sussex.

### **Strategic Flood Risk Assessment**

- 10.1.32 Rother District Council issued a Strategic Flood Risk Assessment (SFRA) in 2008<sup>39</sup> assessing the risk from flooding in the borough and mapping the flood risk from groundwater, surface water, sewer and river sources, and taking into account climate change.
- 10.1.33 As part of the flood risk mapping exercise, data was collected from the Environment Agency, Rother District Council, Southern Water, South East Water and British Waterways (which is now The Canal and River Trust).

### **Surface Water Management Plan**

- 10.1.34 A Surface Water Management Plan (SWMP) is being prepared by East Sussex District Council in conjunction with neighbouring boroughs and the county council. However it will only cover Eastbourne area, as it is felt that this location requires a surface water management plan. As such the SWMP is not directly applicable to the proposed Scheme.

### **Preliminary Flood Risk Assessment**

- 10.1.35 East Sussex County Council released a Preliminary Flood Risk Assessment (PFRA) in June 2011. The PFRA includes an assessment of flooding from Ordinary Watercourses, surface runoff, groundwater and artificial water bodies.

---

<sup>39</sup> Rother District Council (2008) Strategic Flood Risk Assessment for Level 1 – Final

## 10.2 Methodology

- 10.2.1 Potential receptors and types of effect (construction and operational phases of the development, adverse/beneficial, permanent/temporary) have been identified.
- 10.2.2 Effect criteria are derived from legislation, guidelines and other published standards, together with any statutory or non-statutory designations. The reporting of potential effects is based on the system presented in the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3: Road Drainage and the Water Environment, which includes an assessment of the magnitude of an effect on an attribute (receptor designation), and the importance of the attribute, as well as the 'vulnerability classifications' in the NPPF for classifying the importance of receptors at risk of flooding.
- 10.2.3 The magnitude of effect (including residual effect) on an attribute has been estimated using the scale shown in **Table 10.1**.

**Table 10.1 - Magnitude Matrix**

| Magnitude           | Criteria   |
|---------------------|--|
| Major Adverse       | Results in loss of attribute and/or quality and integrity of the attribute   |
| Moderate Adverse    | Results in effect on integrity of attribute, or loss of part of attribute  |
| Minor Adverse       | Results in some measurable change in attributes quality or vulnerability   |
| Negligible          | Results in effect on attribute, but of insufficient magnitude to affect the use or integrity<br>The proposed scheme is unlikely to affect the integrity of the water environment |
| Minor Beneficial    | Results in some beneficial effect on attribute or a reduced risk of negative effect occurring  |
| Moderate Beneficial | Results in moderate improvement of attribute quality   |
| Major Beneficial    | Results in major improvement of attribute quality  |

- 10.2.4 The importance of an attribute is ranked from 'Very High' to 'Negligible' in accordance with the criteria set out in **Table 10.2**.

**Table 10.2 - Importance Matrix**

| Importance | Criteria  | Typical Examples   |
|------------|---|--|
| Very High  | Attribute has a high quality and rarity on regional or national scale | Surface Water: EC Designated Salmonid/Cyprinid fishery<br>WFD Class 'High'<br>Site protected/designated under EC or UK habitat legislation (SAC, SPA, SSSI, WPZ, Ramsar site, salmonid water)/Species protected by EC legislation<br><br>Groundwater: Principal aquifer providing a regionally important resource or supporting site protected under EC and UK habitat Legislation<br>SPZ1 |

| Importance    | Criteria   | Typical Examples  |
|---------------|--|---|
|               |  | Flood Risk: Essential Infrastructure or Highly vulnerable development   |
| <b>High</b>   | Attribute has a high quality and rarity on local scale   | <p>Surface Water: WFD Class 'Good'<br/>Major Cyprinid Fishery Species protected under EC or UK habitat legislation</p> <p>Groundwater: Principal aquifer providing locally important resource or supporting river ecosystem<br/>SPZ2</p> <p>Flood Risk: More vulnerable development</p> |
| <b>Medium</b> | Attribute has a medium quality and rarity on local scale | <p>Surface Water: WFD Class 'Moderate'</p> <p>Groundwater: Aquifer providing water for agricultural or industrial use with limited connection to surface water<br/>SPZ3</p> <p>Flood Risk: Less vulnerable development</p>  |
| <b>Low</b>    | Attribute has a low quality and rarity on local scale    | <p>Surface Water: WFD Class 'Poor'</p> <p>Groundwater: Unproductive strata</p> <p>Flood Risk: Water-compatible development</p>  |

10.2.5 The overall significance of an effect is determined by measuring the magnitude of effect against (see Table 10.3):

- The number and activities of the population affected;
- The importance of the receptor; and
- The type of effect (adverse/beneficial).

**Table 10.3 - Significance Matrix**

| IMPORTANCE OF<br>ATTRIBUTE | Very High | Neutral    | Moderate/Large  | Large/Very Large | Very Large       |
|----------------------------|-----------|------------|-----------------|------------------|------------------|
|                            | High      | Neutral    | Slight/Moderate | Moderate/Large   | Large/Very Large |
|                            | Medium    | Neutral    | Slight          | Moderate         | Large            |
|                            | Low       | Neutral    | Neutral         | Slight           | Slight/Moderate  |
|                            |           | Negligible | Minor           | Moderate         | Major            |
| MAGNITUDE OF IMPACT        |           |            |                 |                  |                  |

10.2.6 The effect of the proposed development has been summarised in a Summary Effects Table. For each residual effect identified, the table describes:

- The effect;
- The geographical extent (local, regional, national or international);
- The duration (temporary or permanent) with mitigation;



- The importance (Very High, High, Medium, or Low);
- The magnitude (Major, Moderate, Minor, Negligible); and
- The positive or negative nature of the effect (adverse or beneficial).

## Consultation

- 10.2.7 As part of the scoping opinion provided by RDC, formal responses were received from the Environment Agency on the 25th November 2013, setting out the relevant requirements for assessing the effect of the railway line on a number of environmental issues.
- 10.2.8 In the context of the water and the environment, the Environment Agency confirmed the following from the Scoping and Methodology Report:
- The Environment Agency and Capita have been working together in developing the FRA and that the Scheme does not increase flood risk elsewhere.
  - Potential contamination could be present on the land and any pathways for contamination must be strictly controlled to avoid pollution to any watercourses.
  - Any foul drainage and surface water drainage that is required should be considered early in the planning process with the Environment Agency.
- 10.2.9 In addition, amendments have been made to the Flood Risk Assessment and Hydrology and Hydraulic modelling reports to address comments in the Environment Agency consultation response. Details of these can be found in the Capita Flood Risk Assessment and Modelling Report (**Volume 3, Report 4**).
- 10.2.10 A Water Framework Directive Assessment report has been prepared, and as part of this work, the Environment Agency has been consulted regarding water quality in the River Rother (**Volume 3, Report 5**).
- 10.2.11 For details of consultation with the Environment Agency and other statutory authorities on other topics, the relevant chapters of the ES should be referred.

## 10.3 Baseline

### Receptors

- 10.3.1 The predominant land use in the area crossed by the proposed Scheme is agricultural. Agricultural land is classified as 'less vulnerable' development by the NPPF and is therefore of Medium importance.
- 10.3.2 The village of Robertsbridge is located at the western extent of the proposed Scheme. Receptors in Robertsbridge include:
- Industrial/business units on Station Road. These units are classified as 'less vulnerable' development (Medium importance) and are shown in defended Flood Zone 3. The flood defences protecting these units appear to be constructed as a masonry wall, and there is a flood gate at the entrance off Station Road. The units are protected from flooding.
  - Electrical substation north of Station Road. The electrical substation is considered 'essential infrastructure' (Very high importance) and is located in Flood Zone 3. The flood defences protecting the industrial/business units north of Station Road (see above) are located behind (west) the substation and the substation is not defended against flooding.
  - Mixed-use commercial and residential properties west and east of the High Street. Although commercial properties are considered 'less vulnerable', this group of properties

will be assessed in terms of the high importance residential properties ('more vulnerable' development and High importance). These properties are located in Flood Zone 3 except for the pumping station (Flood Zone 2) and both benefit from the presence of flood defences (defended Flood Zone 3).

- Mixed-uses along The Clappers, including the museum ('less vulnerable' – Medium importance), sports pavilion ('water compatible' - low importance), Southern Water pumping station (very high vulnerability-Very High importance) and the Bungalow ('more vulnerable' – High importance). These properties are located in undefended Flood Zone 3 and are at a risk of flooding.
- Mill site west of The Clappers/Northbridge Street. The Mill site is commercial and considered 'less vulnerable' (High importance) development. The Mill site is located in Flood Zone 3, and although there is a flood defence wall offering protection to this property, the Environment Agency Flood Zone Maps do not show this area of floodplain as defended. The site is deemed to be defended from flooding.
- Residential properties along Northbridge Street. The residential properties are considered 'more vulnerable' (High importance) development. The properties lie within Flood Zone 3 and although there is a flood defence wall offering protection to this property, the Environment Agency Flood Zone Maps do not show this area of floodplain as defended. The receptor is deemed to be defended from flooding but not to the statutory defence standard.

- 10.3.3 East of Robertsbridge, at the confluence of the Mill Stream and River Rother, an electrical substation and pumping station are both located in Flood Zone 3. Both these developments are classed as essential infrastructure and have a Very High importance. It is unknown if these receptors have their own flood defences but they are not defended by Environment Agency flood defences.
- 10.3.4 East of Robertsbridge there is a farm and a number of residential properties known as Redlands that are located within Flood Zone 3. The residential properties are considered 'more vulnerable' (High importance) development. These properties are not defended from flooding. Any increase in extent of flooding could increase the risk of flooding to these existing properties.
- 10.3.5 The properties and farm located at Robertsbridge Abbey are positioned on the edge of Flood Zone 2 and Flood Zone 3 and any increase in extent of flooding in this area could increase the risk of flooding to these existing properties. The residential properties are considered 'more vulnerable' (High importance development) and are not defended from flooding.
- 10.3.6 Forge Farm, once a working farm was last used in 2000 as a mixture of distribution, office and industrial processes associated with Compass Farm Feeds and Compass Pet Products. The site has lain derelict till planning permission in 2009 was granted to demolish the building and to construct light industrial or ancillary office space on the site. The planning permission has now lapsed and no buildings have been constructed on the site however the existing buildings were demolished. Taking the last used for the site, 'less vulnerable' (medium importance). The site is located in Flood Zone 3. The farm is not defended from flooding.
- 10.3.7 Udiam Cottages, located on Junction Road are within Flood Zone 2 and Flood Zone 1. The residential properties are considered 'more vulnerable' (High importance development) and are not defended from flooding. Any increase in extent of flooding could increase the risk of flooding to these existing properties.

- 10.3.8 Park Farm is used as a summer camping ground and its most southerly camping area is located within Flood Zone 2 and Flood Zone 3. Camping sites are considered 'more vulnerable' as the site is used for short-let caravans and camping 'subject to a specific warning and evacuation plan'<sup>40</sup>. Park Farm campsite is therefore classed as a high importance development and is not defended from flooding.

### **Hydrology**

- 10.3.9 According to the UK Hydrometric Register (2008) there are a number of gauging stations along the River Rother. There is one station directly downstream from the Proposed Development in Udiam. The station at Udiam records that the catchment's geology is mainly Wadhurst series (very limited permeability) with substantial tracts of Ashdown Sands.
- 10.3.10 The catchment is mainly rural with significant woodlands and scattered settlements with 46% of the catchment being grassland while only 1% is urban.
- 10.3.11 The UK Hydrometric Register notes that the River Rother along this stretch is influenced by artificial regimes from the offtake from the Darwell Reservoir (upstream of the Proposed Development) and sewage effluent in Robertsbridge.
- 10.3.12 Flows for the River Rother have a mean flow of 2.16m<sup>3</sup>/s at the Udiam station and Q95 (an indicator of river water quality conditions) of 0.18m<sup>3</sup>/s. A recorded peak flow of 65.7m<sup>3</sup>/s was on the 12th October 2000.

### **Flood Risk**

#### **Historical Records of Flooding**

- 10.3.13 There are records of the River Rother overtopping its banks along this reach in 1946, 1960, 1979, 1985, 1999 and 2001 as recorded in the Rother SFRA. The East Sussex PFRA show that nine records of sewer flooding in Robertsbridge and Salehurst. In addition, it states that due to the marshy conditions of Robertsbridge, there have been records of groundwater flooding in the area.
- 10.3.14 Further details are provided in the Flood Risk Assessment (FRA) and Hydraulic Modelling report (**Volume 3, Report 4**).

#### **Fluvial Flooding**

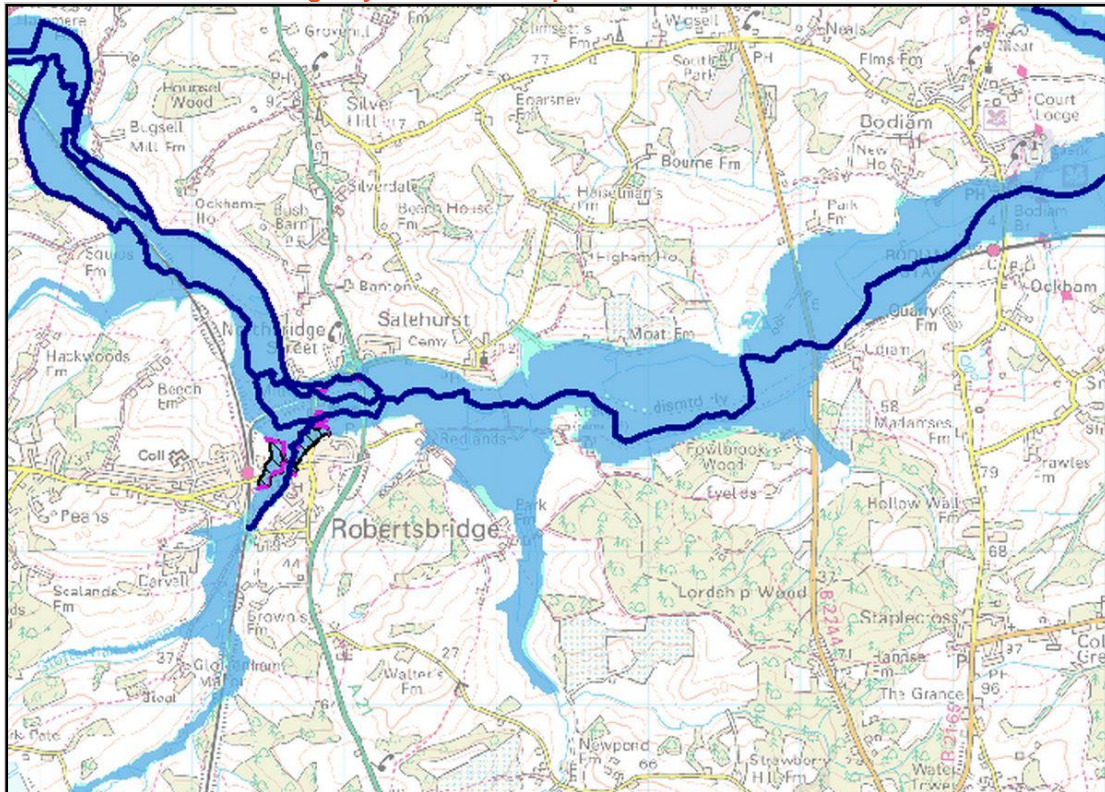
- 10.3.15 A full FRA has been undertaken by Capita for the proposed Scheme, which includes assessment of the risk of flooding from all sources identified in NPPF. The FRA concludes that the risk of flooding from sources such as tidal, groundwater, overland flow, surface water (pluvial flooding) and artificial water bodies is considered 'low'.
- 10.3.16 The only source of flooding considered as potentially 'high' risk is fluvial flooding from the River Rother.
- 10.3.17 Sections of the proposed railway lie within areas that are at potential risk of fluvial flooding from the River Rother according to the Environment Agency Flood Zone maps. In October 2004, the Environment Agency released updated floodplain maps for the UK based on the 'JFLOW' project, a two-dimensional hydraulic modelling project.

<sup>40</sup> Planning Statement, 2009, Kember Loudon Williams Ltd: Planning Application RR/2009/1463/P

([http://ocellaweb.rother.gov.uk/portal/pls/portal/ROTHERWEB.RPT\\_DETAILS.show?p\\_arg\\_names=reference&p\\_arg\\_values=RR/2009/1463/P](http://ocellaweb.rother.gov.uk/portal/pls/portal/ROTHERWEB.RPT_DETAILS.show?p_arg_names=reference&p_arg_values=RR/2009/1463/P)) retrieved on 11/11/2013

- 10.3.18 **Plate 10.1** shows the latest Flood Zone Map local to the site. The floodplain indicated in dark blue is the area that may be affected by the 1 in 100 year fluvial flooding event, neglecting the influence of any flood defences in the area. This is categorised by the Environment Agency as Flood Zone 3. The light blue colour shows the additional extent of an extreme flood (greater than 0.1% probability in any year), and is categorised as Flood Zone 2.
- 10.3.19 The Environment Agency has confirmed that there are flood defence assets in the area. The FRA comments that the flood defences ‘are in the form of raised permanent flood walls/bunds along the river and a number of moveable gates that can be used to create temporary flood walls’. In addition, the FRA states that ‘*Pumps were also added to the scheme to deal with runoff resulting from incident rainfall within the defended area which was no longer able to connect directly back into the river due to the flood defences blocking flow. These pumps facilitate the removal of water from within the defended area back into the river.*’
- 10.3.20 The FRA states that the ‘*pumps on the Mill Stream also convey high flows over the defences and back into the Rother*’<sup>41</sup>.

**Plate 10.1 - Environment Agency Flood Zone Map**



<sup>41</sup> Environment Agency 2011, River Rother Final Hydraulic Modelling, ABD and Hazard Mapping Report, Hyder



- 10.3.21 In order to more accurately quantify the risk of flooding from the River Rother a detailed hydrological study of the catchments, and hydraulic modelling of the river has been undertaken.
- 10.3.22 The Environment Agency held a hydraulic model of the River Rother completed by Hyder in 2011. The model was amended as part of the Flood Risk Assessment to incorporate key elements of the scheme, which are detailed within the modelling report (**Volume 3, Report 4**).
- 10.3.23 Flood Water Levels for the 1 in 100 + 20% event at key nodes upstream of the three proposed and two existing bridge locations are presented in Table 10.4. The modelled extent of flooding for various return period events is shown in the Flood Risk Assessment (**Volume 3, Report 4**).

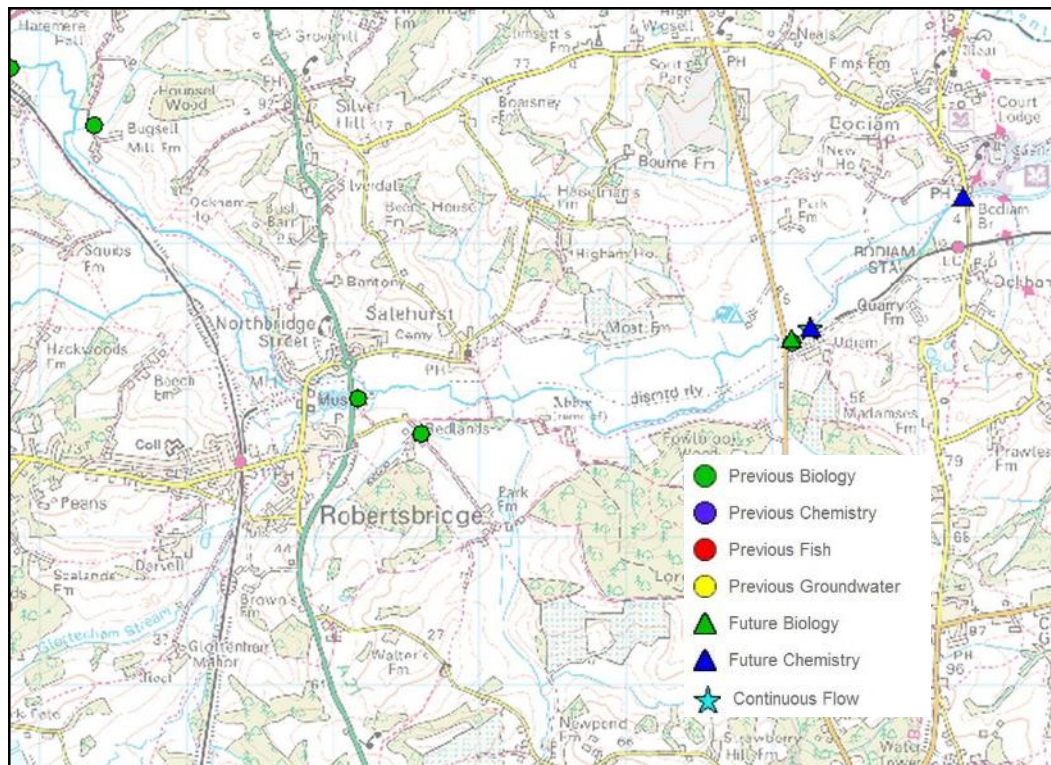
**Table 10.4 - Modelled Flood Water Levels for Existing Scenario (m AOD)**

| Location                                    | Modelled flood water levels (m AOD) |              |              |                                     |
|---|-------------------------------------|--------------|--------------|-------------------------------------|
|   | 1 in 5 year                         | 1 in 50 year | 1 in 75 year | 1 in 100 year (plus climate change) |
| Industrial/business units on Station Road   | 11.30                               | 11.83        | 11.98        | 12.24                               |
| Electrical Substation north of Station Road | 11.24                               | 11.77        | 11.92        | 12.14                               |
| High Street                                 | 11.24                               | 11.77        | 11.92        | 12.14                               |
| The Clappers                                | N/A                                 | 11.86        | 12.03        | 12.29                               |
| The Mill site                               | 11.35                               | 11.81        | 12.03        | 12.28                               |
| Robertsbridge Abbey                         | 7.19                                | 7.36         | 7.40         | 7.5                                 |

### Water Quality

- 10.3.24 The River Rother is classified by the Environment Agency under the Water Framework Directive. The current overall potential is 'Moderate', with a target overall objective of 'Good' by 2027.
- 10.3.25 The physio-chemical quality of the River Rother has been classed as 'Good' while specific pollutants are classed at 'High'. The overall potential for the River Rother by 2015 is to remain unchanged from the classification that the Environmental Agency established for the River Rother in 2009.

**Plate 10.2- Water Framework Directive EA Water Sampling Locations on the River Rother**



10.3.26 The Environment Agency Current Quantitative Quality of the Groundwater is 'Poor'.

10.3.27 Further details on previous site investigations, groundwater and surface water quality monitoring have been included in the PQLRA Report (**Volume 3, Report 6**).

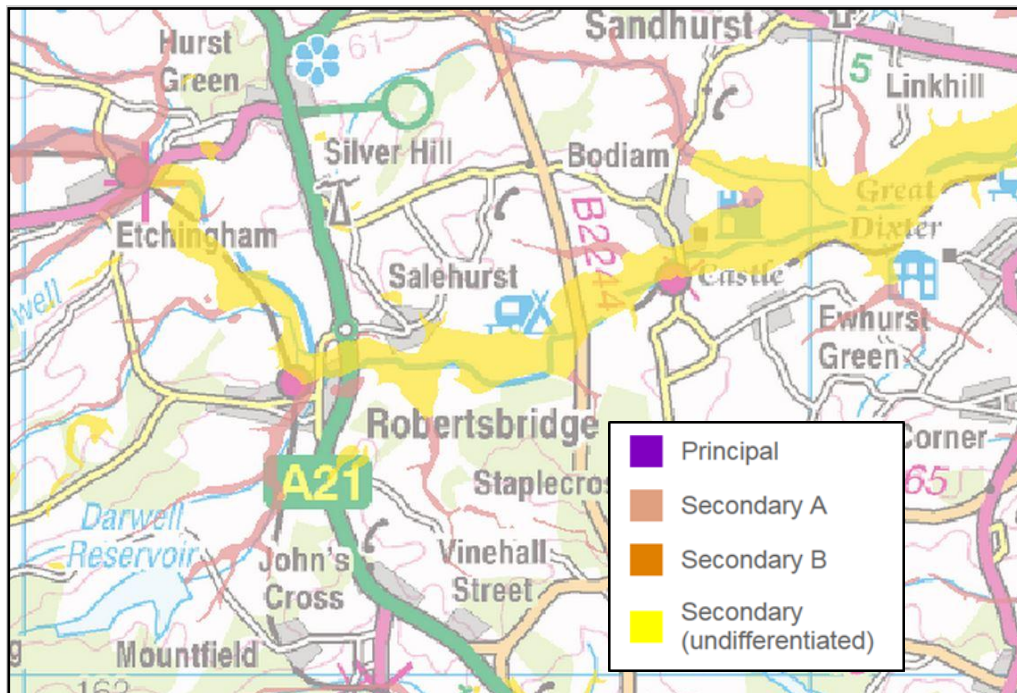
10.3.28 The Scheme has potential to impact both ground and surface water bodies in the area. Therefore, a full Water Framework Directive Assessment has been undertaken. This is provided in **Volume 3, Report 5**.

### Hydrogeology

10.3.29 The Environment Agency maps **Plate 10.3** show that the superficial geology is inconsistent with Secondary (undifferentiated) Aquifer along the respective valleys. Secondary (undifferentiated) Aquifer, defined as '*has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.*'

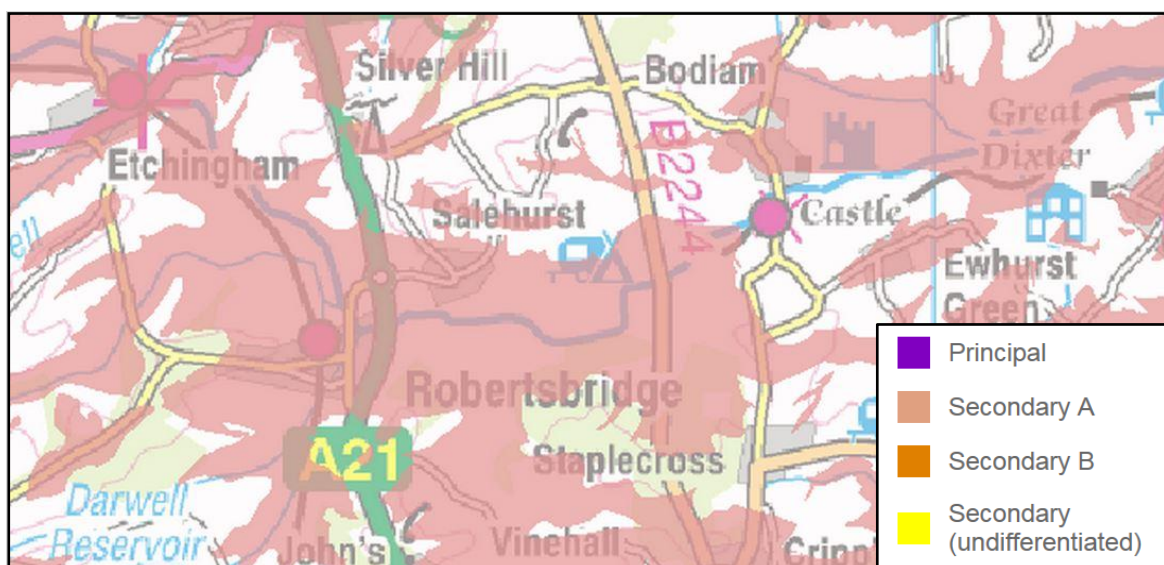


Plate 10.3- Environment Agency Aquifer Map in the Superficial Deposits



- 10.3.30 The bedrock geology in this area is generally classified as a 'Secondary A' aquifer which mean *'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.'*
- 10.3.31 The FRA reports that groundwater flooding is most likely to occur in low lying areas underlain by permeable rocks and the risk of groundwater flooding to the Scheme is low.

Plate 10.4 - EA Aquifer Map in the Bedrock Geology



- 10.3.32 The British Geological Survey (BGS) online surface geology maps show that the Proposed Scheme is situated within the bedrock of the Ashdown Formation. The Ashdown formation is a form of sandstone and siltstone, which can support groundwater. The superficial deposits are classed as alluvium, which also support groundwater.
- 10.3.33 There are no BGS borehole records on the Proposed Scheme alignment; however there are boreholes in the vicinity of the Scheme in Robertsbridge and Udiam. These borehole records identify the presence of groundwater at approximately 75m below ground level in Robertsbridge and approximately 3m below ground level in Bodiam.
- 10.3.34 The PLQRA also confirms these findings for the Ashdown formation and alluvium.

## **10.4 Predicted Effects**

### **Construction**

- 10.4.1 Construction of Underbridge 6 and Underbridge 12 would require sheet piles of 15m depth, forming a caisson with a concrete plug. On top of the concrete plug will be the in-situ ballast wall which will support the bridge span and tracks. It has been assumed that Underbridge 16, 17, 24 will require similar groundworks to Underbridge 6 and 12.
- 10.4.2 Temporary works would be required in, and adjacent to the watercourse at Underbridges 6, 12, 16, 17 and 24.
- 10.4.3 Culverts are to be constructed utilising pre-cast concrete units, with appropriate water management methods employed during in-channel installation.

### **Flood Risk**

- 10.4.4 The reconstruction of the railway embankment from The Clappers to east of Salehurst will have an effect on flood risk. The embankment will create a barrier across the northern floodplain of the River Rother to floodwaters on the northern side of the River Rother from stretching across the full floodplain. The floodwater will then be forced in another direction, further upstream, downstream but also further across the southern floodplain of the River Rother. If the floodwater levels are high enough floodwater will be able to overtop the railway minimising backup of water behind the railway.
- 10.4.5 The construction of new bridge crossings and a replacement bridge has the potential to temporarily obstruct flows in the River Rother.
- 10.4.6 Culverted crossings are to be constructed using precast units, either 750mm diameter pipes, or box culverts (1500mm or 3000mm wide). These will require temporarily diverting the watercourses to be crossed whilst the culverts are installed and diverting the flow back through the culverts on completion.

### **Surface Water**

- 10.4.7 The proposed railway line will cross primarily rural farmland which is considered 'Greenfield'. The railway line introduces semi-impermeable surfaces and would require formal surface water drainage systems. The Scheme therefore has the potential to increase surface water run-off rates and volumes temporarily during construction and permanently once the line is operational.
- 10.4.8 However, the FRA states that there will be no significant change in surface water runoff from reinstating the railway or when it is being constructed. The railway track will be constructed upon a permeable base, which will not cause significant effects to the surface water runoff. In

addition the culverts and viaducts will be constructed at the same time as the ballast, which will allow surface water to flow through the track.

### **Water Supply/Water Resources**

- 10.4.9 Dewatering may be required in order to construct the bridge foundations, which has the potential to alter groundwater levels and flows. Abstraction of water from watercourses during dry periods can reduce the water level and flow, and affect fauna and flora reliant on water supplies.

### **Water Quality**

- 10.4.10 Works in and adjacent to watercourses have the potential to increase sedimentation and alter the chemical and ecological quality of a water body if discharged untreated.
- 10.4.11 The watercourse crossings will comprise of recycled steel bridges on piled foundations and on shallow foundations. Constructing the pile foundations for Underbridge 6 and Underbridge 12 potentially provides a pathway for pollutants on the surface to migrate into the controlled waters.
- 10.4.12 Surface water runoff from associated construction activities and compounds, such as access roads, washing vehicles and storage of materials may contain pollution, which could affect the water quality of receiving water bodies.
- 10.4.13 Accidental leaks or spills of fuels, oils and chemicals can potentially enter watercourses, causing pollution of the receiving water environment.

### **Groundwater**

- 10.4.14 Temporary works associated with the construction have the potential to intercept and obstruct groundwater flow; however, below-ground temporary works will be limited in number of occurrences and scale. Therefore, there is unlikely to be an effect on groundwater flow or level from the temporary works.
- 10.4.15 Construction within the groundwater also provides a direct path for contaminants mobilised by the excavation to enter controlled waters. The potential effects of leaching from displaced soils, thereby releasing contamination and silt, are dealt within the PLQRA (**Volume 3, Report 5**).

### **Operation**

### **Flood Risk**

- 10.4.16 Two new 10m clear-span crossings of the River Rother and its tributaries will be constructed. The track will be primarily on embankment upstream and downstream of the proposed river crossings, which could obstruct flood flows, potentially increasing flood risk upstream of the embankments.
- 10.4.17 Climate change and the reintroduction of railway embankments in the floodplain generally increases the flood water levels upstream of the structures. **Table 10.5** presents the modelled flood water levels (m AOD) at each receptor in a range of return period events.
- 10.4.18 Raised embankments in the floodplain result in a loss of floodplain storage and obstruction of flood flows. The modelling undertaken as part of the FRA show that the Proposed Scheme will result in a small increase in fluvial flood risk and therefore mitigation is required.

**Table 10.5 - Modelled Flood Water Levels for post-development scenario**

| Location                                    | Modelled flood water levels [m AOD]<br>Difference (+/-) from existing shown in brackets [mm] |              |              |                                     |
|---|--|--------------|--------------|-------------------------------------|
|   | 1 in 5 years   | 1 in 50 year | 1 in 75 year | 1 in 100 year (plus climate change) |
| Industrial/business units on Station Road   | 11.31 (10)   | 11.84 (10)   | 11.99 (19)   | 12.25 (10)                          |
| Electrical Substation north of Station Road | 11.25 (10)   | 11.77 (0)    | 11.94 (20)   | 12.15(20)                           |
| High Street                                 | 11.25 (10)   | 11.77 (0)    | 11.94 (20)   | 12.15(10)                           |
| The Clappers                                | N/A  | 11.81(0)     | 11.98(20)    | 12.21(20)                           |
| The Mill site                               | 11.38 (20)   | 11.87(10)    | 12.05(20)    | 12.31(10)                           |
| Robertsbridge Abbey                         | 7.01 (-18)   | 7.33(-30)    | 7.39 (-10)   | 7.52(20)                            |

## Surface Water

- 10.4.19 The FRA states that the re-instatement of the railway is at low risk from surface water flooding. Culverts and sections of viaducts will maintain connectivity across the floodplain and will also act as flow paths for surface water. Moreover, the areas upstream of the development will not be affected by increased surface water from the proposed development according to the FRA.

## Water Quality

- 10.4.20 The piled foundations of the new bridge structures would remain as preferential pathways for contamination to migrate into the groundwater from the surface or from contamination in the soil. This could have an effect on the quality of groundwater.
- 10.4.21 The PLQRA (**Volume 3, Report 6**) concludes that existing contamination from the land beneath the electrical transformers, waste from embankments and contaminated ballasts could potentially contain contamination and measures should be taken to not allow or encourage pathways for the potential contamination to spread into any waterbodies.

## Groundwater

- 10.4.22 The FRA states that '*the proposed railway is considered at low risk of groundwater flooding*'. This is due to the route being generally higher than the surrounding ground.'

## Cumulative Effects

- 10.4.23 In order to assess the cumulative effect of development in the local area, the Rother District Local Plan (Adopted 2006) has provided details of potential developments in the borough. In addition relevant planning applications provided by the Council have also been considered. Some of the proposed development areas should be considered cumulatively with the RVR Scheme. In particular to Water, Hydrology and Hydrogeology, either upstream or downstream of the proposed scheme, as follows:



---

### **Policy VL7-Land at Grove Farm, Robertsbridge**

- 10.4.24 The proposed development land amounts to some 0.9 ha located east of The Clappers, south of the proposed scheme by over 600m. The Local Plan states that proposals for this site would be permitted if at least 30 dwellings are provided.
- 10.4.25 The site is outside of the River Rother flood zone and if any development on this site satisfies the relevant planning policy and NPPF 25 respectively, there would be no cumulative effects with the Scheme.

### **(RR/2013/2380/P)-Land Adjacent to Culverwells, Robertsbridge**

- 10.4.26 The site of this planning application has a gentle slope with a total area of some 2.0 hectares. It is located adjacent to the existing RVR to the north and east where the railway joins the mainline track into Robertsbridge Station. Rother District Council will allow development on this site if it consists mainly of employment use, but with an enabling element of housing development with at least 14 dwellings, at a density of not less than 30 dwellings per hectare. Residential and business uses on the site are to be developed at the same rate.
- 10.4.27 The potential development site lies partially within the Flood Zones 2 and 3. The current planning application is for 17 dwellings and 1300m<sup>2</sup> of B1 commercial units. As long as any proposed development on the site meets the requirements of the council and the Environment Agency as set out by relevant planning policy and NPPF 25 respectively there would be no cumulative effects with the Scheme.
- 10.4.28 There are no planning applications that could be affected by the Proposed Scheme in terms of Water, Hydrology and Hydrogeology, either upstream or downstream of the proposed scheme.

## **10.5 Mitigation**

### **Flood Defence Consent**

- 10.5.1 Under Section 23 of the Land Drainage Act, and Section 109 of the Water Resources Act, prior written consent is required from the Environment Agency for erection of any structure within an Ordinary Watercourse or Main River.
- 10.5.2 From April 2012, the Lead Local Flood Authority (LLFA) will become the consenting authority for works within an Ordinary Watercourse. The Environment Agency will remain the Consenting Authority for Main Rivers.
- 10.5.3 The River Rother is a Main River, and therefore consent would be required from The Environment Agency for all crossings of the River Rother. The small tributaries to the River Rother are ordinary watercourses and are owned by Rother District Council or are ditches that come under the jurisdiction of Salehurst and Robertsbridge Parish Council.
- 10.5.4 Consent is required for both temporary crossings and works in watercourses during construction, as well as for the design of the permanent structures.
- 10.5.5 Discharges into surface waters and groundwater are controlled by the Environmental Permitting Regulations (England and Wales) 2010.

---

## Construction

- 10.5.6 All mitigation requirements would be incorporated into the draft Construction Environmental Management Plan (**Volume 2, Appendix 4**), which would form part of the contractors construction plan.

### Flood Risk

- 10.5.7 Consideration must be given during construction to the possibility of flooding, and precautions taken to ensure that construction works can pass flood water without obstruction.
- 10.5.8 Temporary works would be required in the channel during construction of the crossings, but provided precautions are taken to minimise the scale and timescales of these works, the effect on the extent and depth of flooding in a 1 in 100 year flood event during construction is considered negligible. Temporary river diversions may also be required to 'dewater' areas and enable construction.

### Water Quality

- 10.5.9 Construction would be carried out in accordance with relevant Best Practice guidance, including the Environment Agency Pollution Prevention Guidelines, in particular:
- PPG1: Introducing pollution prevention;
  - PPG5: Works and maintenance in or near water;
  - PPG6: Working at construction and demolition sites;
  - PPG21: Pollution incident response planning; and
  - PPG22: Dealing with spills.
- 10.5.10 Runoff from construction activities would be separated into 'contaminated' water (sewage and/or trade effluent) which would receive appropriate treatment before discharge to a suitable water body, and 'uncontaminated' water (drainage from roof or clean yard areas) which can be discharged directly to a water body.
- 10.5.11 Trade effluent includes runoff from vehicle and plant washing, contaminated hard surface runoff, excavations and foundation dewatering. Discharge of treated, contaminated water requires a Permit from the Environment Agency.
- 10.5.12 Petrol, oil and chemicals would be stored out of the floodplain, and preferably above ground to minimise the risk of pollution from spills and leaks. Vehicles and plant would be washed in a dedicated, contained washing area with runoff collected and either treated and discharged to a water body with an Environmental Permit, or discharged to a foul sewer subject to agreement from the Sewerage Undertaker.
- 10.5.13 Good site practice during construction would ensure that pathways for pollutants are minimised.
- 10.5.14 Mitigation measures specific to minimising leaching of contamination and silt from displaced soils during construction are also discussed in the PLQRA (Volume 3, Report 6).

### Groundwater

- 10.5.15 Dewatering may be required for the construction of the two underbridges (Underbridge 6 and 12) to keep the works dry to allow excavation.

## Operation

### Flood Risk



- 
- 10.5.16 The track will be on embankment. Embankment levels have been designed as near to existing ground levels as possible and to connect into levels on existing disused sections of the embankment. The Proposed Scheme will be at risk of flooding and further details are reported in detail in the FRA (**Volume 3, Report 4**).
- 10.5.17 The embankments result in a loss of floodplain storage and bridge crossings will impact on the mechanisms of flooding. Section 4.5 of the FRA reports that the Proposed Scheme will increase flood water levels in a range of return period flood events. The FRA concludes that it is proposed to raise the flood defences in Robertsbridge. Raising the defences will therefore improve the standard of protection to the 1 in 100 year return period plus climate change for the properties along Northbridge Street.
- 10.5.18 The embankments result in a small loss of floodplain storage and bridge crossings will impact on the mechanisms of flooding. The Flood Risk Assessment has identified that the defences at Northbridge Street would overtop in the existing ('baseline') 100 year flood event; while all the Robertsbridge defences would be overtopped in the baseline 100 year plus 20 % climate change event. The post development ('with railway') scenario established that the defences at Northbridge Street would overtop for the 100 year event, while the defences at the Clappers would not overtop but flood water levels would be within a few centimetres of the crest level. Once climate change was taken into consideration and peak flows were increased by 20%, the modelling shows that defences at Northbridge Street and the defences within Robertsbridge would be overtopped in the 'with Railway' scenario (post development 100 year plus 20% climate change).
- 10.5.19 RVR has engaged with the Environment Agency about the potential mitigation measures that could be implemented in order to mitigate against climate change and the reinstatement of the railway. It has been proposed by RVR that the existing flood defences within Robertsbridge could be raised to ensure protection in the post development (with railway) 1 in 100 year plus 20% climate change event.
- 10.5.20 At present there are properties in and near Robertsbridge that are undefended; the museum, pavilion (both west of The Clappers), commercial building on the undefended side of the Environment Agency defences on Station Road, properties at Robertsbridge Abbey, Udiam Cottages, Forge Farm and Park Farm. These properties are at risk of fluvial flooding at present, and there are no plans by RVR or the Environment Agency to defend these properties.
- 10.5.21 RVR have proposed to joint fund improvements to the existing flood defences with the Environment Agency in order to bring them up to the 1 in 100 year plus 20% climate change standard and to mitigate any adverse effects caused by the reinstatement of the railway. The Environment Agency are supportive of this approach and have given a commitment that they will endeavour to include the works within their future budget. Discussions are on-going to define the enhancement required to the protection, the estimated costs and the responsibilities for implementation. However, given that funding for the defence works has not been allocated at this time and the works to the defences is not committed, it is not possible to define the proposed mitigation as being incorporated within the Scheme. Therefore, for the purposes of this assessment, raised flood defences have not been included in the assessment.
- 10.5.22 The FRA states that the post development plus mitigation scenario will not increase surface water flood risk to other areas or the development itself.

---

## Water Quality

- 10.5.23 Surface water runoff management of the scheme and the potential water quality impacts from surface water leaching through potentially contaminated embankments and holt should to be discussed with the Environment Agency.

## Groundwater

- 10.5.24 The FRA states that the site post development plus mitigation would not increase groundwater flooding elsewhere or on the development itself.

## 10.6 Residual Effects

### Flood Risk

- 10.6.1 The railway embankments would cause an obstruction to flood flows, and hydraulic modelling shows that, in the absence of mitigation, the depth and extent of flooding would increase following the reinstatement of the railway. However, culverts and viaducts have been incorporated within the design to reduce flood risk and allow water to flow through the embankments.
- 10.6.2 Despite this, the proposed railway will result in a permanent minor increase in flood water levels, as shown in **Table 10.5**. For the purposes of this ES, the effects are assessed in terms of the 1 in 100 year + 20% event as the 'design' flood. Given that the mitigation of raising flood defences is not committed as part of the proposed development at this stage, assessment of the residual effects on the risk of fluvial flooding remains as though no mitigation is to be implemented. With reference to the receptors identified in Section 10.5:
- Industrial/business units on Station Road. There will be a 10mm increase in the 1 in 100 year + 20% flood water level at the industrial/business units and therefore a Minor adverse impact on a Medium importance receptor resulting in a Slight, and therefore not significant adverse effect on the receptor in terms of fluvial flood risk. Although, there is a minor increase in flood risk to these units from the development of the railway, the FRA concludes that the 1 in 100 year + 20% flood water level at these properties is approximately 1m above the property threshold levels and would therefore be flooded to a significant depth in the current scenario.
  - The electrical substation is located between two nodes in the hydraulic model (NDA4851n and NDA5181D). The results of the modelling show a 10mm increase in flood risk at node NDA4851n and at Station Road in a 1 in 100 year + 20% event (Minor adverse impact). As the substation is essential infrastructure (Very High importance) a minor impact results in a Moderate/Large and Significant effect. However, the electrical substation does not benefit from Environment Agency flood defences and depending on any flood resilience measures incorporated into the electrical substation it is expected to be flooded to a significant depth and the operation may be hampered anyway in the existing scenario.
  - Along the High Street, the hydraulic model predicts a 10mm increase in the 1 in 100 year + 20% flood water level which results in a Slight/Moderate (and therefore potentially Significant) adverse effect on residential properties, as well as a Slight (not Significant) effect on commercial/business properties (any 'less vulnerable' development). The properties on the High Street therefore have a heightened risk from flooding from the development of the railway, however, the 1 in 100 year + 20% flood water level varies within the channel west of the High Street and depending on the exact location the defences may or may not be overtopped in both the existing and post development

scenario. In the worst case at the southern end of the High Street the defences would be overtopped by 40mm in the existing case, rising to 50mm post development. Therefore the overall effect is not considered Significant.

- At The Clappers there will be a 20mm increase in the 1 in 100 year + 20% flood water level (Minor magnitude of impact). The receptors in this area include the Bungalow (High importance) and the effect on this property is therefore Slight/Moderate (potentially Significant). The effect on the museum is Slight (not Significant) and the effect on the sports pavilion is Neutral. The Bungalow is defended by Environment Agency flood defences while the sports pavilion and museum are not formally defended. The FRA concludes that the 1 in 100 year + 20% flood water level at these properties is approximately 1.2m above the property threshold levels and would therefore be flooded to a significant depth in the current scenario.
- With regards to the residential properties along Northbridge Street, the FRA reports that the defences will be overtopped in the 1 in 100 year + climate change scenario in the existing and post development scenarios. The hydraulic model predicts a 20mm increase in the 1 in 100 year + 20% flood water level which results in a Minor impact and Slight/Moderate (and therefore potentially Significant) adverse effect on residential properties. The properties on Northbridge Street therefore have a marginally heightened risk from flooding from the development of the railway, however, the defences will be overtopped in both the existing and post development scenario by 290mm and 310mm respectively. Therefore, although reinstatement of the railway will increase peak flood water levels by 20mm in the context of the existing overtopping the overall effect is not considered Significant.
- The electrical substation and pumping station located at the confluence of the Mill Stream and River Rother. There will be a 20mm increase in the 1 in 100 year + 20% flood water level (Minor impact). The effect on these receptors is Moderate/Large. However, the electrical substation and pumping station do not benefit from Environment Agency flood defences and depending on any flood resilience measures incorporated it is expected to be flooded to a significant depth and the operation may be hampered in the existing scenario.
- At the properties by Robertsbridge Abbey, there will be a 20mm increase in the 1 in 100 year + 20% flood water level (Minor Magnitude of impact). The receptors in this area include a number of residential properties. The effect on the properties is Slight/Moderate.

10.6.3 The Flood Risk Assessment (**Volume 3, Report 4**) provides further details.

#### **Water Quality**

10.6.4 Further consultation with the Environment Agency with regards to the Scheme drainage design is required.

### **10.7 Conclusion**

10.7.1 The RVR scheme is to re-instate a section of the old railway line from Robertsbridge to Udiam. The re-instatement of the track will cover 3.4km in total. There is a total of five new crossings and one replacement crossing along the proposed route.

10.7.2 The Environment Agency has been consulted and reviewed the Scoping Report, as well as the Flood Risk Assessment and associated Modelling Report. Consultation with the Environment Agency is ongoing in regards to the detailed design and delivery programme for raising the flood defences.

- 
- 10.7.3 Best practice guidance for construction near watercourses is well established, as is Environment Agency guidance for pollution prevention. The contractor will adhere to relevant best practice guidance, implemented through a Construction Environmental Management Plan, to minimise the effect of the construction and to reduce the risks of pollution to groundwater and surface water bodies. On this basis there are no predicted significant effects on the water environment during construction.
- 10.7.4 Surface water management will be discussed with the Environment Agency.
- 10.7.5 Hydraulic Modelling has been undertaken as part of the Flood Risk Assessment which shows that the Proposed Scheme will increase the risk of fluvial flooding to receptors in Robertsbridge, though this effect is small compared with the effect of climate change. This results in a significant adverse effect on an electrical substation and pumping station/electrical substation. All other receptors identified in this assessment have a heightened risk of flooding post development of the railway; however, none of the effects are considered Significant.
- 10.7.6 It should be noted, that if the flood defences are raised, to ensure protection against the post development (with railway and raised defences) for the 1 in 100 year plus 20% climate change event there would be significant beneficial effects for a large number of properties in Robertsbridge that are currently only defended to the existing (baseline) 1 in 100 year level scenario.
- 10.7.7 There are some receptors that will not be protected from flooding even with the proposed raised defences; these are the museum and pavilion on The Clappers, commercial unit on Station Road, Robertsbridge Abbey, Udiam Cottages, Forge Farm and Park Farm. At present, these properties are undefended but with the proposed scheme scenario, these properties could be flooded more frequently and to a greater depth than they currently experience in a 1 in 100 year plus climate change event. In particular, the significant effects identified on the electrical substation west of the High Street and the pumping station/electrical substation east of Robertsbridge would not be mitigated by the proposed flood defence raising.
- 10.7.8 All other potential effects can be mitigated such that the scheme would have a neutral or no effect on water supply, water resources, water quality, groundwater and surface water.

**Table 10.7- Summary Effects Table: Water, Hydrology and Hydrogeology - Construction**

| Topic                | Description  | Geographical Extent  | Importance                         | Magnitude                                | Mitigation                                     | Significance |
|----------------------|--|--|------------------------------------|--|--|--------------|
|                      |  | Local (L)<br>Regional (R)<br>National (N)<br>International (I) | Very High<br>High<br>Medium<br>Low | Major<br>Moderate<br>Minor<br>Negligible |  |              |
| <b>Flooding</b>      | Risk, frequency, extent, rate and duration of flooding | L  | Low                                | Moderate Adverse                         | Minimising works in the channel and floodplain | Slight       |
| <b>Water Quality</b> | Effect on water quality                                | R  | Medium                             | Minor Adverse                            | Best practice                                  | Slight       |
| <b>Groundwater</b>   | Effect on the groundwater                              | R  | Medium                             | Negligible                               | Best practice                                  | Neutral      |

**Table 10.8- Summary Effects Table: Water, Hydrology and Hydrogeology - Operation**

| Topic                | Description  | Geographical Extent  | Importance                         | Magnitude                                | Mitigation  | Significance    |
|----------------------|--|--|------------------------------------|--|---|-----------------|
|                      |  | Local (L)<br>Regional (R)<br>National (N)<br>International (I) | Very High<br>High<br>Medium<br>Low | Major<br>Moderate<br>Minor<br>Negligible |   |                 |
| <b>Flooding</b>      | Risk, frequency, extent, rate and duration of flooding | L  | Very High                          | Minor                                    | Recommendation as per the FRA.                                      | Moderate/ Large |
| <b>Water Quality</b> | Effect on water quality                                | R  | Medium                             | Minor                                    | Design to minimise water quality contamination                      | Slight          |
| <b>Groundwater</b>   | Effect on the groundwater                              | R  | Medium                             | Negligible                               | Potential pollutant design to be caught and not pollute groundwater | Neutral         |

---

## **11.0 Land Quality**

- 11.1.1 In developing the potential scope of the land quality assessment, consultation was undertaken with the Rother District Council Environmental Health Service.
- 11.1.2 During this consultation, it was agreed with the Senior Environmental Health Officer that land quality matters could be ‘scoped out’ of the EIA and be managed via “standard development control and planning procedures”.
- 11.1.3 The Senior Environmental Health Officer further advised that the Preliminary Land Quality Risk Assessment (PQLRA) report be prepared and agreed that in general the report’s content should follow guidance contained in Contaminated Land Report 11 (CLR11) - Model Procedures for the Management of Land Contamination<sup>42</sup>.
- 11.1.4 Subsequently, a “stand-alone” PLQRA has been prepared to support the planning application for the Scheme. This report considers the risks to controlled waters, human health and the proposed infrastructure – in the construction and operational stages of the railway development. This report is provided in **Volume 3, Report 6**.

---

<sup>42</sup> Environment Agency, (2004), Contaminated Land Report 11 - Model Procedures for the Management of Land Contamination.



## 12.0 Archaeology and Cultural Heritage

### 12.1 Introduction

12.1.1 This chapter presents the findings of an archaeological assessment of the predicted and potential impacts of the Scheme.

12.1.2 The broad aims of the assessment are as follows:

- To establish whether the study area includes, or has the potential to include, assets of archaeological interest and to determine their significance;
- To identify impacts generated by the scheme on such assets;
- To suggest measures that might be implemented to safeguard any significant assets or mitigate any impacts; and
- To identify any residual effects of the scheme.

12.1.3 Heritage assets considered by the assessment include:

- Above and below ground places of archaeological interest, whether designated as Scheduled Monuments or not;
- Registered Parks and Gardens;
- Registered Battlefields;
- Other historic landscapes; and
- Deposits of palaeoenvironmental interest pertinent to assets of archaeological interest.

12.1.4 The assessment does not include listed or non-designated buildings and conservation areas, which are covered by the Landscape and Visual Assessment in Chapter 8.

12.1.5 A site walkover from public rights of way was undertaken in addition to consulting desk-based sources.

#### Site Location, Land Use, Topography and Geology

12.1.6 The centre of the Scheme is located at Ordnance Survey grid reference 575050, 124173 and extends between two the existing operational section of railway: the first from Tenterden in the east to the B2244 Junction Road, and the second a short section of line between Robertsbridge train station and Northbridge Street in Robertsbridge (**Volume 4, Figure 2.1 and 2.2**). The majority of the Scheme is underlain by alluvium associated with the River Rother, which in turn overlies interbedded sandstone and siltstone of the Ashdown Formation<sup>43</sup>. Archaeological work in the 1980s<sup>44</sup> recorded approximately 8m of alluvium south-west of Salehurst (TQ 743 242 to TQ 743 238), the majority of which was minerogenic and probably accumulated as a consequence of widespread deforestation in the prehistoric period.

<sup>43</sup> British Geological Survey (BGS), Digital Geological map of Great Britain (1:50,000 scale).

<sup>44</sup> Scaife R. G., and Burrin P. J., 1987, Further evidence for the environmental impact of prehistoric cultures in Sussex from alluvial fill deposits in the Eastern Rother Valley. *Sussex Archaeological Collections* **125**, 1-9.

- 12.1.7 The proposed extension is located within the Rother Valley, which is the principle catchment in this part of the High Weald. The immediate topography is flat, as would be expected from a floodplain location, with the land rising to the north and south at the valley sides. The floodplain land is agricultural, with a mixture of small arable and pasture fields enclosed by fences and hedges with mature trees. The valley sides contain a mixture of small fields and woodland.

### **Legislation**

- 12.1.8 Scheduled Ancient Monuments are designated and afforded protection under the Ancient Monuments and Archaeological Areas Act 1979 (as amended). Under the Act, the written permission is required from the Secretary of State for:
- Any works resulting in the demolition or destruction of or any damage to a scheduled monument;
  - Any works for the purpose of removing or repairing a scheduled monument or any part of it or of making any alterations or additions thereto; and
  - Any flooding or tipping operations on land in, on or under which there is a scheduled monument.

### **Planning and Guidance**

- 12.1.9 Government guidance on archaeology and planning is contained within the NPPF and also the Planning Practice Guide (March 2010) that was published with Planning Policy Statement 5 and still remains a valid and government endorsed document. At the local level, this is implemented by the adopted development plan, which for the Scheme includes the Rother District Local Plan 2006 (Adopted) and the new Local Plan (including the Core Strategy and other documents), which covers the period 2011-2028 and will replace the relevant policies of the Local Plan (as and when adopted).

### **National Planning Policy Framework**

- 12.1.10 The NPPF states that one of the twelve core planning principles is to “...*conserve heritage assets in a manner appropriate to their significance...*” (para. 17). It requires the applicant to describe the significance of any heritage asset affected (para. 128), but that the level of detail be proportionate to the assets importance and no more than is sufficient to understand the potential impact of the proposal on their significance (para. 128). Local authorities should only request supporting information that is relevant, necessary and material to the application in question (para. 193).
- 12.1.11 Where a site has potential to include heritage assets of archaeological interest, local authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation (para. 128).
- 12.1.12 Paragraph 132 states that great weight should be given to an asset's conservation – the more important the asset, the greater the weight. Substantial loss or harm to designated sites should be exceptional or wholly exceptional. With regard to non-designated assets, a balanced judgement is required (para. 135). Non-designated assets of equivalent significance to designated assets should be subject to the same policies.

---

## **Rother District Local Plan (Adopted 2006)**

12.1.13 Policy GD1 states that all development should meet the following criterion:

*(viii) it does not prejudice the character, appearance or setting of heritage features, notably scheduled ancient monuments and sites of archaeological importance, listed buildings, conservation areas, registered historic parks and gardens, the registered battlefield at Battle, or other buildings and spaces of historic importance.*

12.1.14 Policy EN22 states that provision should be made for the identification, recording, safeguarding, investigation and preservation, preferably “in situ” or, where not feasible, by record, of all archaeological sites (including those of maritime interest) and monuments and historic and listed buildings.

12.1.15 Policy EN23 states that sites and features of demonstrable historical or archaeological importance and their settings, including ancient monuments, listed buildings, conservation areas, historic parks and gardens, battlefields and other historic features will be protected from inappropriate change and development.

12.1.16 Policy EN24 states that development proposals affecting known archaeological sites or areas of potential archaeological interest should be accompanied by an assessment, based on a field evaluation, of their archaeological implications before decisions on applications for planning permission can be made.

### **Local Development Framework: Core Strategy (August 2011)**

12.1.17 Policy EN2: Stewardship of the Historic Built Environment states that development affecting the historic built environment, including that both statutorily protected and the non-statutorily protected, will be required to:

“(v) reflect current best practice guidance produced by English Heritage and HELM;

(vi) ensure appropriate archaeological research and investigation of both above and below-ground archaeology, and retention where required.”

## **12.2 Methodology**

### **Standards and Guidance**

12.2.1 The assessment has been undertaken in accordance with the Institute for Archaeologists (IfA) *Standard and Guidance for archaeological desk-based assessment*<sup>45</sup> and with regard to the *Planning for the Historic Environment Practice Guide*, which was issued with *PPS5 Planning for the Historic Environment*<sup>46</sup> and still remains a valid and government endorsed document.

---

<sup>45</sup> Institute for Archaeologists, (2012), *Standard and Guidance for historic environment desk-based assessment*, Available: <http://www.archaeologists.net/sites/default/files/node-files/DBA2012-Working-draft.pdf>. Accessed November 2013.

<sup>46</sup> English Heritage, (2010), *PPS5 Planning for the Historic Environment*, Available: <http://www.english-heritage.org.uk/publications/pps-practice-guide/> Accessed November 2013.

## Study Area

- 12.2.2 No overall fixed boundary was set for the 'study area'; rather, baseline data was collected for a variety of search areas appropriate to the source material. Details of the individual search areas are set out below. This flexible approach was adopted as it is well suited to provide information on the Site itself and its immediate hinterland; the latter is important when considering the archaeological potential of the Site and placing any findings in a local or regional context.
- 12.2.3 Mindful of the assessment's aims, the sources listed in **Table 12.1** were consulted for the study.

**Table 12.1 - Sources Consulted During the Assessment**

| Data consulted   | Source Organisation  |
|--|--|
| Archaeological sites & monuments data; historic landscape designations | East Sussex County Council (ESCC) Historic Environment Record (HER)  |
| Aerial photographs   | English Heritage National Monument Record Centre (EHNMR); Google Earth   |
| Cartographic Data  | British Library online gallery; Emapsite;<br>Old Sussex Mapped: Two Centuries of Sussex County Maps<br>( <a href="http://www.envf.port.ac.uk/geo/research/historical/webmap/sussexmap/sussex.html">http://www.envf.port.ac.uk/geo/research/historical/webmap/sussexmap/sussex.html</a> ) |
| Published secondary sources  | EHNMR  |
| Planning policy  | Rother District Council<br>National Planning Policy Framework  |
| Site visit   | Site visit on 12th November 2013   |

## Archaeological Sites and Monuments Data

- 12.2.4 Data was requested from the ESCC Historic Environment Record for a search area of 1km either side of a line between TQ 730 240 and TQ 780 240. A dataset was provided as GIS files and PDF format reports. Details of Scheduled Ancient Monuments and designated historic landscapes were augmented by data from the English Heritage National Heritage List for England ([www.english-heritage.org.uk](http://www.english-heritage.org.uk)).
- 12.2.5 The sites and monuments recorded for the study area are listed in **Volume 2, Appendix 6** and shown on **Figure 12.1 (Volume 4)**. The numbers within the blue dots on Figure 12.1 refer to the Item numbers in **Appendix 4**. It should be noted that some of those Items in **Appendix 6** are located beyond the limits of **Figure 12.1**.
- 12.2.6 Any items of historic interest recorded from other sources are likewise included in **Appendix 6** and located on **Figure 12.1 (Volume 4)**. The principal findings are discussed in Section 12.3.

## Aerial Photographs

- 12.2.7 A search was requested of the EHNMR database for all vertical and oblique aerial photographs for an area 500m either side of a line between TQ 730 240 to TQ 780 240.
- 12.2.8 The search returned 45 specialist oblique records, 106 vertical prints and 34 digital images.
- 12.2.9 All photos were examined by eye for items of interest, which are noted in **Appendix 6** and located on **Figure 12.1 (Volume 4)**.

---

## **Cartographic Sources**

12.2.10 The East Sussex Records Office was closed for relocation during the period when data was collected and thus other sources were utilised in its place. These were consulted to identify any activity that may be of direct archaeological interest and to determine past land use of the Site that may have affected the survival of any known or potential archaeological remains. A range of maps was consulted to provide a picture of land use and change from the late-17th century to early nineteenth. Later Ordnance Survey Maps (1874-2012) were sourced from Emapsite. The maps examined are listed in **Appendix 6**, along with a commentary of the main findings and relevant extracts.

## **Published Secondary Sources**

12.2.11 The assessment also included a search of other written sources that may have contained information relevant to the site including:

- Brandon, P., (2003), The Kent and Sussex Weald.
- Leslie K., and Short B., (eds.) (1999), An Historical Atlas of Sussex.
- Rudling D., (ed.) (2003), The Archaeology of Sussex to AD 2000.
- Salzman L. F., (1937), The Victoria History of the Counties of England. Sussex IX.

12.2.12 Other written sources consulted in the undertaking of this assessment are cited in the footnotes. The relevant findings of the search are discussed in the appropriate sections of this chapter.

## **Site Visit**

12.2.13 A site visit was made to locate any evidence, such as historic buildings, artefacts, structures, earthworks or topographic features that might be of direct archaeological or historic interest and to determine whether there was any evidence of past or current land use that might have affected the survival of potential historical remains. The settings of salient assets were also assessed.

## **Limitations**

12.2.14 The archaeological baseline, established through the sources listed above, is unlikely to be complete. Many archaeological assets remain hidden beneath ground and await future discovery and characterisation through fieldwork and chance discovery. The assessment has recognised this, as well as the concomitant increase in uncertainty with regard to establishing impacts and their significance.

12.2.15 In addition to desk-based study, the assessment also included a site visit. This had to be undertaken from public rights of way with the result that access was less than ideal when determining the setting of the remains at Robertsbridge Abbey and any impacts on it.

## **Consultation**

12.2.16 The methodology used by the assessment was agreed in advance with the East Sussex County Archaeologist by way of the Scope and Methodology Report.

## 12.3 Baseline

### Archaeological and Historical Background

#### Earlier Prehistoric

- 12.3.1 With a few notable exceptions, archaeological evidence for the early history of the Sussex Weald remains elusive in comparison with the South Downs and Coastal Plain; a point that is well made by recent distribution maps of prehistoric settlement in East and West Sussex<sup>47</sup> and adjacent areas of Kent<sup>48</sup>. This is unlikely, however, to be an accurate reflection of the geographical scope of earlier activity (although major, high status permanent settlement may have been absent for this period) and is more likely to reflect the absence of fieldwork and the low detection rates for archaeological ‘places’ due to extensive woodland and pasture. Exploitation of the Weald may have been temporary or seasonal from permanent settlements located to the north and south, with small-scale transitory camps being the norm. For the earliest periods individual stone artefacts or scatters of artefacts are all that remain and are sparse in the eastern part of the High Weald. Evidence for late Bronze Age/early Iron Age activity in the West Sussex Weald at Billingshurst<sup>49</sup> and Ashington<sup>50</sup> may be indicative of short term/seasonal settlement and the nature of any associated remains from later periods. Recently, more substantial later prehistoric settlement (albeit perhaps still seasonal) has been uncovered adjacent to Gatwick Airport through larger scale excavation<sup>51</sup>. However, as the archaeologist at Gatwick noted, the location of this site on the north edge of the Weald may indicate links with areas to the north rather than back into the Weald to the south. The proximity of the floodplain of the River Mole may also have been important.
- 12.3.2 The findings of the current assessment reinforce this picture, with evidence for earlier prehistoric activity restricted to a single poorly provenanced stone axe (Item 3), perhaps indicative of early wood clearance, and a bowl barrow (Item 23, see below). The latter, however, would seem to infer an established population and, taken in conjunction with the indirect evidence for prehistoric deforestation, the scale of prehistoric activity must have been greater than currently recognised.
- 12.3.3 Notwithstanding this, there is no unequivocal evidence of prehistoric settlement in the area and the potential for further assets is considered to be low.

#### Later Prehistoric and Roman

- 12.3.4 The picture begins to change with the often small-scale bloomery-based beginnings of the Wealden iron industry in the mid- and late Iron Age, located predominantly in the High

<sup>47</sup> See sections 7-11 in Leslie, K. and Short, B. (eds) 1999 *An Historical Atlas of Sussex*.

<sup>48</sup> Lawson T. and Killingray D., 2004 *An Historical Atlas of Kent*.

<sup>49</sup> A watching brief during construction of the Billingshurst bypass recovered small spreads of burnt material, perhaps hearths, and shallow scoops or pit-like features cut into the natural subsoil. A contemporary assemblage of pottery was also recovered. Archaeology South-East. Unpublished client report Project No. 880 *Billingshurst Western Bypass, West Sussex*.

<sup>50</sup> Features from this period were interpreted to include a possible post-built oval enclosure; with a concentration of burnt clay and fire-cracked flint perhaps indicating a cooking area. Priestly-Bell, G. 1994 Archaeological excavations at America Wood, Ashington, West Sussex. *Sussex Archaeological Collections* **132** 33-51.

<sup>51</sup> Wells, N., (2005), Excavation of a Late Bronze Age enclosure site at Gatwick Airport, 2001. *Sussex Archaeological Collections* **143**, 47-69.



Weald<sup>52</sup>. However, as was the case at Broadfield, near Crawley, such undertakings could cover a substantial area (although much of the iron working site dated to the Roman period)<sup>53</sup>. The iron industry developed during the Roman period, again concentrating in the High Weald, with an eastern focus linked to the Classis Britannica, which, inter alia, has led to the suggestion that the Weald may have formed an Imperial Estate<sup>54</sup>.

- 12.3.5 The types of sites known from the Weald during this period are limited<sup>55</sup> (note the lack of towns, villas, temples, kilns etc.) and the Study Area is no exception. Evidence for iron working and non-villa settlement is present (Items 5, 9, 21 & 25); the possible villa (Item 22) recorded in the extreme east of the Study Area may be a tile kiln based on the surface finds recorded in the Historic Environment Record. Items 21, 22 and 25 cluster close to the crossing of the River Rother by the Ashford to Hastings Roman Road (Item 4), and this is surely no coincidence. The presence of the scheduled Romano-British settlement south of Bodiam Bridge (UID ES 411), also serves to indicate the importance of this location.
- 12.3.6 The River Rother would have given access in to the High Weald and linked the iron industry to its markets via the coast and the contemporary road network. The Romano-British pottery (Item 5) adjacent to the river west of Robertsbridge indicates the potential for further findings along this early transport link and overall this potential is considered to be medium.

### **Anglo Saxon**

- 12.3.7 The first two-hundred years after the Roman period has been seen as one of settlement of England by the Anglo-Saxons and the displacement of the 'native' Romano-British population: although the actual scale of migration is not known, nor the degree to which established populations were displaced rather than culturally submerged. There is little or no emphasis on town life or building in brick or masonry and the changes in urban life seen in late-Roman towns culminated in an urban collapse and the desertion of towns.
- 12.3.8 The population as a whole may have reduced at this time and some areas of farmland appears to have gone out of use. Subsequent Saxon settlement of Roman villa sites is not uncommon; although it appears that there is usually no continuity of use. It is likely that Early Saxon populations probably continued to farm land cultivated by the Romano-British but probably lived in small rural settlements established in new locations. Currently, there is no archaeological evidence from the Study or wider area for early Saxon activity.
- 12.3.9 The following 400 years is a period of expanding settlement and great change, dominated by the emergence of a hierarchy of settlements performing defensive, commercial, administrative and religious roles: for instance, estate administration, minster church, defensive burh and mint<sup>56</sup>. More than one function might be undertaken at one site and many of these locations developed into towns, especially as the threat of Viking raids receded in the tenth century.

<sup>52</sup> Cleere H. and Crossley D., (1985), *The Iron Industry of the Weald*, Fig. 17.

<sup>53</sup> Cartwright, C., (1992), The excavation of a Romano-British iron working site at Broadfield, Crawley, West Sussex. *Sussex Archaeological Collections* **130**.

<sup>54</sup> Rudling, D. (1999), Roman Sussex in Leslie, K. and Short, B. (eds) *An Historical Atlas of Sussex*

<sup>55</sup> Ibid.

<sup>56</sup> Gardiner M., 1999 Late Saxon Sussex c. 650-1066 in Leslie, K. and Short, B. (eds) *An Historical Atlas of Sussex*

- 12.3.10 Early use of the Weald is likely to have centred on its exploitation as seasonal pasturage (especially for pigs) by communities on its more hospitable fringes<sup>57</sup>. Many swine pastures date to this period and are linked to these settlements by a network of drove roads (possibly of earlier origin). Evidence for these pastures is based on place-names, as the archaeological remains of the shelters built for the swine and their herders alike would be difficult to detect. An early place name element indicating a group of shelters for animals and herdsmen is (ge)sell, which is preserved in Drigsell (now Salehurst Park Farm) in Salehurst<sup>58</sup>.
- 12.3.11 Nucleated villages also started to appear in some areas during the late Saxon period, for example Salehurst (Item 37). Likewise a settlement is also recorded in Domesday at Salehurst Park Farm (Item 13), although this was later deserted. A farmstead of Saxon origin is also recorded at Eyelids (Item 39); however, overall the potential for further finds within the Study Area is likely to be low.

### **Later Medieval**

- 12.3.12 The later medieval landscape of the High Weald is likely to have been characterised by woodland and small fields, with much of the land held in severalty, as opposed to the large, communally managed open fields of the Downs and Coastal Plain. Deer parks were widely distributed throughout medieval Sussex, although they tended to concentrate in areas of poorer soil, such as the High Weald<sup>59</sup> – Park Farm (Item 17) being an example in the Study Area (see also Item 29). Several farms in the study area have origins in the medieval period (e.g. Items 6, 13, 20, 34 & 38), although only one (Moat Farm: Item 40) may have been a moated site.
- 12.3.13 Trade at this time concentrated around markets and ports/landing places, although there would have been undocumented 'market activity' wherever people met. Salehurst acted as a landing place at which wood was loaded for London and the Low Countries initially along the Rother<sup>60</sup>. Licences to hold markets in the Weald start to be recorded from the early 13th century, with both Salehurst and Robertsbridge receiving licences in 1253 during a period of market expansion<sup>61</sup>.
- 12.3.14 Robertsbridge (Item 8) emerged as a significant settlement in the 13th century and this is presumably associated with the relocation of the Abbey from its original location in that part of the town now known as The Green to its 'current' site. By 1300 it was an important centre for trading and manufacturing, perhaps at the expense of nearby Salehurst. A substantial phase of expansion c.1314 has been suggested, although Robertsbridge between the 16th and early 19th centuries appears to have been largely indistinguishable from a village. The separate historic village of Northbridge Street developed some 350m north of Robertsbridge on the north side of the River Rother.
- 12.3.15 Religious foundations are a characteristic feature of the medieval landscape with several orders represented in Sussex. The Abbey at Robertsbridge (Item 1) is the only example founded by the Cistercian order in the county, which, along with others, developed from the

---

<sup>57</sup> Brandon P., 2003, 45

<sup>58</sup> *Ibid.*, 46

<sup>59</sup> Gardiner M., 1999, The medieval rural economy and Landscape. in Leslie, K. and Short, B. (eds) *An Historical Atlas of Sussex*.

<sup>60</sup> *Ibid.*

<sup>61</sup> *Ibid.*

Benedictines in the 12th century as a means of re-establishing the early values of a simple, austere life<sup>62</sup>.

- 12.3.16 In addition to the above, the HER records relatively few other assets for the Study Area (e.g. a tile kiln: Item 28), though the potential for contemporary sites and finds (e.g. agricultural dwellings, tile kilns, charcoal burning sites, early buildings in towns and villages) is likely to be higher than the record indicates and overall is considered to be medium.

### **The Post-Medieval Iron Industry and Later**

- 12.3.17 The arrival of the blast furnace in the last years of the 15th century, combined with the ability to convert pig-iron to malleable iron in a finery, turned the High Weald into a major industrial centre, perhaps peaking in the late 16th century, although iron working continued much reduced into the 18th century. Access to ore, large areas of coppice woodland for charcoal and ready water power were all factors in the siting of furnaces and finery forges. Streams were dammed by earthwork pond bays to provide a manageable supply of water and the creation of numerous lakes would have had a visible impact on the landscape. The Study Area contains remains from all stages of iron production, including charcoal burning (Item 30), and both a water-powered furnace (Item 2) and a finery forge (Item 18).
- 12.3.18 With the demise of the iron industry, the High Weald 'reverted' to a rural economy centred on the market towns, which were the main centres of population well into the 19th century. The absence of open field farming and its subsequent enclosure suggests that the grain and pattern of the landscape had its origins in the medieval period. The principal intrusions into this landscape were the railways, which appeared late in Sussex, with the early lines constructed in part to service the coastal resorts. The South Eastern and Chatham Railway through Robertsbridge to Hastings was constructed from 1852; the Kent & East Sussex Light Railway (originally the Rother Valley (Light) Railway) was only opened in 1900. Latterly, the 20th century has seen expansion in market towns such as Robertsbridge and, more significantly in historic landscape terms, the removal of hedgerows to give larger fields. The latest part of this period has also seen the creation of an additional layer of landscape history in the form of pill boxes and other defensive features of the Second World War.
- 12.3.19 The Study area is likely to contain a significant number of additional assets dating to the last 500 years or so, though it is unlikely that major structures such as post-medieval furnaces or forges remain to be discovered in the countryside. More likely, would be the remains of associated operations such as ore digging and charcoal burning. As with the medieval period, additions to and changes within the main settlement nodes will have partially removed or obscured much of what went before and these would be key areas for new discoveries. Overall, the potential for assets of this period is considered to be medium.

### **Designated Sites**

#### **Scheduled Ancient Monuments**

- 12.3.20 Two scheduled monuments are located within the immediate study area.
- 12.3.21 Site of Robertsbridge Abbey; Scheduled Monument UID ES 134. Remains of Cistercian Abbey founded in 1176; relocated to this site about 1210; dissolved in 1538. **(Volume 2, Appendix 4, Item 1)**

<sup>62</sup> Taylor M., 1999 Religious foundations. in Leslie, K. and Short, B. (eds) *An Historical Atlas of Sussex*.

- 12.3.22 Bowl Barrow in Wellhead Wood. Scheduled Monument UID 24387. **(Volume 2, Appendix 4, Item 23)**
- 12.3.23 The remains of Robertsbridge Abbey include above and below ground structures on the south side of the River Rother. At its closest the designated area lies within 20m of the Scheme. Several elements of the former Abbey are also designated as listed buildings (Grade II\*). Of these, remains of the Frater (UID 416167) are located within the scheduled area. The building known as 'Robertsbridge Abbey Farmhouse and ruins in the garden' is outside the scheduled area.
- 12.3.24 The designated area clearly does not coincide with the full extent of the Abbey. The most obvious exclusion, excluding the extant claustral buildings, is a group of earthworks (Item 64) adjacent to the fishponds in the north-west of the designated area and themselves probably an extension of the fishponds. Notwithstanding the above, there are no indications that significant remains extend north of the Rother, which would presumably have formed a natural limit to the monastic precinct.
- 12.3.25 The bowl barrow in Wellhead Wood lies some 900m to the south of the scheme and is not of direct significance; however, it serves to indicate the presence of settlement during the Bronze Age in the local area, as already recognised indirectly by means of the considerable depth of prehistoric alluvium in the valley bottom as noted earlier.
- 12.3.26 It is also worth noting the presence of the scheduled Romano-British settlement south of Bodiam Bridge (UID ES 411), which is located within the floodplain of the Rother some 1.3km north-east of the Scheme. Taken in conjunction with other contemporary finds close by (Items 21 and 22) it serves to suggest some potential for other assets of this period; although, it is of no direct significance to the Scheme.

#### **Archaeological Notification Areas**

- 12.3.27 Fourteen Archaeological Notification Areas are located within the study area. These are 'designated' by the local authority and serve to highlight areas of increased archaeological potential based on current knowledge of other assets in the area. (Not all of these lie within the limit of **Figure 12.1, Volume 4**).

#### **Registered Parks and Gardens**

- 12.3.28 There are no registered parks or gardens within or in proximity to the study area that might be impacted by the proposed development.

#### **Registered Battlefields**

- 12.3.29 There are no registered battlefields within or in proximity to the study area that might be impacted by the Scheme.

#### **Resource Survival, Importance and Sensitivity**

- 12.3.30 Where above as well as below ground remains are present, as at Robertsbridge Abbey and the nearby forge for example, survival will be good. In addition to the obvious structural remains, below ground deposits will preserve a wide range of data of significance for determining the origins and development of these historic places, their methods of construction, economic and social foundations and also the contemporary environment. Location within the floodplain of the River Rother, or its tributary streams, will also most probably have allowed rare organic remains to be preserved in waterlogged deposits. Excavation at other forge/furnace sites has revealed exceptional preservation of structural

timbers and artefacts, including tail and head races, anvil bases and remnants of water wheels.

- 12.3.31 Earlier remains in alluvium beneath the floodplain may also have enhanced preservation as they lie beneath active agriculture and are also subject to waterlogged conditions. The deposits are thought to date from the Mesolithic onwards<sup>63</sup> and could contain a wide range of assets associated with exploitation and utilisation of riparian resources such as fish/eel traps, bridges and weirs. Likewise, remains of temporary or seasonal camps of hunter gathers using the river as a resource and a transport link might also be buried and well-preserved at depth. In addition, the alluvium itself is likely to contain a wide range of data to allow re-construction of the changing environment and land use through time.
- 12.3.32 Elsewhere, preservation is likely to be less good. Many assets that survive only as below ground remains will have been truncated by agriculture and in some cases only deeply cut features may survive. In some urban or rural contexts where earlier phases have been replaced or remodelled, the time depth that this adds can provide additional data, although it make it difficult to interpret the less well-preserved early remains. For instance, archaeological work in Robertsbridge has shown that earlier phases of building are not always present beneath later buildings in the historic core.
- 12.3.33 Without greater knowledge of how the original railway was constructed, it is not certain what its impact would have been on any assets of archaeological interest within its footprint. Clearly, any above ground structures or earthworks would have been destroyed, probably along with superficial deposits and near surface features, but locally subsurface remains could have been retained beneath the embankment, especially if substantial or buried in alluvium within the floodplain.
- 12.3.34 For the majority of the assets described in **Appendix 6**, there is insufficient data to allow an objective assessment of their importance and has thus not been attempted. However, in common with all assets of archaeological interest, it should be remembered that they form a finite and fragile resource that is highly sensitive to damage or destruction from a range of construction activities including, but not limited to: topsoil and sub-soil stripping, piling, construction of haul routes and work sites, dewatering, movement of plant and spoil disposal.
- 12.3.35 The two scheduled monuments have already been determined to be of national importance and it is possible that both the forge and furnace at Robertsbridge Abbey (Items 2 & 18) are equally important. The latter are well-preserved, characterise the period, are relatively rare, are linked by and associated with documentary records for much of their very long operation, contain a range of features, and have high potential for examining the changing fortunes of iron making from its peak in the second half of the 16th century to its demise in the late 18th century. The importance of these assets is considered to be very high.
- 12.3.36 In addition, the setting of an asset may also be sensitive to construction and operational activities. For the purpose of the assessment an asset or place's setting is taken to mean: 'the surroundings in which [the asset] is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral'.<sup>64</sup> The importance of setting lies with what it can add to our experience, understanding, enjoyment and appreciation of an asset or place and in some cases may be a major factor in determining the significance of an asset.

<sup>63</sup> Scaife and Burren *op. cit.*

<sup>64</sup> English Heritage, (2011), *The Setting of Heritage Assets*, 4.



## 12.4 Predicted Effects

- 12.4.1 As noted earlier, assets of archaeological interest, including their settings, form a finite and fragile resource that is highly sensitive to damage or destruction from a range of activities during construction and operation. With regard to the Scheme, these might include:

**Table 12.2 – Summary of Predicted Effects**

| Nature of impact  | Construction | Operation |
|---|--------------|-----------|
| 1. Destruction of, or damage to, assets arising from the excavation of topsoil and subsoil during construction of the new embankment.               | X            |           |
| 2. Destruction of, or damage to, assets arising from the excavation of topsoil and subsoil during construction of a new railway halt for Salehurst. | X            |           |
| 3. Destruction of, or damage to, assets arising from the excavation of topsoil and subsoil during construction of the Junction Road work compound.  | X            |           |
| 4. Damage/distortion of assets generated by excavation and piling for new bridges.  | X            |           |
| 5. Destruction of, or damage to, assets arising from construction of new level-crossings.   |              |           |
| 6. Damage/distortion of assets due to compression under embankment fill.*   | X            | X         |
| 7. Impacts on setting from new earthworks and structures.*  | X            | X         |
| 8. Impacts on setting due to noise and visual intrusion from trains.  |              | X         |

\* Impacts 6 and 7 would be generated by construction activities but would be on-going through the operation of the Scheme.

- 12.4.2 It must be reiterated, however, that the Scheme would be re-establishing a previously operational railway and the overwhelming majority of construction work, both temporary and permanent, would take place within its original footprint. The original embankment, where it is extant, would be re-used with new stretches constructed on the former alignment.
- 12.4.3 Given the scale of the proposed works, construction methods and footprint (see Section 2.4), taken in conjunction with the absence of evidence that significant archaeological assets are present within the footprint of the proposed works, and, as noted above, the potential impact of the original railway on such assets, it does not seem unreasonable to conclude that construction of the Scheme would not generate any widespread or significant impacts on the fabric of known assets of archaeological interest.. Likewise, in those areas where construction activities are proposed external to the original scheme there is also no record of assets of archaeological interest. Impacts on setting are considered below.
- 12.4.4 Notwithstanding the above, a case can be made that the Rother Valley is of heightened archaeological potential in relation to other parts of the High Weald and any consideration of impacts should have regard to the possibility that the Scheme could generate impacts on assets that have not yet been recognised or discovered. Though for the reasons set out above, these would also likely only be generated in limited locations. Unfortunately, it is not possible for ‘archaeological potential’ to be quantified objectively, or to undertake a detailed assessment at this stage; however, given the limited scope of the proposed works, it is concluded that any impacts would likely be negligible.
- 12.4.5 Impacts on the settings of archaeological assets have also been assessed, and this was undertaken where it was concluded that an asset’s setting contributes greatly to the



significance of the asset and where it is likely to be impacted by the Scheme. The available baseline data indicated that this was only likely to apply to Robertsbridge Abbey, and this was confirmed by the site visit.

- 12.4.6 The remains of the Abbey are located in the floodplain of the River Rother and include masonry and earthwork elements; substantial below ground remains will also be present. The earthworks, however, are not well developed and are not easily visible from public rights of way: they might well go unobserved by the casual visitor. It would be misleading to suggest that the Abbey is set within anything other than a modern rural landscape that continues to evolve, but clearly there are numerous historic places and some structures that were contemporary with the Abbey and form part of its immediate historic setting. Close by, these include the village of Salehurst (especially the Church of St. Mary) and settlements such as Moat Farm and Salehurst Park Farm. In addition, the wider landscape, including the surrounding pattern of fields, woods, tracks and roads has an ancient origin and is integral to the Abbey's setting. As noted above, however, all of these assets have undergone modification to a greater or lesser extent and it is the landscape and the historic places within it, rather than the structures and assets themselves, which are significant.
- 12.4.7 The setting of the Abbey (both listed and scheduled elements) is rural and tranquil: the historic place is surrounded by the floodplain of the Rother, with wooded hills forming a background to the south and 'high' ground with field enclosures and smaller woods and shaws to the north. The grain of the landscape, including fields, woods, roads and tracks is likely to have its origin in the medieval period, although this has been modified and has evolved over time: fields may have been amalgamated in the post-medieval period and several boundaries are known to have been removed in the late 20th century. The original railway represents the most recent evolution of the landscape, although its alignment is not obvious adjacent to the Abbey - in part due to the removal of the embankment to the north and west, and also the screening afforded by numerous hedges and trees that border fields in the area.
- 12.4.8 Located within this landscape are numerous settlements of Saxon or later medieval origin that would have been contemporary with the Abbey. The links, both visual and physical, between Salehurst and the Abbey remains are particularly evident. The Abbey and its surroundings can be enjoyed and appreciated from the footpaths on higher ground immediately to the south-east of the Church of St. Mary, and can be reached via footpaths that are shown as trackways on the Ordnance Survey Drawings of 1806 and are presumably of some antiquity. Moat Farm can also be taken in from this vantage point, although the views are not clear. Likewise, the view back from the Abbey to Church of St Mary on its prominence above the floodplain is noteworthy.
- 12.4.9 That part of the proposed Scheme closest to the Abbey will require the construction of a new embankment, and although this is reinstating a structure that existed beforehand, it will represent a significant new element in the current landscape. Mindful of this, and given the proximity of the new embankment to the Abbey remains, and its location between the designated area and the village Salehurst, it is concluded that construction of the new embankment would have a **moderate negative effect** on the setting of the Abbey. This may be greatest when viewed from high ground to the north; mature hedges and other trees and bushes along the river banks and elsewhere within the scheduled area will provide some screening from the new earthwork.
- 12.4.10 As a Scheduled Monument, the value/sensitivity of the Abbey's setting is very high and thus it is concluded that the significance of the negative impact is large. The impact would be generated during construction of the Scheme and would continue throughout its operational phase.

- 12.4.11 The movement of trains during the operational phase of the Scheme would also have a negative impact on the setting of the Abbey, principally due to noise. However, the impact is likely to be negligible and the significance of the negative impact slight.
- 12.4.12 The removal of mature vegetation from the extant earthwork would serve to open up views from the Abbey to the north and may help to reconnect this historic place with its wider historic landscape setting. This is hard to quantify, but a negligible or minor positive impact may accrue. The significance would be slight or moderate at worst.
- 12.4.13 It is not possible to assess objectively any potential impacts on archaeological remains that may exist within the study area, but that have not yet been recognised. It seems not unreasonable, however, to suggest that given the limited extent of new work on previously undisturbed ground this is unlikely to be worse than minor or negligible.

## **12.5 Cumulative Effects**

- 12.5.1 Rother District Council has advised that the effects set out above should be considered cumulatively with proposed development by others on land to the north of Station Road, Robertsbridge (RR/2013/2380/P). Comments by East Sussex County Council (letter from Mr G. Chuter to Rother District Council, 8th January 2014) on this development do not identify any specific likely impact on known archaeological assets, but do flag up the potential of the floodplain, especially for prehistoric activity. As such, it is broadly comparable to the potential noted for the Scheme. Thus, on the basis of the available information it is concluded that the potential cumulative effects are no greater than identified for the individual proposals.
- 12.5.2 The Station Road development would have no impact on the setting of Robertsbridge Abbey, and thus there is no cumulative effect.

## **12.6 Mitigation**

- 12.6.1 Mitigation of the impact to the setting of Robertsbridge Abbey will be difficult to achieve by direct means. Screening by new vegetation will not be possible within the land to be acquired and used and would probably only serve to reinforce the impact of the reinstated railway when viewed from the north. As noted earlier, the Scheme would be partly screened by existing vegetation to the south and there may be some potential to augment this in a manner that does not reinforce the Scheme itself. It is also likely that the materials used in the new embankment would weather and mellow over time and thus integrate into the landscape. In effect, the area would return to the state when trains last ran in the 1970s.
- 12.6.2 As noted above, the potential for direct impacts on buried archaeological remains would be limited, and a targeted watching brief at these locations would be appropriate. Provision for this would be included in the CEMP, with the work undertaken by professional archaeologists to a written scheme of investigation agreed with the local planning authority.

## **12.7 Residual Effects**

- 12.7.1 The negative impacts on the setting of Robertsbridge Abbey are likely to lessen but not completely disappear during the operational phase. A reduction to moderate or slight significance is considered likely.
- 12.7.2 The loss of potential archaeological assets would be permanent, but compensated for by archaeological work and potential gains in knowledge about the local area and the wider area of the Weald.

---

## **12.8 Conclusion**

- 12.8.1 The assessment has shown that the study area contains numerous archaeological assets. Not all periods of history are equally represented and the record is better populated from the medieval onwards. This is, however, unlikely to represent the complete resource for the area and it is likely that further assets, especially of earlier periods, lie undetected within the study area. The nationally important remains of Robertsbridge Abbey are located a few metres to the north of the Scheme and are designated as a Scheduled Monument.
- 12.8.2 The assessment has concluded that there would be no impacts on the fabric of any recorded archaeological assets in the study area, but that construction of the new railway embankment would likely generate a large impact on the setting of the Abbey remains, although this could reduce to moderate or slight over time. An additional, albeit negligible, impact on the Abbey's setting from train noise is also recognised.
- 12.8.3 The assessment recognised the potential for unrecorded archaeological remains in the study area and some potential for the Scheme to have an impact upon them. However, as the Scheme will effectively occupy ground already disturbed by the original railway to a greater or lesser extent, it is concluded that any potential impacts are likely to be minor or negligible and compensated for by archaeological work.
- 12.8.4 The assessment also raises the possibility of some benefit from the removal of trees along the original embankment, which would serve to open up views from the Abbey to the north and may help to reconnect this historic place with its wider historic landscape setting. The significance of this would be slight or moderate at best.

## 13.0 Transport and Access

### 13.1 Introduction

- 13.1.1 This chapter describes the potential transport and access impacts associated with the construction of the Scheme. Most operational impacts have been considered in a separate assessment – see paragraph 13.2.3– although residual operational matters are considered in this chapter. It discusses the construction and operation of the scheme separately, although some of the potential mitigation measures may offset the impacts of both phases.
- 13.1.2 At the Scoping Stage, it was agreed that the following matters required consideration. For the construction phase, this the transport impacts of:
- Transport and storage of plant and materials, by rail and road, for construction of the track bed, track, new bridges and potential new halt at Salehurst;
  - Frequency, location and intensity of construction routes used, including types of vehicles being transported;
  - Timing and programming of level crossing construction; and
  - Impacts affecting safety and amenity on road traffic and non-motorised road users, including on the public rights of way network.
- 13.1.3 For the operational phase, the safety impacts of the Public Rights of Way level crossings have been considered. The impacts associated with the operation of the level crossings on Northbridge Street, A21 and B2244 Junction Road have been assessed in the report prepared by Mott MacDonald<sup>65</sup>.

#### Legislation and Policy

- 13.1.4 There is no formal legislation covering the preparation of construction transport impact assessments. A range of planning and transport policy guidance exists, as set out in the next section that provides a range of principles on which the impact assessment can be based.

#### Planning and Guidance

##### National Policy

- 13.1.5 The National Planning Policy Framework (NPPF) recognises the need for the transport system to be balanced more in favour of sustainable modes, recognising that different policies and measures will be required between urban and rural areas. The document says further that:

*“Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. However this needs to take account of policies set out elsewhere in this Framework, particularly in rural areas”.*

- 13.1.6 The NPPF indicates that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

<sup>65</sup> Mott MacDonald (January 2013) Highways & Traffic Assessment Report, Response to HA Comments on A21 Crossing.

13.1.7 Rail infrastructure is co-ordinated through Network Rail. Rother falls between two rail utilisation strategies (RUS): Kent RUS<sup>66</sup> and Sussex RUS<sup>67</sup> respectively. It is the responsibility of the RUS to identify gaps in the service and recommend a range of options to bridge these gaps, including train lengthening and additional services to address capacity and line-speed improvements at key points to improve capability and shorten journey times. The Kent RUS (2010) identifies the following features at Robertsbridge Station:

- Approximately 251,000 passenger movements per year (2009);
- Car park is stated as <70% occupancy;
- Current journey times to London are between 60 and 90 minutes, with a frequency of 3 trains per hour; and
- Thameslink improvements are programmed to be implemented as far as Tunbridge Wells only, with no improvements planned on the remainder of the line to Hastings.

13.1.8 There are no significant new or upgrade schemes affecting Robertsbridge Station or this section of main line currently programmed.

#### **Local Policy Context**

13.1.9 The East Sussex County Council Local Transport Plan<sup>68</sup> covers the period 2011 to 2026. The aim is to deliver an effective, well managed transport infrastructure with improved travel choices. The overall objectives are:

- To improve economic competitiveness and growth;
- Improve health, safety and security;
- Tackle climate change;
- Improve accessibility and enhance social inclusion; and
- Improve quality of life.

13.1.10 The main transport challenges identified for the County include:

- Lack of high standard road infrastructure;
- Constraints to economic growth and transport connectivity, due to inconsistent road standards;
- Restricted rail network with existing infrastructure gaps and forecast capacity constraints on the wider network that will impact on service levels in East Sussex;
- Historically poor road condition;
- Highly subsidised rural bus network; and
- Management and improvement of Rights of Way network.

<sup>66</sup> Network Rail, (2010), Kent Route Utilisation Strategy, Available:

<http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20utilisation%20strategies/kent/kent%20rus.pdf> Accessed November 2013.

<sup>67</sup> Network Rail, (2010), Sussex Route Utilisation Strategy, Available:

<http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20utilisation%20strategies/sussex/sussex%20rus.pdf> Accessed November 2013.

<sup>68</sup> East Sussex County Council, (2011), Local Transport Plan 2011-2026, Available:

<http://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/ltp3/downloadltp3.htm> Accessed November 2013.

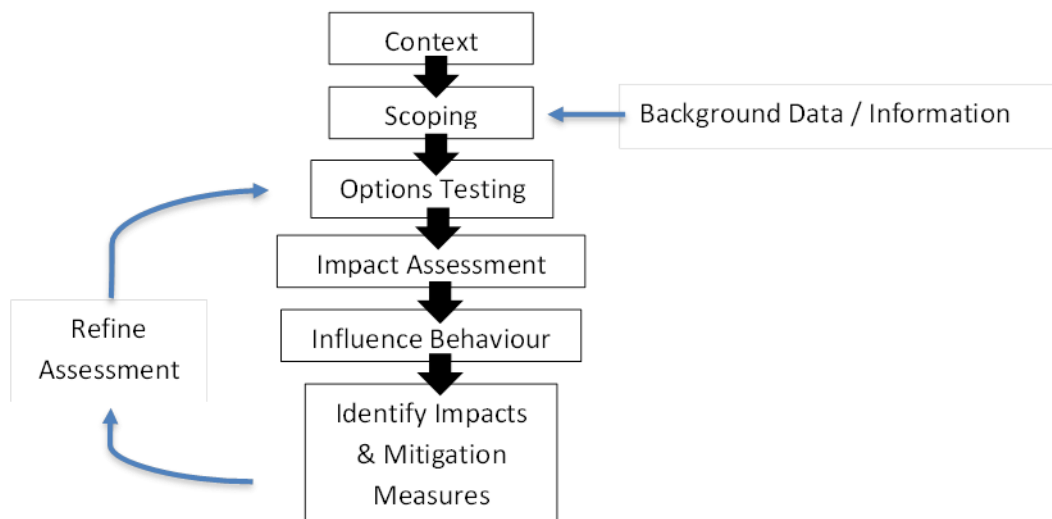
- 
- 13.1.11 The strategic approach includes working with Rother District Council to identify improvements to transport infrastructure to support sustainable development in Battle, Rye and the villages of rural Rother which emerge through the Local Development Framework and improve access to and integration at local rail stations.
- 13.1.12 The Implementation Plan for Battle, Rye and rural Rother contains specific schemes and interventions in pursuit of these objectives. As the area is predominantly rural in nature, the main challenge is to support the economic vitality of the market towns and village centres which support the local population. The Plan goes on to state that
- “The major part of Rother is covered by environmental designations which reflect the local, national and sometimes international importance of the landscape and biodiversity in the area. All transport improvements, particularly those related to new development, will be implemented with sensitivity to any environmental impacts they are likely to have.”*
- 13.1.13 The Plan indicates provision for improvements at selected rail stations to upgrade access and storage, pedestrian access, bus access, parking and ‘drop off’ facilities and signage as appropriate, including Robertsbridge. Reducing road casualties on the rural road network is also highlighted as an area of focus.
- 13.1.14 The Rother District Local Plan (2011-2028) Core Strategy is undergoing consultation and public examination. The examination is due to recommence in January 2014, largely to consider housing allocations and targets. The Submission version of the Core Strategy (August 2011) is more relevant for consideration in this context.
- 13.1.15 One of the strategic objectives is ‘to support sustainable tourism and recreation, including improved access to the countryside’.
- 13.1.16 The Strategic Transport Objective for Rother is ‘to provide a higher level of access to jobs and services for all ages in both urban and rural areas, and improve connectivity with the rest of the region.’
- 13.1.17 These are defined as:
- i. improve connectivity between Rother and the wider South East region, both along the coast and towards London
  - ii. achieve a re-balancing of the transport system in favour of sustainable modes as a means of access to employment, health services, recreation and community facilities
  - iii. maximise transport choice and otherwise provide for efficient and safe movement, in both urban and rural areas
- 13.1.18 The A21 is seen as the main north-south corridor in the District. The former A21 improvements between Flimwell and Robertsbridge were cancelled in the Government’s 2010 Spending Review and no further significant upgrades to this part of the A21 through Rother District are currently planned.
- 13.1.19 Under the heading ‘Integrated Transport’, the document highlights the need to rebalance the transport system in favour of sustainable modes, recognising that in a largely rural district, there are limited alternatives to the car for many journeys. It is noted that rail passenger numbers have gradually increased in the District over the last decade, and that capacity at some of the districts station car parks is at or near capacity. This is supported by Passenger Focus research (2010) that identified adequate car parking facilities is an unmet need in some areas. The text indicates that, in some areas it may be possible to increase station parking capacity, but where this is limited by economic, physical or other factors, the *‘priority will be to encourage passengers to access stations by bus or cycle, with suitable provision’*.



## 13.2 Methodology

- 13.2.1 There is no formal methodology guidance on the preparation on construction transport impact assessments. The methodology used is derived from Guidance on Transport Assessment as follows:

**Plate 13.1 – Transport Assessment Methodology**



- 13.2.2 Geographically, the scope of the assessment is limited to the locations where the proposed construction areas interact with the highway and the main routes leading to these. The assessment is based on the likely construction access routes which are deemed appropriate for the assessment given the limited route options available in the area. Until further clarity is achieved on materials supply and contractors, the precise routes to be used by construction traffic cannot be confirmed. However, for the purposes of the assessment, the area covered includes all the major routes to the construction site.
- 13.2.3 Baseline traffic conditions have been sourced from the Traffic Impact Assessment prepared by Mott MacDonald (2011) to assess the operational impacts of the new Level Crossings at the three vehicle crossing locations. Subsequently, Mott MacDonald prepared a number of reports to deal with technical issues arising from the 2011 report. These also form part of the baseline and include:
- Highways & Traffic Assessment Report, Response to HA Comments on A21 Crossing. January 2013
  - Highways & Traffic Assessment Report, A21 Assessment of Delays. August 2013
  - Non-Motorised User (NMU) Audit – Context Report. January 2013
  - Non-Motorised User (NMU) Audit Report. September 2013
- 13.2.4 No further traffic surveys have been undertaken to support this Report and it is considered that the data contained within the 2011 TA is sufficiently robust and recent to support this Report. The Highways Agency have requested that the latest TRADS data for A21 is included within the EIA to provide the most up to date picture for the SRN.

- 13.2.5 The means of assessing impacts in this case is carried out subjectively. Technical assessments have previously been completed in the 2011 Traffic Impact Assessment for the operational phase, particularly around highways impacts at proposed level crossings. The assessment is described in terms of 'sensitivity' and 'magnitude' on the topics highlighted below. These fall into two broad categories; local and area wide.

**Table 13.1 – Summary of the Spatial Scope of Predicted Effects**

| Issue   | Local | Area Wide |
|---|-------|-----------|
| Operation and safety of construction site access points onto local and strategic road network | X     |           |
| Impact of construction of level crossings at three locations                                  | X     | X         |
| Impact of regular construction traffic on road network  |       | X         |
| Impact of Unusual Loads on road network and access points                                     | X     | X         |
| Operation and construction impact of Rights of Way pedestrian crossings                       | X     |           |
| Travel impacts of construction operatives during construction phase                           |       | X         |

### Assumptions and limitations

- 13.2.6 The assessment has been based on the best available information on the following topics:
- Construction methodology and outline programme;
  - Expected compound locations and their access locations to the highway network;
  - Anticipated operative requirements;
  - Estimated construction traffic;
  - Expected origin and destination of construction traffic; and
  - Anticipated plant requirements and movements.

### Consultation

- 13.2.7 Consultation on the EIA Scope has been undertaken with statutory agencies which, for the purposes of this topic, are East Sussex County and Highways Agency as highway authorities for County and Strategic roads respectively. Copies of their response to the Scope and Methodology Report are included in Volume 3, Report 2.
- 13.2.8 Further consultation with the Highways Authorities should be undertaken to formally agree construction access routes.

## 13.3 Baseline

- 13.3.1 The route crosses Northbridge Street, Robertsbridge, A21 (trunk road) and B2244 Junction Road. It also crosses a Bridleway at Salehurst, a public footpath just east of A21 and two public footpaths in the vicinity of Robertsbridge.
- 13.3.2 There are two relevant highway authorities – Highways Agency for A21, and East Sussex County Council for other routes. Both are statutory consultees. The planning authority is Rother District Council.
- 13.3.3 Level crossings are required at each vehicular crossing point (3 no.) shown as A, B and C in Plate 2.3. Pedestrian crossing points are required at each point the route crosses a footpath or bridleway (2 no.) as shown in Figure 2.1 (Volume 4).
- 13.3.4 No level crossings or pedestrian crossing points are currently present at any of the proposed crossing points, although some historic infrastructure is apparent in certain locations.

- 13.3.5 A study was completed in 2011 by Mott Macdonald to assess the impacts of new level crossings at the three crossing locations on Northbridge Street, A21 Robertsbridge Bypass and B2244 Junction Road. This study considered and assessed the following issues at each location:
- Queue lengths and increases in traffic delays;
  - Safety;
  - Traffic speed and speed limits; and
  - Potential for diverted traffic.
- 13.3.6 A number of mitigation measures were identified, including the potential for speed limit changes at A21 and B2244 and traffic separation on A21.
- 13.3.7 Subsequent discussions with the Office of the Rail Regulator have indicated No Objection in Principle to the level crossing(s), and agreements on road safety management measures at the A21 crossing.
- 13.3.8 Current traffic levels are contained within the 2011 report and these have been used as the basis for further assessment. No pedestrians or cyclists were observed the surveys for that report, and this is also confirmed by the site visit conducted for the current EIA. A Non-Motorised User (NMU) Audit has been completed in respect of the A21.
- 13.3.9 It is considered that the operational impacts of the three vehicular level crossings have been adequately assessed, subject to the caveats contained within the 2011 Mott Macdonald reports, and therefore require no further consideration in this assessment.
- 13.3.10 No operational assessments have been made of the four footpath crossings. Investigation of the location (or relocation) of the proposed crossings *vis a vis* pedestrian safety, crossing layout and design is considered later in this chapter.
- 13.3.11 Planning consent for the reconstruction of Robertsbridge railway station was granted in December 2012 (RR/2012/1357/P). This was accepted on the basis of all new passengers arriving by National Rail (South Eastern) services or other public transport, with no new car parking allowance except for 3 operational spaces. Currently, parking for the Kent & East Sussex Railway is only permitted at Northam and Tenterden Stations. Initial observations indicate that Robertsbridge Station car park (75 spaces) is currently approximately 85-90% occupied during weekdays (by users of the mainline rail services).

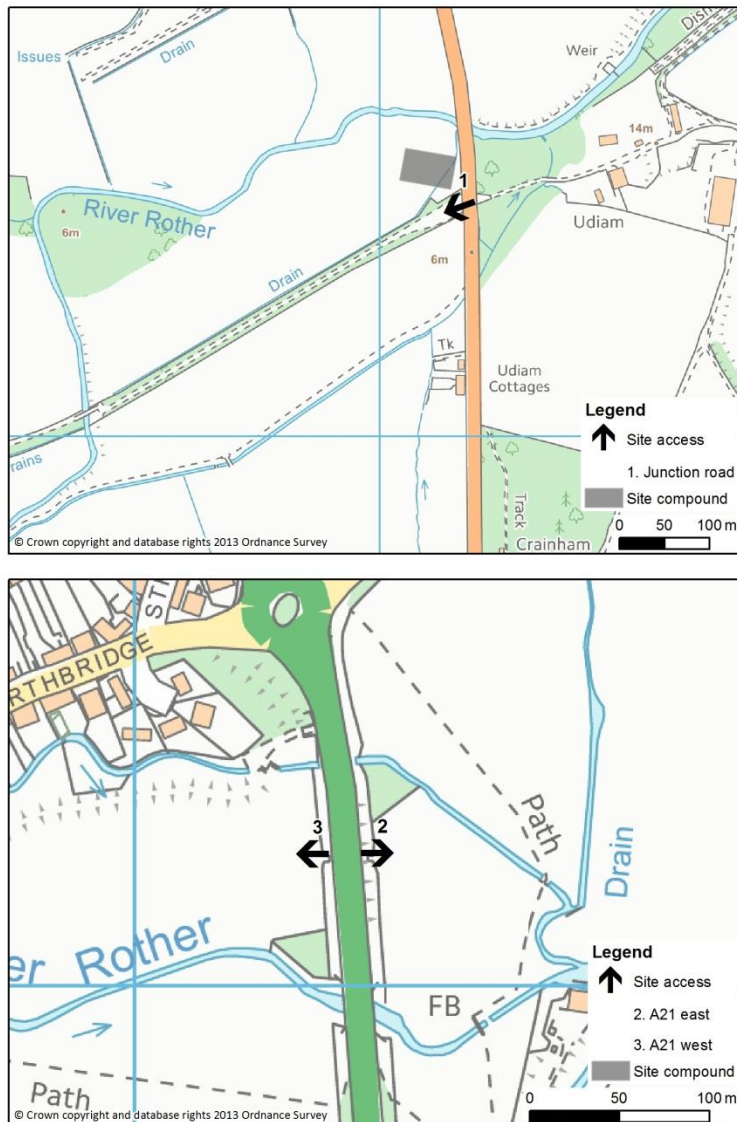
### **Construction, Methodology and Programme**

- 13.3.12 The proposed construction programme and methodology summarised in the following section was developed in conjunction with RVR Limited and is described in detail in Chapter 2. The proposed construction methodology represents the best understanding of the Scheme construction works at this time.
- 13.3.13 The assessment of construction effects has been undertaken to ensure a reasonable worst-case scenario is considered and that any conclusions are sufficiently robust to accommodate potential changes in the construction methodology.
- 13.3.14 The total duration of the construction phase of the Scheme is estimated to be between 18 and 24 months. Subject to obtaining planning consent, the works are scheduled to commence in July 2015.

## Construction Site Layout and Access

13.3.15 The construction site is linear, formed along the former railway alignment and track bed (where still extant), with a single temporary construction compound and three access points, as shown on Plate 13.2:

**Plate 13.2– Location of temporary highway access points and site compound**



13.3.16 These will be formed as temporary access points during the construction period, and will be transformed to railway level crossings prior to the railway becoming operational.

13.3.17 Details of temporary site access layouts are to be determined with the relevant highway authorities. However, we anticipate the following principles to apply:

- Each of the A21 access points will be restricted to 'left-in, left-out' movements only. No right turns will be permitted;
- Speed reduction measures identified in the 2011 Mott McDonald Transport Assessment as permanent mitigation will be implemented prior to construction commencement; and

- Temporary traffic signals may be appropriate at B2244 Junction Road during various periods to control access, due to existing width restrictions, subject to further assessment of traffic speeds as recommended in the 2001 TA report.

13.3.18 An internal site road haul road will be constructed on the track alignment and would run on the track sub-base prior to the final construction of the track bed.

### **Construction Traffic and Material Deliveries**

13.3.19 A number of construction vehicles and plant will, once delivered to the site, will remain within the site boundary for the duration of their use. These are likely to include those listed in **Table 13.2**.

**Table 13.2 – Construction Vehicles**

| Item                                  | Number |
|---------------------------------------|--------|
| <b>Bulk Earthworks</b>                |        |
| 15 tonne excavator                    | 1      |
| 360 degree dumper                     | 1      |
| 2 tonne vibrating roller              | 1      |
| <b>Piling</b>                         |        |
| Piling rig                            | 1      |
| <b>Lifting</b>                        |        |
| Crane with 100t lifting capacity      | 1      |
| <b>Track Laying</b>                   |        |
| road/ rail 360 excavator              | 1      |
| locomotive and ballast hopper wagons* | 1      |
| tamper/ liner                         | 1      |

13.3.20 For these vehicles, the only impact on the wider transport network will be associated with the initial delivery and subsequent removal from site. It is anticipated that the piling and lifting rigs will be required at site later and removed earlier than the bulk earthworks equipment, subject to confirmation of the construction programme.

13.3.21 Material deliveries for the site during construction include:

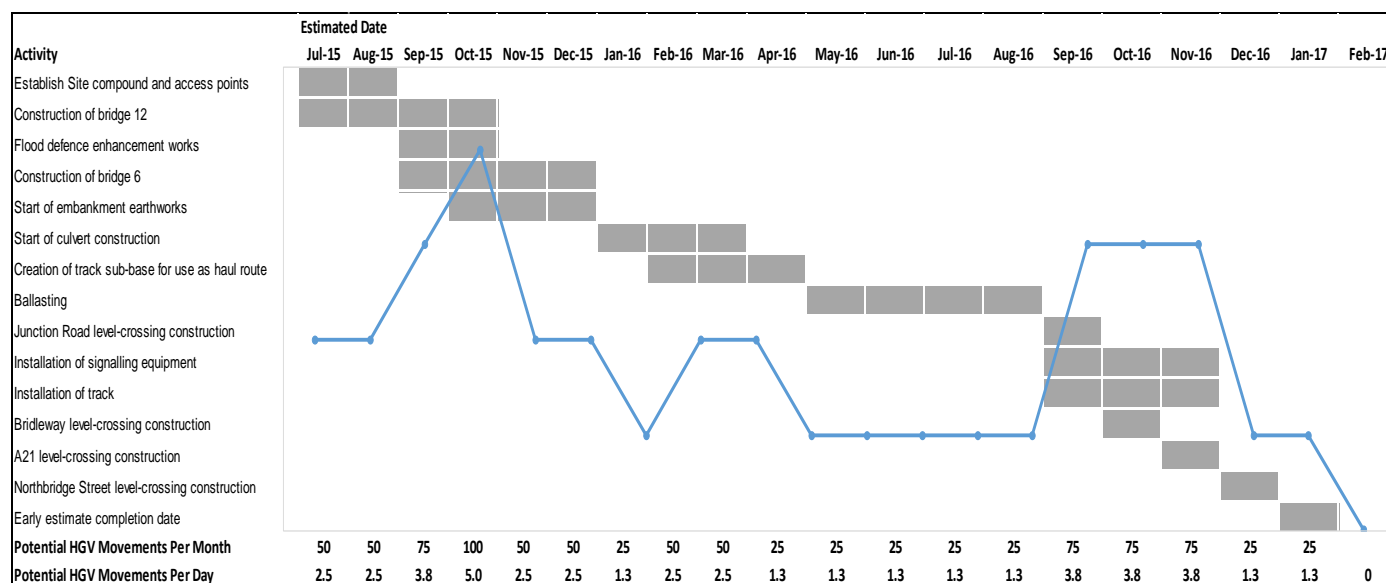
- Fill material for embankments;
- Concrete for piling and support for bridge structures (2 no.);
- Ballast;
- Sleeps;
- Rails; and
- Materials for construction of new halt at Salehurst.

13.3.22 RVR has estimated that during the construction phase there would 450 HGV delivery and excavation movements associated with the site during the construction programme, equating to approximately 900 HGV trips over the 19 month build period.

13.3.23 The average number of HGV movements associated with the site by month and day has been estimated, assuming that each construction activity generates an identical number of HGV's. As details of the construction programme become clearer, this assumption can be refined.

13.3.24 However, based on this assumption, **Plate 13.3** shows the current outline construction programme and estimated profile and number of HGV movements by month and by working day. The peak activity is expected to be within October 2015 when four key activities take place simultaneously – construction of 2 bridges, flood reinforcement works and commencement of embankment earthworks. This is estimated to generated approximately 5 HGV trips per day.

**Plate 13.3– Indicative HGV movement profile**



13.3.25 It is expected that construction work would commence from the A21 access points and work outwards towards east and west. Only one direction would be worked on at a time, to minimise movements at the A21 access. The sub-base of the track would be formed first as the temporary haul route across the site.

13.3.26 Deliveries would be managed on a 'just in time' basis, delivered to the point of need. This will reduce the amount of on-site storage necessary, and eliminate the need for site-related traffic movements on the local road network.

13.3.27 Track laying would take place from the Junction Road access, extended from the existing track termination point just to the east of Junction Road.

### Construction Traffic Routing

13.3.28 From the perspective of assessing traffic network impacts, the construction can be considered in three phases:

1. Site preparation, structural elements and trackbed construction
2. Track laying
3. Level Crossing construction – vehicle and pedestrian

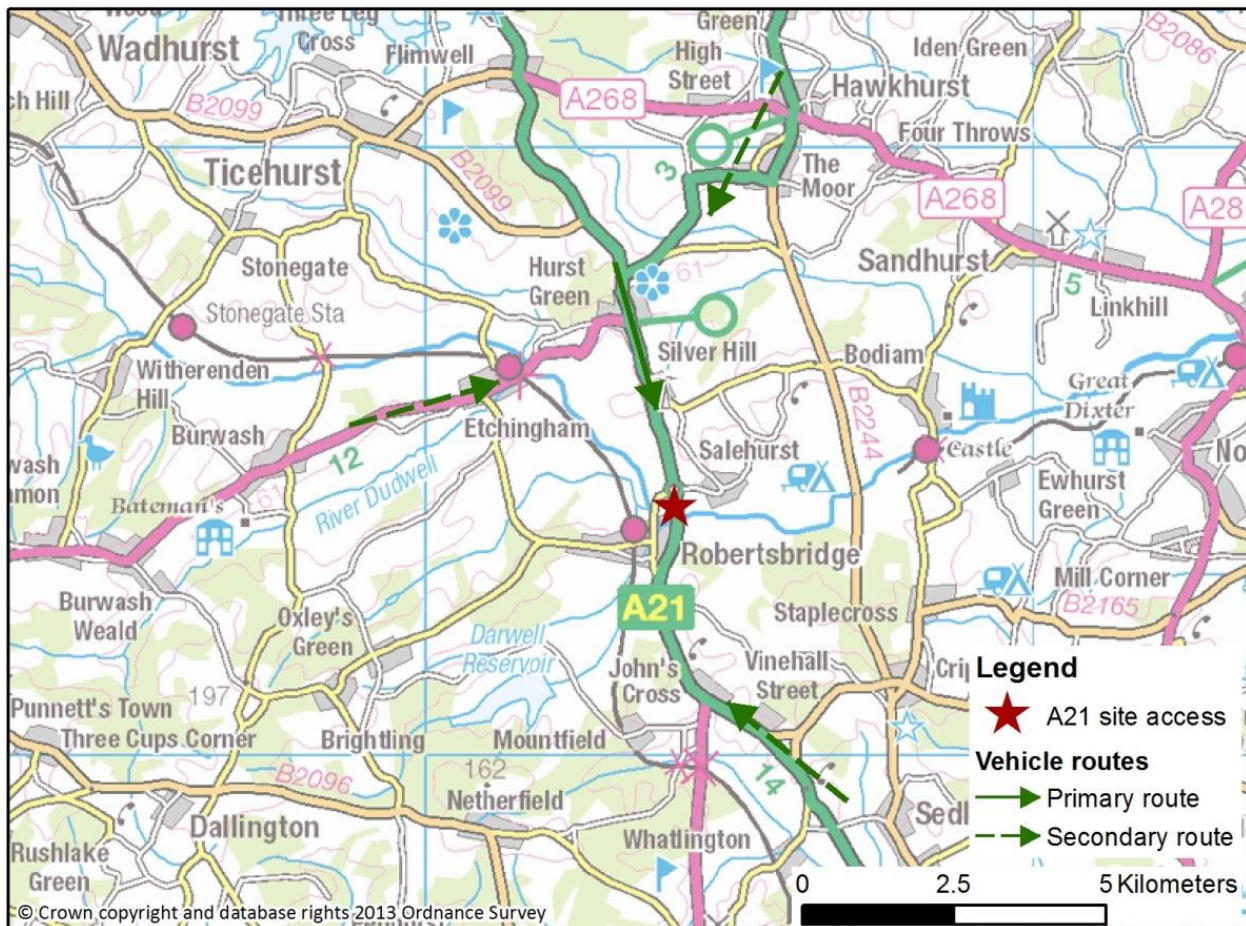
13.3.29 Construction vehicle routings are likely to alter slightly for each phase, but these will be agreed with the highway authorities once the construction programme is finalised.



## Construction Phase 1- site preparation, structural elements and trackbed construction

13.3.30 It is anticipated that most construction deliveries during this phase will use A21 (from the north), depending on the type of material being delivered. Secondary routes are A229 and A265 (as shown in Plate 13.4).

**Plate 13.4 – Indicative construction vehicle routing during construction phase 1**

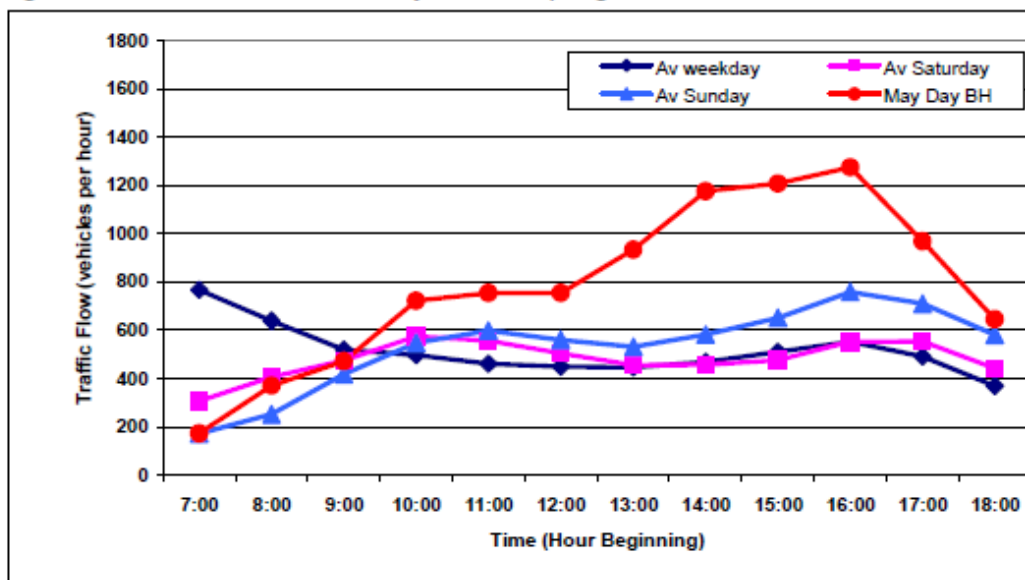


13.3.31 It is understood that track infrastructure (rail and sleepers) is currently stored at Rye Harbour for use at the site.

13.3.32 The 2011 Traffic Impact Study identified average and peak traffic flows along A21, and cited anecdotal evidence regarding congestion during peak holiday periods and Bank Holidays. The weekday peak periods also show higher traffic volumes, approximately one-and-a-half times the inter-peak average, as shown on the charts in **Plate 13.5** extracted from the 2011 Traffic Impact Study.

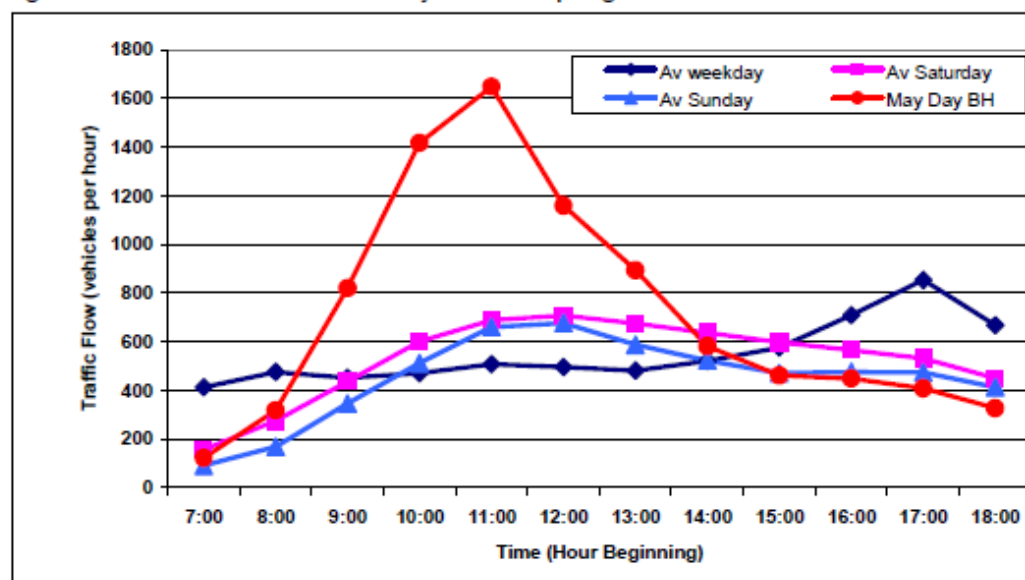
**Plate 13.5 – A21 traffic flows (Spring/ Autumn 2010) – Extracted from Mott MacDonald 2011 Traffic Impact Study**

**Figure 3.2: A21 Northbound Daily Profiles Spring/Autumn 2010**



Source: <http://trads.hatris.co.uk/>

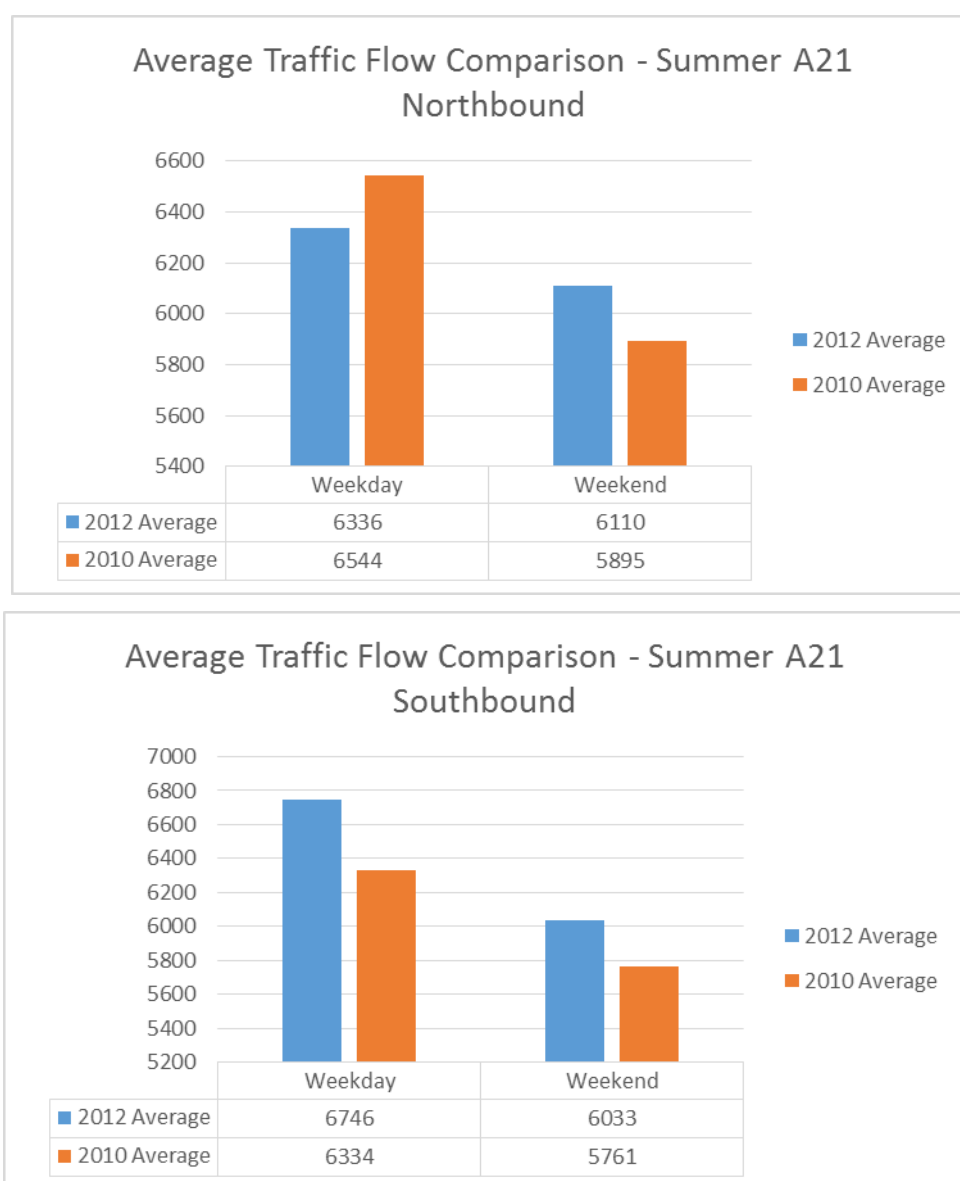
**Figure 3.3: A21 Southbound Daily Profiles Spring/Autumn 2010**

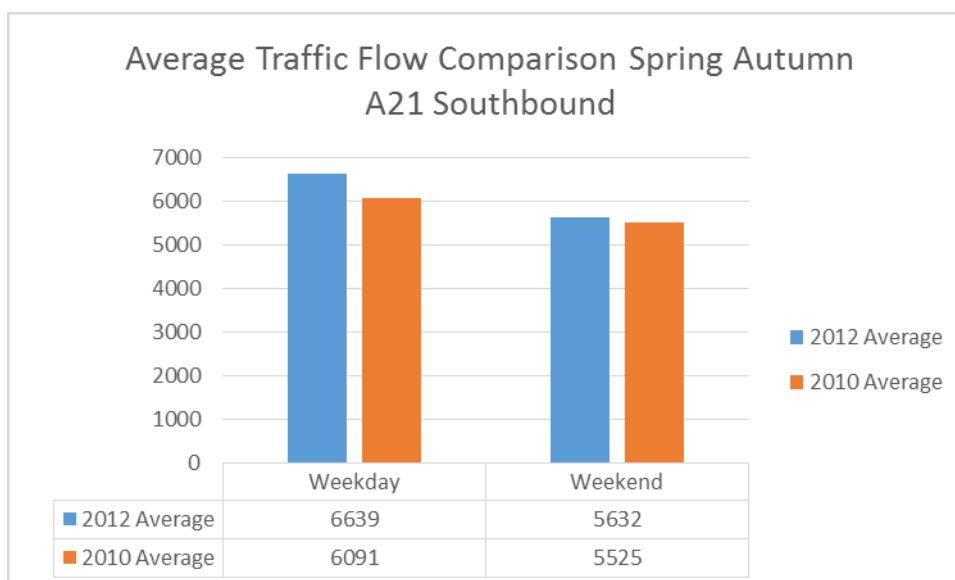
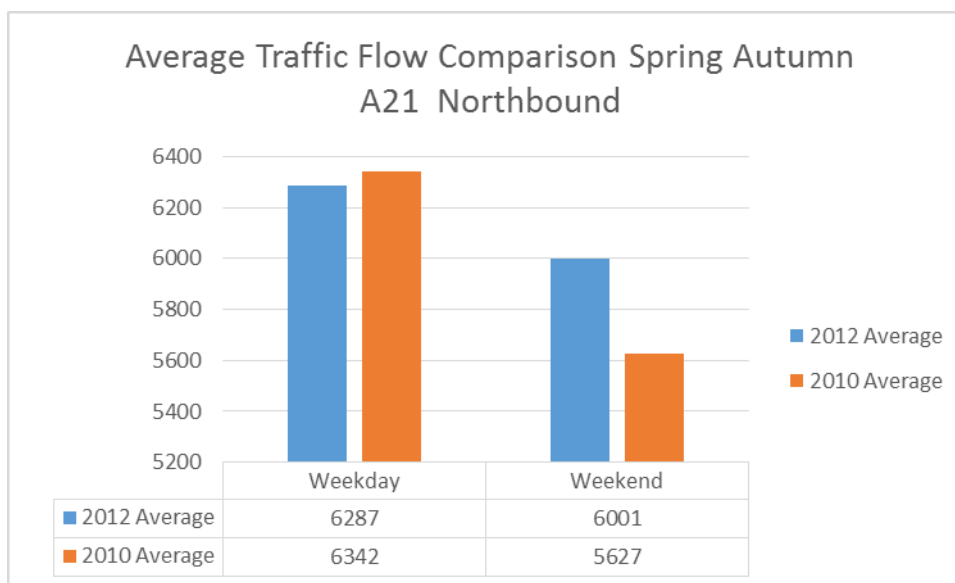


Source: <http://trads.hatris.co.uk/>

13.3.33 The Highways Agency, in their response to the Scope and Methodology Report, suggested that the latest HATRIS data should be included in this report for comparison purposes. For construction purposes, it is not considered that background traffic levels on the trunk road network will have a material impact on construction traffic. For comparison purposes, average monthly comparisons of traffic levels on A21 Robertsbridge bypass in each direction have been prepared for summer and spring / autumn periods, as used in the 2011 Mott MacDonald report. The graphs are shown in **Plate 13.6** and indicate that, in most cases, average traffic levels have increased for weekday and weekend periods. It is considered reasonable to assume that the daily pattern of movement remains very similar to that found in the 2011 data shown in the Mott MacDonald report.

**Plate 13.6 – A21 average traffic flows**





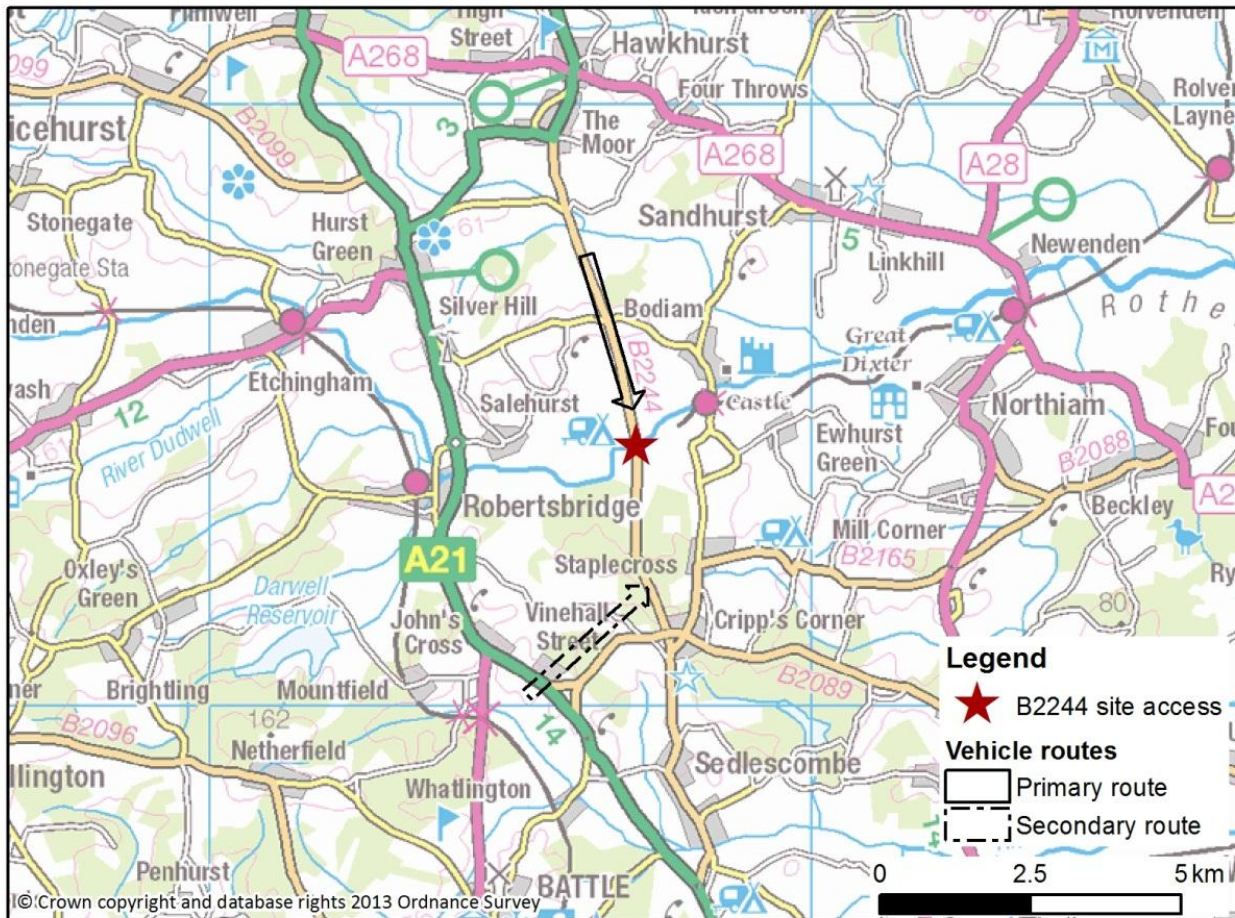
13.3.34 It is proposed that, as far as practicable, construction deliveries and removal movements to the A21 temporary access points take place during off-peak periods. Special measures may be appropriate during peak holiday periods to mitigate any short-term congestion impacts, depending on the nature of construction activity taking place at the time.

#### **Construction Phase 2- track laying**

13.3.35 The B2244 Junction Road is to be the main route for materials delivery during the track laying phase. It is anticipated that most HGVs will arrive from the north, connecting from A21 / A229 (see **Plate 13.7**). Delivery vehicles for this phase are likely to be longer articulated vehicles (but not abnormal loads).



**Plate 13.7 – Indicative construction vehicle routing during construction phase 2**



13.3.36 Traffic volumes on Junction Road are much lower than A21, measuring approximately 100-150 vehicles per hour during interpeaks, rising to double that during peaks. Deliveries will be managed to take place during off-peak periods and avoid peak holiday times as far as practicable.

### **Phase 3 – Level Crossing Construction**

13.3.37 It is anticipated the three vehicle level crossings and two pedestrian crossings will be constructed near the end of the construction phase.

13.3.38 Construction of the vehicle level-crossings on the A21 and B224 Junction Road would be undertaken without a full closure of the highway by implementing a signalised single lane configuration during the construction works. Both sets of works would be undertaken at night during two consecutive weekends with one side of the level crossing being constructed each weekend. Between the weekend construction periods the two lane highway configuration would be reinstated. Night working and phased construction to avoid full highway closures will be implemented to minimise construction related impacts to the highway.

13.3.39 The third highway level-crossing would be on Northbridge Street and it is proposed that construction of this crossing would be undertaken during a full closure of the highway to vehicle traffic (pedestrian access would be maintained throughout construction). During the temporary closure of Northbridge Street vehicle traffic would be diverted via the A21.

- 
- 13.3.40 The timing of closures and diversions will be agreed with the highway authorities, to ensure co-ordination of works between the 3 locations.
- 13.3.41 The level crossings would be constructed utilising pre-cast concrete bases with the running rail already installed which would be lifted into position where the existing carriageway has been excavated.
- 13.3.42 Three pedestrian level-crossings for public rights of way and a combined pedestrian and bridleway crossing will also be required as part of the scheme. The bridleway and public rights of way will remain open throughout the construction of the scheme and the level-crossings. Local diversions may be necessary at specific points during the construction period to allow construction of embankments and other aspects.
- 13.3.43 These crossings would consist of a type 1 fill material laid across the track formation to form the surface for users walk on. Barrier fencing and gates would then be installed.

#### **Gates, Lights, Testing, Regulator Approval**

- 13.3.44 It has been assumed for the purposes of the assessment that the testing / commissioning period takes place during overnight periods immediately after construction is completed at each site to minimise any disruption to traffic.

#### **Site Workers**

- 13.3.45 It is anticipated that, at peak construction periods, up to 25 staff personnel may be employed on the site but it is highly unlikely that all would be on-site simultaneously. Although shift patterns have not been determined, based on current construction practice, is expected that there would be a maximum occupancy of two gangs of five operatives on site at any one time.
- 13.3.46 On-site parking would be provided at the existing construction site adjacent Robertsbridge Rail Station and at the Junction Road compound (up to six parking spaces available).
- 13.3.47 It is understood that many of the operatives would be drawn from the existing pool of local RVR volunteers, particularly for labouring work. Many of these live locally, within walking or cycling distance of the site. Car sharing will be encouraged between site operatives where practicable.
- 13.3.48 For workers travelling from Tunbridge Wells or Hastings directions travelling to the mainline Robertsbridge Station offers an alternative mode of transport.
- 13.3.49 Specialist tasks, such as bridge lifts or abutment construction, may involve the inclusion of specialist contractors, who will need to travel in from further afield. These are, however, likely to be specific, timebound activities and would generate a negligible amount of additional traffic on the local road network.



## 13.4 Predicted Effects

### Construction

13.4.1 Taking all of the above into account, the potential transport impacts can be summarised as shown in **Table 13.3**:

**Table 13.3 – Summary of effects**

| Nature of impact  | Sensitivity | Severity |
|---|-------------|----------|
| Operation and safety of construction site access points onto local and strategic road network |             |          |
| A21   | H           | L        |
| B2244 Junction Rd   | M           | L        |
| Impact of construction & testing of level crossings at three locations                        |             |          |
| A21   |             |          |
| B2244 Junction Rd   | H           | L        |
|   | M           | L        |
| Impact of regular construction traffic on road network  | M           | L        |
| Impact of Unusual Loads on road network and access points                                     | M           | L        |
| Operation and construction impact of Rights of Way pedestrian crossings                       |             |          |
| Construction  | L           | L        |
| Operation   | L           | L        |
| Travel impacts of construction operatives during construction phase                           | L           | L        |

### Operation and safety of construction site access points onto local and strategic road network

#### 13.4.2 Sensitivity

- The A21 is a Trunk Road carrying high volumes of traffic resulting in congestion, particularly at peak periods. The B2244 Junction Road is a lower order road but has a poor road safety record in the vicinity of the proposed access point and experiences high traffic speeds.

#### 13.4.3 Potential Impact and Likelihood

- The frequency of construction related movements at the site access points is unknown. It is intended that only one access point would be worked at a time, and that deliveries would be managed on a 'just in time' basis.

#### 13.4.4 Severity

- Low. This is a negligible impact on the existing network.

### Level Crossing Construction

#### 13.4.5 Sensitivity

- The A21 is a Trunk Road carrying high volumes of traffic resulting in congestion, particularly at peak periods. The B2244 Junction Road is a lower order road but has a poor road safety record in the vicinity of the proposed level crossing and experiences high traffic speeds.

#### 13.4.6 Potential Impact and Likelihood

- Construction is limited to 6 weekend periods, where 4 of the construction periods (A21 and B2244) would take place overnight.
- Testing periods have not yet been specified by RVR. For the purposes of this assessment, it has been assumed these can also be carried out overnight.

#### 13.4.7 Severity

- Low. Impacts are limited to specific periods of low traffic volumes and agreed durations.

#### **Regular construction traffic impacts**

#### 13.4.8 Sensitivity

- Impact on road network performance through transport of materials to/from site. The road network is known to experience congestion through peak periods.

#### 13.4.9 Potential Impact and Likelihood

- Our estimates indicate a peak of an additional 3 HGV movements per day over a short period, based on the current programme. Over the whole construction period, HGV activity is expected to average 2.4 movements per day.

#### 13.4.10 Severity

- Low. This is negligible impact on the existing network.

#### **Transport and removal of site plant**

#### 13.4.11 Sensitivity

- Impact on network performance through transport of large loads. The road network is known to experience congestion through peak periods. The network is also rural with tight bends and steep climbs in some locations.

#### 13.4.12 Potential Impact and Likelihood

- It is understood that no 'Abnormal Loads' would be required to transport specialist machinery to or from site
- The amount of plant being transported to site would be limited (as per Table 13.1), and would be likely to have only one arrival and departure trip for each item of plant specified

#### 13.4.13 Severity

- Low. Impacts are limited to one trip in each direction for each plant type.

#### **Site Operatives**

#### 13.4.14 Sensitivity

- Impact on road network performance of operative traffic generation. The road network is known to experience congestion through peak periods.

#### 13.4.15 Potential Impact and Likelihood

- During construction period (18months) daily additional people movements generated by up to 10 operatives in each peak period, subject to clarification of construction schedules and shift patterns; and
- It is understood that many of the volunteer workforce live within walking or cycling distance, or can be encouraged to car share. External contractors would be brought in for specialist tasks only.

#### 13.4.16 Severity

- Low across the wider network and at site access points;
- Assuming no non-car use by operatives, a worst-case scenario is thus 10 additional drivers accessing the site for shifts start / ends coinciding with peak traffic movements. The maximum additional traffic generated by construction site operatives is 10 vehicles in each hour to each car park; and
- Based on the interpretation of existing traffic flows as reported in the 2011 Traffic Impact Study, it is considered that this level of traffic increase will not have a material impact on overall network performance or congestion.

### **Operations**

#### 13.4.17 There are three main operational factors to take into account:

- Impacts of the operation of the extended heritage rail service between Bodiam and Robertsbridge in terms of additional passengers generated and impacts on the wider transport network;
- Impacts of the new vehicle level crossings on the road network at A21, B2244 Junction Road and Northbridge Road; and
- Impacts of the pedestrian level crossings at the 4 PROW crossing points (3 No footpath, 1 No Bridleway).

13.4.18 The first two of these factors have been dealt with in previous reports and assessments. The impacts of the extended rail service have been considered in the planning application for construction of Robertsbridge Station (RR/2012/1357P). The decision notice, dated 14 November 2012, states 'supporting evidence has been put forward in the application to demonstrate that the availability of the existing Station car park would be suitable for serving the development.'

13.4.19 Impacts of the three new Level Crossings on the road network have been dealt with in the 2011 TA Report prepared by Mott MacDonald, and referred to elsewhere in this chapter.

13.4.20 Consideration of the operational aspects of the PROW crossings centres around the interruption of passage whilst gates close for train operations. For the purposes of the assessment it has been assumed that these crossing points will be unmanned, alarmed / magnetic crossings that will warn footpath users of an approaching train and automatically lock the gate closed whilst it passes.

13.4.21 The operational impacts of the Footpath / Bridleway crossings are assessed as follows:

13.4.22 Sensitivity

- Footpath usage is unknown but is likely to be seasonal and relatively light; and
- Sensitivity assessed as low.

13.4.23 Potential Impact & Likelihood

- Train frequencies are forecast to be 5-7 trains per day, on a pre-published timetable; and
- Closure of vehicle level crossings is estimated to be between 38 and 45 seconds per closure. Trains passing the pedestrian crossing points can be expected to be less than this duration, due to the simpler warning / closing arrangements.

13.4.24 Severity

- This is assessed as low. Interruptions to the footpath network will be infrequent and of low duration.

### **13.5 Cumulative Effects**

13.5.1 There is a known planning application (RR/2013/2380/P) on land to the north of Station Road, Robertsbridge. The proposal is for 1300m<sup>2</sup> of B1 business units and 17 dwellings, on a site allocated within the 2006 Rother District Local Plan.

13.5.2 The application had not been determined at the time of writing. In the event that consent is granted, the timing of implementation is unknown, so it is not possible to assess whether construction periods between these proposals and those of RVR may overlap. However, in the event that there are overlapping construction periods, it is unlikely to have a cumulative effect on the transport network, given the low impact of construction activity outlined in this assessment, and the relatively modest nature of the development proposals subject to current consideration.

13.5.3 As far as operational impacts are concerned, the site is allocated within the Adopted Local Plan. The Traffic Impact Assessment prepared by Mott MacDonald includes traffic growth figures from TEMPRO which contains information and assumptions relating to planned growth. It is highly likely that the potential traffic impacts of the proposed development have been assessed within the existing Mott MacDonald report.

### **13.6 Mitigation**

13.6.1 Subject to appropriate measures being agreed with the highway authorities (Highways Agency and East Sussex County Council) and implemented on site it is considered that the construction effects would be neutral.

13.6.2 Specific construction mitigation measures are suggested as follows:

#### **Temporary site access**

- Implementation of permanent speed management measures (identified in 2011 Traffic Impact Report) in advance of temporary accesses being constructed on A21 and B2244; and
- B2244 Junction Road access, consideration of additional traffic management measures at site access to account for limited road width, presence of bridges / localised narrowings and manoeuvrability of large vehicles access / egressing construction site.

---

### **Materials delivery and excavation movements**

- The requirement for mitigation to be agreed with the highways authorities.

### **Level Crossing Construction**

- Timing of weekend and overnight closures to be agreed with highway authorities.

### **Site Operatives**

- 13.6.3 Encouragement of car sharing between operatives where practical to reduce localised impacts.

## **13.7 Residual Effects**

- 13.7.1 After mitigation measures set out above are implemented, no significant residual effects are considered likely to arise from construction and/or operation of the Scheme.

## **13.8 Conclusion**

- 13.8.1 The assessment of the construction and operational effects on transport and access as a result of the proposed Scheme has concluded that the severity of construction impacts is Low at a local level and across the wider transport network. The severity of the operational impacts (PROW Crossings) is also Low. Operational impacts for the overall impact of the Scheme at Robertsbridge Station, and the operation of the 3 level crossings have been assessed separately.
- 13.8.2 On the basis of the current assessment, there are no significant transport issues that would prevent the Scheme proceeding.

## 14.0 Socio-Economics

### 14.1 Introduction

14.1.1 This chapter details the assessment of the potential socio-economic impacts of the proposed Scheme. The main socio-economic issues for the Scheme are:

- Employment effects (positive and negative), directly and indirectly, facilitated by the Scheme, during both construction and operation;
- Effects on key local tourism attractions; and
- Wider economic benefits – if any - from improved transport provision.

14.1.2 Two major studies of the local economic impact of the Scheme have been undertaken by the International Centre for Research and Consultancy, Manchester Metropolitan University (MMU). The first study (MMU1<sup>69</sup>) was completed in 2007. As a result of a request to both update MMU1 and expand its coverage in May 2013, a second study (MMU2<sup>70</sup>) was completed in late 2013. These studies provide a wide-ranging assessment of the socio-economic impacts of the Scheme having been based on impact modelling, desk research of similar projects, fieldwork and an analysis of local economic data.

14.1.3 Given both the depth of research contained within these two studies and the contemporary nature of the data, this chapter directly draws upon the outputs and conclusions of the research undertaken by MMU. Indeed, it was decided that there was no need to undertake any further fieldwork to complete this assessments of socio-economic impacts.

14.1.4 Details of the approach and methodology to the assessment of the socio-economic effects arising from the Scheme were originally detailed in the Scope and Methodology Report<sup>71</sup> and Section 14.2 and 14.3 of this chapter highlight the key elements of the assessment exercise. A synopsis of MM1 and MM2 is provided in 14.4. A detailed description of a number of relevant social -economic baseline characteristics of the local economy is described in 14.5. An assessment of the predicted and cumulative effects of the Scheme is provided in respectively in 14.7 and 14.7 respectively. Section 14.8 covers the limited need to address mitigation in terms of socio-economic effects of the Scheme together with possible residual effects. Finally, section 14.9 presents the conclusions of the research on the socio-economic impacts of the Scheme.

#### Approach

14.1.5 Socio-economic effects have been assessed for both the construction and operational periods of the Scheme. It is recognised that, in some cases (particularly of larger transport infrastructure schemes), effects may actually start before construction commences (e.g. due to prior knowledge of land take or as a result of development decisions taken in anticipation of the scheme). However, due to the restricted nature of construction for the Scheme and the limited socio-economic impacts of the Scheme, this was never likely to be a significant issue.

<sup>69</sup> Rother Valley Railway, Local Economic Impact Study, MMU, September 2007

<sup>70</sup> Rother Valley Railway: Local Economic Impact Study, MMU, October 2013

<sup>71</sup> Chapter 6 of the EIA Scope and Methodology Report, 2013



---

## Local Resources and Receptors

- 14.1.6 Socio-economic receptors include individuals, groups or entities whose access to, and control over, socio-economic assets, resources and opportunities may be affected by a scheme. For the Scheme, these may include:
- Individual public and private sector employers, businesses and organisations (labour demand);
  - Individual employees and job seekers and labour force catchment areas/the employment market (labour supply);
  - Rural centres (such as Robertsbridge), and their commercial property markets (shops, offices and business space) and development sites, insofar as these may in the future impact on the level of economic activity;
  - Residential developments where these may influence economic activity through regeneration, investment and/or the labour market; and
  - Amenity developments such as tourism and recreational facilities.
- 14.1.7 Given the availability of MMU1 and MMU2 (see discussion below); it was evident that the scale and nature of socio-economic impacts would be limited and narrow.

### Additionality

- 14.1.8 A socio-economic analysis of a traditional transport scheme would normally address a number of key questions, namely:
- What is the extent to which the scheme has an effect upon the level of economic competition in the area of impact?
  - Would the scheme result in higher economic activity rates amongst residents in the study area? and
  - Would commuting costs change - either positively or negatively - during construction and/or after Scheme completion, thereby either encouraging more people to choose to work when commuting costs fall or alternatively fewer people decide to stop work in the event that costs increase?
- 14.1.9 Overall, the analysis has been subject to a key statement in WebTAG guidance<sup>72</sup>: “At best a transport scheme can only provide opportunities for new economic activity that others may then choose to exploit or not. There is no guarantee attached to the outcomes.” Thus the socio-economic analysis has been placed in the context of additionality i.e. the extent that the impact arising from the proposed transport infrastructure improvements is truly additional or would part or all of the impacts have occurred in the absence of the scheme.

## 14.2 Methodology

- 14.2.1 The methodology is based upon Chapter 6 of the Scope and Methodology Report (Volume 3, Report 1). As stated previously, the two reports undertaken by Manchester Metropolitan University (MMU) were the source of much of the economic data and fieldwork.

---

<sup>72</sup> DfT, WebTAG, TAG Unit 3.5.8, June 2003, p 17

- 14.2.2 A key aspect of socio-economic impact assessment is the definition of the study impact area. For a project such as the one under consideration this can be interpreted on two different levels.

#### **Extended Impact Area**

- 14.2.3 The impact area could be viewed in the context of treating the project as a ‘missing link’ within a transport network and hence the impact of the whole line should be under analysis. On this basis the impact area would comprise the following:

**Table 14.1 – Ward Population 2010**

| Ward   | Local Authority | Population |
|--|-----------------|------------|
| Salehurst (includes Robertsbridge and Bodiam Castle) | Rother          | 2,800      |
| Hawkhurst and Sandhurst                              | Tunbridge Wells | 3,700      |
| Rolvenden and Tenterden West                         | Ashford         | 1,400      |

Source: NOMIS

- 14.2.4 There could even be an argument to also include St Michaels (Ashford/1,400).

#### **Restricted Impact Area**

- 14.2.5 This approach would be to solely consider the ‘missing link’ as a discrete project and review the impacts on a local basis – hence restricting the assessment to Salehurst.

#### **Conclusion on Impact Area**

- 14.2.6 A review of the socio-economic aspects of the scheme taking into account the conclusions of the MMU reports (see section 14.4 below) indicated that socio-economic benefits are unlikely to accrue over a much wider area than Salehurst. Hence, the baseline provided below is primarily restricted to assessing impacts in the context of the population of Salehurst. Salehurst ward is in the north west of Rother District of East Sussex County bordering Kent. The following map shows all the wards of Rother District.

Plate 14.1 – Local wards<sup>73</sup>



### The MMU Reports

- 14.2.7 This section directly draws upon the conclusions of the research undertaken by MMU. As a result, the following section provides a number of relevant direct quotes from MMU1 and MMU2.

#### MMU1

- 14.2.8 The modelling undertaken by MMU was conducted as follows:

*“Analysis of impact upon the local economy was conducted using an approach based on the New Economics Foundation LM3 model. This considers the impact of direct income (Round 1) generated through an enterprise with respect to its local economy. Indirect income (Round 2) arises when businesses spend their income in the local economy. This in turn, gives rise to induced spending (Round 3) culminating overall in a “multiplier” effect.”*

- 14.2.9 MMU posited that:

*“Rother Valley Railway extension to K&ESR activity could provide the foundations and infrastructure for a local initiative of the type now being introduced elsewhere to develop tourism in local economies.”*

- 14.2.10 The report identified the generation of economic benefits by similar schemes and claimed:

*“An RVR extension could, for Robertsbridge, generate favourable impacts similar in scale to those enjoyed by towns such as Alresford, Bridgnorth, Llangollen, Minehead, Pickering, and Ramsbottom. In all of these cases preserved railways have created corridors of tourism activity linking and serving the interests of large and small tourism related enterprises along a route. Indicators of relative economic and social deprivation re-enforce the case for K&ESR*

<sup>73</sup> Rother District Council (2014), Wards, Available: <http://www.rother.gov.uk/article/187/Wards> Accessed May 2014.

*extending to Robertsbridge as an investment in tune with the character of the local environment. Finally, by effectively reconnecting Tenterden to the national rail network, a community spirit of optimism usually found with CRPs (community rail projects) may have an opportunity to develop.”*

- 14.2.11 MMU1 concluded that the development of the ‘missing link’ would facilitate 64 full-time jobs equivalent (FTEs) based upon the following analysis:

*“The case for RVR development rests heavily upon the benefits it would bring to K&ESR operations. Based upon historical data the multiplier effect of income generated through the railway, as it stands at present, is between 1.8 and 2.01. Using the higher value, it is estimated that from a total economic impact of £2.86m approximately 50 full time equivalent jobs are supported. If RVR boosted income by 30%, the multiplier effect would produce an economic impact totalling £3.65m supporting 64 full time equivalent jobs.”*

- 14.2.12 In terms of broader socio-economic benefits, the report stated:

*“... economic benefits have important social spill-over effects when key players in the local economy (local shops, services and public facilities) remain viable.”*

- 14.2.13 and MMU1 further concluded that:

*“... although Rother is part of a fairly affluent region, pockets of relative social deprivation exist. A RVR development facilitated through a Robertsbridge “gateway” will go a long way towards addressing some of these issues if it embraces the local community. Railways such as K&ESR not only have strong commercial portfolios, but through the educational aspect to their operations provide a vehicle for social inclusion.”*

- 14.2.14 MMU1 did not identify any significant socio-economic disbenefits.

## **MMU2**

- 14.2.15 In addition to updating socio-economic data, MMU2 particularly concentrated upon addressing the benefits to local tourism by examining the scale of potential impacts with representatives of the National Trust, Bodiam Castle and Tourism South East. MMU2 stated that:

*“Once the whole section from Bodiam Castle to Robertsbridge is reinstated, it is anticipated that impact upon the local tourism economy will be significant. K&ESR is a good example that typifies achievements made in the field of railway.”*

- 14.2.16 Regarding the two main tourism destinations that would benefit from increased connectivity, MMU2 stated that:

*“The most visited of the attractions in close proximity to the railway is Bodiam Castle. This is a National Trust property that attracts around 170,000 visitors a year (2011). There is considerable enthusiasm for the extension of the railway, and it figures in the medium term plan for the castle.”*

*“Tenterden Museum has modest visitor numbers and would welcome an increase. Again traffic congestion is a concern and alternative transport is seen as a way to increase numbers without causing other problems.”*

- 14.2.17 With regard the tourism sector and its importance for the local economy, MMU2 stated:

*“For districts such as Rother, tourism development offers the prospect of speedy returns because much of the necessary visitor economy infrastructure is already in place (i.e.*

*physical assets such as hotels, bed and breakfast, and self- service accommodation together with a workforce already engaged in this sector)."*

14.2.18 MMU2 did identify the possibility of negative economic benefits (addressed later in this chapter) by stating that:

*" . increased visitor numbers and the introduction of level crossings (especially on the A21 Robertsbridge by-pass) may have negative economic impacts arising from the RVR/K&ESR "missing link"."*

14.2.19 The principal findings of MMU2 are as follows:

- "Development of the RVR "missing link" should improve the commercial position of the Kent and East Sussex Railway with passenger numbers increasing to 150,000 per annum given moderate increases in capacity and 200,000 visitors per annum when additional resources from RVR come into place.
- Recent studies conducted by a parliamentary select committee and the Heritage Railway Association confirm that heritage railways now make a significant contribution to local economies. Although short term multiplier values range from 1.2 to 2.47, over the long term values can be much higher as indicated by research into the 'legacy' effect of the London 2012 Olympic Games.
- The nature of Rother District and adjoining economies suggests, as shown in the main text, that the proposed RVR "missing link" development would have a significantly beneficial economic and social impact upon these communities given the wider than average variations in income, deprivation and inclusion".
- The authors of this report recognise that increased visitor numbers and the introduction of level crossings (especially on the A21 Robertsbridge by-pass) may have negative economic impacts arising from the RVR/K&ESR "missing link".

## **MMU Conclusions**

14.2.20 The MMU reports are extensive and detailed and their contents have been used as the basis of the analysis of impacts presented later in this chapter. The reports identify the potential scale of generated additional economic activity – primarily in the tourism sector – that would arise as a result of the completion of the 'missing link' and consequently the employment generation that would arise. The MMU reports claim that the economic benefits would have a positive impact upon addressing some local pockets of social deprivation.

14.2.21 The only disbenefit identified by MMU relates to the possible economic consequences of level crossings as noted in the final bullet point in 14.6.12. Unusually, this conclusion is not based on any text in MMU2, though reference is made to the fact that this disbenefit will be addressed by another consultant (Mott MacDonald) in a separate report. This is covered in the Mott MacDonald report Traffic Delays Economic Costs (March 2014).

## 14.3 Baseline

- 14.3.1 As stated above, the Salehurst electoral ward has been identified as the core impact area and hence has been used for gathering employment data from NOMIS<sup>74</sup>

**Plate 14.2 – Salehurst**



- 14.3.2 The tables below – data extracted from NOMIS - demonstrate the population in Salehurst and Rother in 2010 and the number of Department for Work and Pensions (DWP) and Job Seekers Allowance (JSA) claimants.

**Table 14.2 – Population 2010**

|  | Salehurst | Rother |
|--|-----------|--------|
| Salehurst (includes Robertsbridge and Bodiam Castle) | 2,800     | 49,900 |
| Hawkhurst and Sandhurst                              | 1,400     | 24,300 |
| Rolvenden and Tenterden West                         | 1,400     | 25,600 |

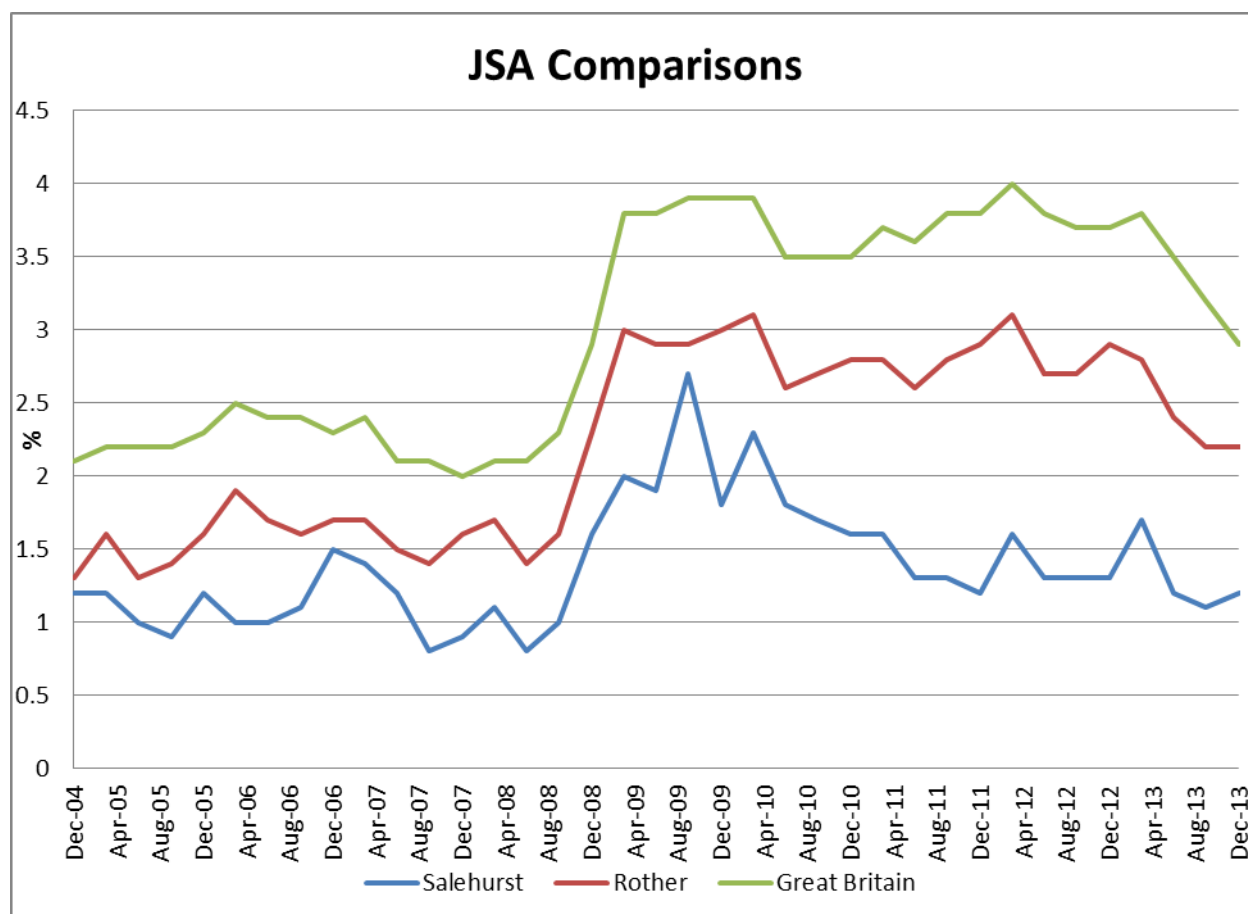
**Table 14.3 – Unemployment 2013**

|               | Ashford                      |             | Rother    | Tunbridge Wells         | Total Impact Area | Ashford, Rother and Tunbridge Wells % | GB %  |
|---------------|------------------------------|-------------|-----------|-------------------------|-------------------|---------------------------------------|-------|
| May 2013      | Rolverden and Tenterden West | St Michaels | Salehurst | Hawkhurst and Sandhurst |                   |                                       |       |
| JSA claimants | 17                           | 16          | 42        | 39                      | 114               | -                                     | -     |
| JSa%          | 1.3%                         | 1.2%        | 1.5%      | 1.1%                    | 1.2%              | 2.1%                                  | 3.6%  |
| DMP claimants | 110                          | 105         | 230       | 310                     | 755               | -                                     | -     |
| DWP %         | 8.1%                         | 7.7%        | 8.1%      | 8.4%                    | 8.2%              | 11.1%                                 | 14.1% |

<sup>74</sup> NOMIS (2003), Ward Labour Market Profile 21UGGX: Salehurst, Available: <http://www.nomisweb.co.uk/reports/lmp/ward/1308623284/report.aspx?town=salehurst> Accessed May 2014.

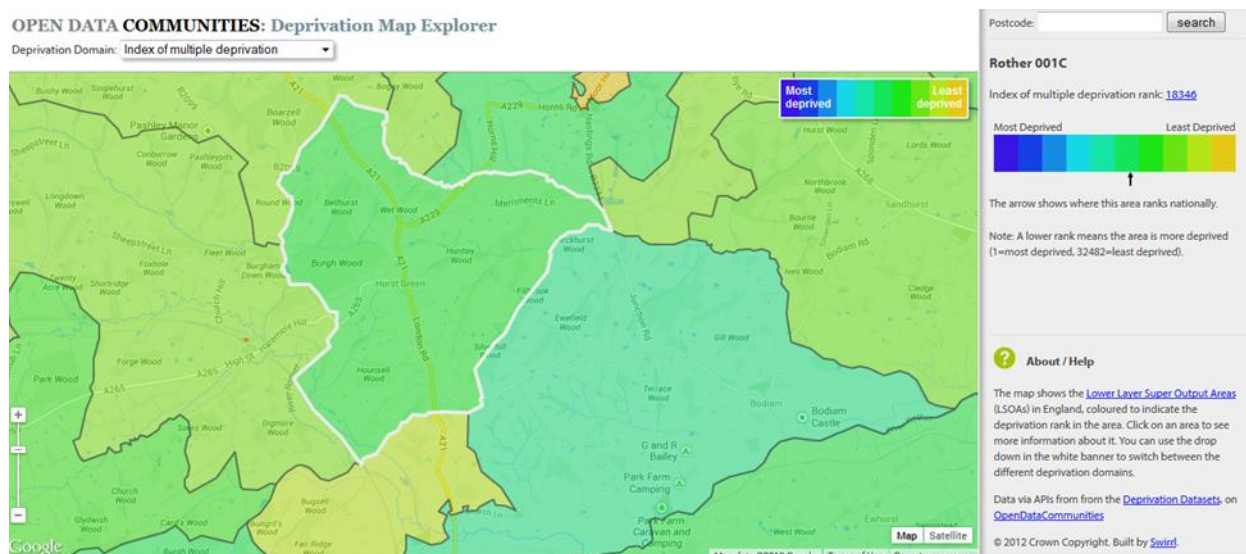


**Plate 14.3 – Unemployment 2004-2013**

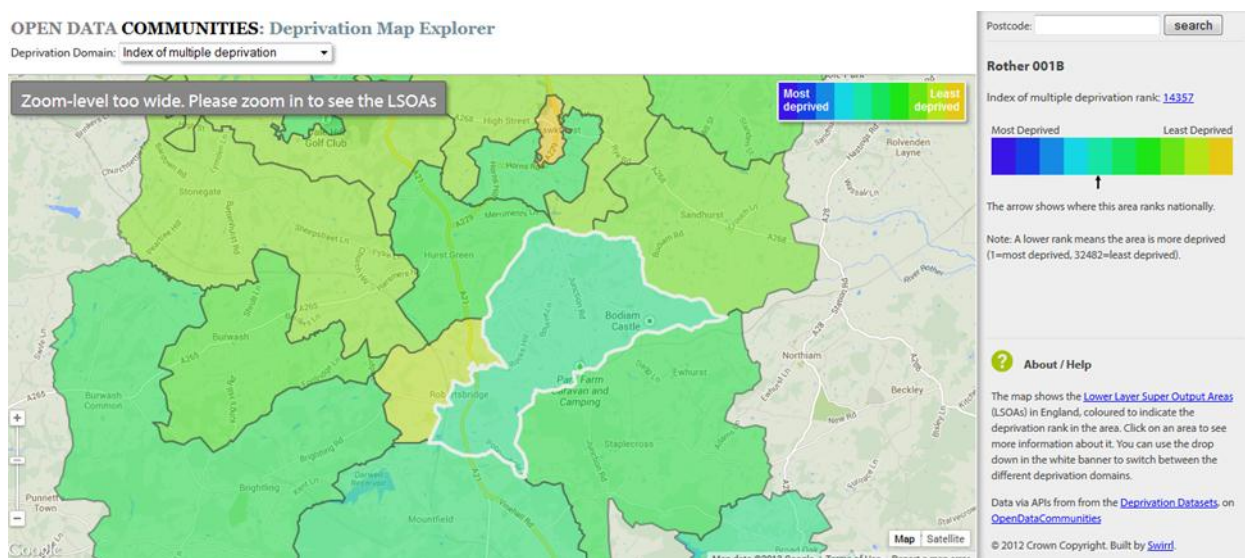


- 14.3.3 **Plate 14.3** clearly demonstrates that Salehurst is historically and currently characterised by a very low unemployment rate. Indeed, this is well below rates for Rother overall and under half of GB average rates. To place some numerical perspective on this, in December 2013, 34 people were seeking employment in Salehurst. This is in the context of approximately a 2,800 economic active population.
- 14.3.4 The boundaries for Lower Super Output Areas (LSOA) used for calculating Indices of Multiple Deprivation are slightly different from the Salehurst electoral ward. It is covered by two areas, coded E01021133 and E01021134. The latter covers most of the Salehurst electoral ward, and while E01021133 is a much larger, it includes the westernmost part of Salehurst, expanding after B2244 (Junction Road). Plates 14.4. and 14.5 below show their boundaries.

**Plate 14.4 – LSOA Rother 001C<sup>75</sup>**



**Plate 14.5 – LSOA Rother 001B<sup>76</sup>**



14.3.5 The overall IMD 2010 has two data indicators: Index of Multiple Deprivation Score and the Rank of the Index of Multiple Deprivation Score. The same indicators exist on the local authority district level where a rank of 1 is the most deprived, and 326 the least deprived. The LSOA with a rank of 1 is the most deprived, and 32482 the least deprived. The IMD 2010 was constructed by combining the seven domain scores, using the following weights: Income (22.5%), Employment (22.5%), Health and Disability (13.5%), Education, Skills and Training (13.5%), Barriers to Housing and Services (9.3%), Crime (9.3%) and Living Environment (9.3%)

<sup>75</sup> Open Data Communities (2012), Deprivation Map Explorer, Available: <http://opendatacommunities.org/deprivation/map>. Accessed May 2014.

<sup>76</sup> As above.

14.3.6 The following tables represent the IMD indicators for Rother Valley district and 2 study area LSOAs.

**Table 14.4 – IMD Rother District**

| Rother District          |       |
|--------------------------|-------|
| Income Scale             | 11077 |
| Rank of Income Scale     | 202   |
| Employment Scale         | 4180  |
| Rank of Employment Scale | 218   |
| Average Score            | 20    |
| Rank of Average Score    | 139   |
| Average Rank             | 16617 |
| Rank of Average Rank     | 132   |

**Table 14.5 – IMD LSOA Rother 001C & 001B**

|   | 001C  | 001B  |
|---|-------|-------|
| IMD Score                                       | 14.9  | 19.5  |
| Rank of IMD Score                               | 18346 | 14357 |
| Income Score                                    | 0.1   | 0.1   |
| Rank of Income Score                            | 17374 | 13537 |
| Employment Score                                | 0.1   | 0.1   |
| Rank of Employment Score                        | 25134 | 15731 |
| Health Deprivation and Disability Score         | -0.5  | -0.1  |
| Rank of Health Deprivation and Disability Score | 22964 | 17946 |
| Education Skills and Training Score             | 20.4  | 19.6  |
| Rank of Education Skills and Training Score     | 13125 | 13657 |
| Barriers to Housing and Services Score          | 35.2  | 31.3  |
| Rank of Barriers to Housing and Services Score  | 4151  | 6270  |
| Crime and Disorder Score                        | -1.0  | -0.1  |
| Rank of Crime Score                             | 28715 | 17111 |
| Living Environment Score                        | 23.2  | 24.0  |
| Rank of Living Environment Score                | 11846 | 11392 |

14.3.7 The impact area of Salehurst is extremely robust in socio-economic terms. Furthermore, when compared with the neighbouring areas and England, the area is a well above average achiever. Whilst there does appear to be some ‘access to housing and services’ concerns – these are very typical of rural areas compared with more urbanised areas, particularly in relationship to services. It is in this overall very robust economic context that the Scheme has been addressed later in this chapter.

## 14.4 Predicted Effects

14.4.1 The local economy is very robust and there are very few indications of significant deprivation in the impact area of Salehurst, or indeed, in the surrounding area. The predicted effects have been addressed both in terms of the construction phase and the subsequent operational phases.

---

## Construction Phase

- 14.4.2 Based on information provided in Chapter 2, the total duration of the construction phase of the Scheme is estimated to be between 18 and 24 months and the total construction workforce is anticipated to be up to a maximum of 20 to 25 individuals. It is understood that many of the construction workers will be volunteers that live locally and that external contractors are to be brought in for specialist tasks only. In this context, socio-economic impacts may occur where residential and business properties are directly or indirectly affected by factors related to the construction of the 'missing link'. This usually covers:
- Loss of facilities due to demolition/partial demolition – resulting in a loss of employment/economic activity (*negative impacts*);
  - Impacts on businesses due to severance/loss of direct access – loss of employment/economic activity (*negative impacts*); and
  - The generation of employment due to construction work (*positive impacts*).
- 14.4.3 There could also be indirect impacts where a number of businesses located in close proximity to the construction site or located along any roads that would suffer increased traffic flows and/or disruption during the construction period. The extent of this disruption and the knock on impact to these businesses is often difficult to define. However, having reviewed the information provided in the noise and vibration, land use and agriculture and traffic assessments, no consequential socio-economic negative effects of significance have been identified.
- 14.4.4 Certainly, given the limited nature of construction in the development of the proposed Scheme, any negative impacts are viewed as of little economic significance. There will be some limited land-take and no property demolition. Any disruption would not only be minimal but also very temporary. There is also not expected to be any significant disruptions to commuting, shopping trips and leisure trips by local residents.
- 14.4.5 Given the limited impacts from the local workforce and the fact that it is primarily unpaid volunteers, the socio-economic benefits will be small, but positive as there will be some spend in local shops and some of the 'specialists' will no doubt stay in local accommodation etc. Also, some limited spend at local suppliers would be expected.

## Operational Phase

- 14.4.6 The history of the line from inception in 1900 is explained in Chapter 2. Following a lengthy period of inactivity in the mid-20th century, trains began to run again in 1974 and the section of purchased line was gradually restored and extended in stages reaching Bodiam in 2000. As further stated in Chapter 2, the Scheme once completed will provide a service to operate between Tenterden and Robertsbridge. The existing Kent and East Sussex Railway timetable has been used as a basis for the assumed operational timetable as it is not proposed to significantly alter the intensity of service from that provided at present.
- 14.4.7 As has been noted, the proposed restoration of the railway supports the vision for managed tourism in the area and the capacity of the landscape to absorb the section of the Kent and East Sussex Railway that has already been restored demonstrates a historical precedent. Placed in the context of socio-economic benefits, the continuation of the current intensity of services – though whilst resulting in increased numbers of passengers – will not generate any additional direct operational workforce. Indeed, the workforce primarily comprises volunteers and hence the direct economic benefits of the expanded scheme will have a neutral impact on the local economy.

- 14.4.8 MMU2 provides a comprehensive review of the potential benefits of tourism, particularly rural tourism. In addition to Bodiam Castle, it also identifies a number of visitor attractions *‘in the vicinity of the railway’*. These are:
- Tenterden (Cinque Port) small town, museums:
    - Tenterden Museum
    - Colonel Stephens Railway Museum (KESR)
  - Northiam: The Mill Toy and Pedal Car Museum
  - Small Hythe Place (C16th house and garden)
  - Sissinghurst
  - Biddenden Vineyards
  - Tenterden Vineyards
  - Rolvenden Vintage Car Museum
  - South of England Rare Breeds Centre
  - Battle Abbey and battleground
- 14.4.9 However, there is no clear evidence provided that these attractions will directly benefit from the Scheme. However, as noted earlier in this chapter, MMU do identify clear connectivity benefits to Bodiam Castle and forecast that the Scheme will result in an increased passenger numbers that will translate into increased visitors.
- 14.4.10 Thus, the MMU reports clearly identify significant indirect and induced economic benefits arising from increasing tourism into the local impact area and surrounding wards. Based upon the MMU1 analysis, the Scheme could generate an additional 14 full time equivalents (ftes)<sup>77</sup> – though whether these new employment opportunities would be taken by residents of Salehurst – or even Rother – is highly conjectural.
- 14.4.11 Whilst clearly welcome, this scale of employment generation is only a small positive in the context of the very robust local labour market and very low local unemployment levels. As already stated above, the MMU2 2013 states on page 57 that the authors
- “recognise that increased visitor numbers and the introduction of level crossings (especially on the A21 Robertsbridge by-pass) may have negative economic impacts arising from the RVR/K&ESR “missing link”.*
- 14.4.12 Based on the fact that ‘the intensity of service’ will not increase, it seems unlikely that whilst some transport time disbenefits may arise to local travellers these are unlikely to translate into reduced connectivity to local places of work and local services. Hence, any attendant socio-economic disbenefits would be completely negated by the benefits of increased local employment opportunities, largely transmitted through the tourism sector.
- 14.4.13 Mott MacDonald have assessed the economic impacts of delays related to level-crossing downtimes in their report – Traffic Delays Economic Costs<sup>78</sup>. The report formally reported the economic costs resulting from the potential delays created on the level crossings on the A21 and the B2244 Junction Road. The findings of the report are summarised in **Table 14.6** and **Table 14.7**.

<sup>77</sup> Based on the MMU1 assessment of some 50 ftes currently being supported by the existing railway operation.

<sup>78</sup> Mott MacDonald (March 2014) Rother Valley Railway A21, Robertsbridge: Traffic Delays Economic Costs



**Table 14.6– Summary of economic costs due to traffic delays on the A21 at proposed RVR level crossing**

|  |   | 51 second closure time |                      |                  | 112 second closure time |                      |                  |
|--|---|------------------------|----------------------|------------------|-------------------------|----------------------|------------------|
|  |   | Weekdays<br>PM Peak    | Weekdays<br>Off Peak | Weekends         | Weekdays<br>PM Peak     | Weekdays<br>Off Peak | Weekends         |
|  |   | 17:00-<br>18:00        | 10:00 –<br>17:00     | 10:00-<br>18:00  | 17:00-<br>18:00         | 10:00 –<br>17:00     | 10:00-<br>18:00  |
| Southbound   | Average hourly traffic flow (veh/hr)                                | 862                    | 513                  | 569              | 862                     | 513                  | 569              |
|  | Average Maximum Queue at railway level crossing during period (veh) | 12                     | 7                    | 8                | 27                      | 16                   | 18               |
|  | Total delay to traffic over 6 month period (veh.hrs)                | 10.1                   | 41.9                 | 24.7             | 22.1                    | 91.9                 | 54.2             |
| Northbound   | Average hourly traffic flow (veh/hr)                                | 491                    | 461                  | 549              | 491                     | 461                  | 549              |
|  | Average Maximum Queue at railway level crossing during period (veh) | 7                      | 7                    | 8                | 15                      | 14                   | 17               |
|  | Total delay to traffic over 6 month period (veh.hrs)                | 5.7                    | 37.7                 | 23.8             | 12.6                    | 82.7                 | 52.3             |
| Value of Time (£ per hr per veh, 2015 values, 2010 market prices <sup>79</sup> ) |   | £14.21                 | £14.21               | 12.24            | £14.21                  | £14.21               | 12.24            |
| Economic cost of delays (£) over operational season                              |   | £224.16                | £1,130.33            | £593.64          | £492.7                  | £2,482.28            | £1,303.67        |
| Total economic cost of delays (£) over operational season per closure time       |   |                        |                      | <b>£1,948.13</b> |                         |                      | <b>£4,278.22</b> |

<sup>79</sup> The Value of Time, 2010 price was obtained from webtag 3.5.6d section 2.5.8 - October 2013. This has been factored to 2015 (proposed year of opening) by applying forecast growth factors shown in Table 3b of webtag 3.5.6d - October 2013.



**Table 14.7– Summary of economic costs due to traffic delays on the B2244 at proposed RVR level crossing**

|  |   | 51 second closure time |                      |                 | 112 second closure time |                      |                  |
|--|---|------------------------|----------------------|-----------------|-------------------------|----------------------|------------------|
|  |   | Weekdays<br>PM Peak    | Weekdays<br>Off Peak | Weekends        | Weekdays<br>PM Peak     | Weekdays<br>Off Peak | Weekends         |
|  |   | 17:00-<br>18:00        | 10:00 –<br>17:00     | 10:00-<br>18:00 | 17:00-<br>18:00         | 10:00 –<br>17:00     | 10:00-<br>18:00  |
| Southbound   | Average hourly traffic flow (veh/hr)                                | 254                    | 140                  | 144             | 254                     | 140                  | 144              |
|  | Average Maximum Queue at railway level crossing during period (veh) | 4                      | 2                    | 2               | 8                       | 4                    | 4                |
|  | Total delay to traffic over 6 month period (veh.hrs)                | 3.0                    | 11.4                 | 6.2             | 6.5                     | 25.1                 | 13.7             |
| Northbound   | Average hourly traffic flow (veh/hr)                                | 139                    | 104                  | 109             | 139                     | 104                  | 109              |
|  | Average Maximum Queue at railway level crossing during period (veh) | 2                      | 1                    | 2               | 4                       | 3                    | 3                |
|  | Total delay to traffic over 6 month period (veh.hrs)                | 1.6                    | 8.5                  | 4.7             | 2.6                     | 18.6                 | 10.4             |
| Value of Time (£ per hr per veh, 2015 values, 2010 market prices)          |   | £14.21                 | £14.21               | 12.24           | £14.21                  | £14.21               | 12.24            |
| Economic cost of delays (£) over operational season                        |   | £65.15                 | £282.95              | £134.28         | £143.08                 | £621.38              | £294.88          |
| Total economic cost of delays (£) over operational season per closure time |   |                        |                      | <b>£482.38</b>  |                         |                      | <b>£1,059.35</b> |

14.4.14 The assessment indicates that the economic cost of the level crossing downtime during each operational season of the proposed scheme would be between £2,430.51 and £5,337.57 depending on a 51 second closure and a 122 second closure. These figures in the context of the broader regional economy are considered insignificant.

## 14.5 Cumulative Effects

- 14.5.1 There are no other schemes in the impact area or surrounding area that would result in a cumulative impact over and above the above identified effects of the construction phase and the operational phase in the context of terms of socio-economic impacts.
- 14.5.2 This assessment is based upon assessing the construction and operational periods both discretely and on a cumulative basis.

## 14.6 Mitigation and Residual Effects

- 14.6.1 It is understood that it is RVR's aspiration that additional passenger numbers on the line will be achieved largely by the provision of the link to the main railway network and as such these passengers would arrive by train. It is not anticipated that significant additional vehicle journeys will be generated by the extension of the line and this factor can be discounted as a significant economic issue.
- 14.6.2 The clear broad neutrality of the Scheme over the entire impact area negates any need to consider mitigation measures for any socio-economic factor and/or effect.

## 14.7 Conclusion

- 14.7.1 The baseline exercise has clearly identified that the local impact area does not suffer any serious deprivation – indeed the area is clearly a high achiever in terms of all key socio-economic indicators with the exception of access to housing and services. Access to housing and services – particularly the latter – is the only low performer and the Scheme would have a neutral impact on this factor as with all the other factors used in the deprivation assessments.
- 14.7.2 In conclusion, the local socio-economic impacts of the Scheme would be minimal, though very marginally positive amongst certain receptors in the impact area. The benefits would arise from improved connectivity for inward tourism that would translate into a small increase in local jobs in this sector. Some of these jobs would certainly be taken by local people. However, given the very low unemployment rates, there is unlikely to be any deadweight in the local area and in terms of additionality this increase in employment is insignificant.
- 14.7.3 There could be a small number of potential losers in terms accessibility because of the level crossings issue. These appear to represent minimal impacts and are likely to be inconsequential in terms of overall local impact. The main impacts on local receptors are summarised in the Table 14.8.

**Table 14.8 – Overall Socio-economic Impacts Summary (Construction and Operation)**

| Receptors                  | Construction       |             | Operation          |             |
|----------------------------|--------------------|-------------|--------------------|-------------|
|                            | Winners            | Losers      | Winners            | Losers      |
| Locally traded services    | Minimal (+)        | Neutral     | Minimal (+)        | Neutral     |
| Tourism                    | Neutral            | Neutral     | Minimal (+)        | Neutral     |
| Daytrips/ shoppers         | Neutral            | Neutral     | Neutral            | Neutral     |
| Residents                  | Neutral            | Minimal (-) | Neutral            | Minimal (-) |
| <b>Total gross impacts</b> | <b>Minimal (+)</b> |             | <b>Minimal (+)</b> |             |

- 14.7.4 Overall the Scheme in terms of socio-economic impacts is neutral to minimal positive.

## 15.0 Land-use and Agriculture

### 15.1 Introduction

- 15.1.1 This chapter assesses the likely significant effects of the Scheme in terms of agriculture and land use. The proposed new rail line crosses land which is predominantly in agricultural production and the matters considered in the assessment are the physical character of the land resource, namely the soils and agricultural land classification, the use being made of that resource by agricultural interests, and the structure and nature of the agricultural enterprises insofar as they are affected by the Scheme

### 15.2 Legislation and Policy

- 15.2.1 National planning guidance is found within the NPPF Section 11 *Conserving and enhancing the natural environment* states that the planning system should contribute and enhance the natural and local environment by:
- Protecting and enhancing valued landscape, geological conservation interests and soils.
  - Recognising the wider benefits of ecosystem services.
  - Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
  - Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability: and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
- 15.2.2 The policy advice in the NPPF is predicated upon the principles of sustainable development and requires land use decision makers to take account of the need to protect, and make prudent use of, scarce natural resources. Consequently, it is necessary to have regard to the quality of the agricultural land and related soils involved in development proposals.
- 15.2.3 This objective of directing development to land of least environmental or amenity value is developed in relation to agricultural resources at paragraph 112:
- "[Decision makers] should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, [decision makers] should seek to use areas of poorer quality land in preference to that of higher quality."*
- 15.2.4 Best and most versatile agricultural land is that classified as Grades 1 and 2 and Subgrade 3a in the Agricultural Land Classification (ALC) system.
- 15.2.5 A second factor in the assessment of impacts on agricultural resources is on the soil resource and the assessment of impacts on the soil resource has had regard to the Government's *Soil Strategy for England – Safeguarding our Soils* (2009) which seeks to encourage the more sustainable management of soil resources. The Strategy sets out Defra's vision that by 2030 all England's soils will be managed sustainably and degradation threats tackled successfully in order to improve the quality of England's soils and safeguard their ability to provide essential services for future generations. The Strategy sets out priorities for action in respect of:
- better protection of agricultural soils;

- protecting and enhancing stores of soil carbon;
- building the resilience of soils to a changing climate;
- preventing soil pollution;
- effective soil protection during construction and development; and
- dealing with the legacy of contaminated land.

15.2.6 Defra also published the *Code of Practice for the Sustainable Use of Soils on Construction Sites* in 2009. This a practical guide to assist the construction industry to protect the soil resources with which it works and achieve good soil management at all stages of the construction process. It advises that the protection, use and movement of soil should be considered from the outset of a development project's planning, through its design and construction phases and on into future maintenance and operation. The code provides practical guidance on the following aspects of the sustainable use of soils on construction sites:

- identifying existing soil resources on site;
- on-site soil management;
- topsoil and subsoil stripping;
- soil stockpiling and placement;
- sourcing, importing and manufacturing topsoil;
- soil aftercare; and
- uses for surplus topsoil.

15.2.7 Sustainable use and management of soil resources during construction can help with re-establishment of soil functions following their storage or movement, including food production, habitat provision and support, and cycling of elements such as carbon and nitrogen.

15.2.8 Other factors to be considered in an assessment of effects in agricultural resources include the effect on farm size and structure, the use of buildings and other fixed equipment, or any positive or adverse stimulus the development might give to on-farm rural economic activity. These considerations are no longer contained within planning policy advice, but accord with the relevant best practice guidance for the preparation of Environmental Statements.

### **Local Planning Policy**

15.2.9 The NPPF allows continued weight to be attached to the land use policies in adopted Local Plans where they are not substantially in conflict with the policies in the national framework. The relevant local development plan covering the area in which the Scheme is located is the Rother District Local Plan (Adopted 2006).

15.2.10 The District Council is currently working on its updated Local Plan (2011 – 2028) but until this has been formally adopted the existing Plan remains part of the 'statutory development plan' with all its policies 'saved'.

15.2.11 Policy DS1 states that in determining whether a development is appropriate proposals should accord with 14 general principles including that:

*"it respects the importance of the countryside in terms of its distinct landscape character, natural resources, woodland and agriculture."*

15.2.12 Policy GD1 states:

*“where significant development of agricultural land is unavoidable, it makes use of poorer quality land (grade 3b, 4 and 5) in preference to that of higher quality except where this would be inconsistent with other sustainability considerations”*

15.2.13 The Council has indicated its support of the reinstatement of the line throughout the project's development. The alignment of the railway is allocated in the Rother District Local Plan (Adopted 2006). The Local Plan Section 9, paragraph 9.25 states:

*“Consideration has been given to extend the Kent and East Sussex Steam Railway line westwards from Bodiam to Robertsbridge to link with the main line services from Hastings to London.”*

15.2.14 Supporting Policy EM8 recognises the tourism advantages of the railway but requires any proposal to meet three main criteria including:

- maintaining the integrity of the floodplain and flood protection measures at Robertsbridge;
- having an acceptable impact on the High Weald AONB; and,
- incorporating appropriate arrangements for crossing the A21, B2244, Northbridge Street and the River Rother.

15.2.15 Whilst there are no specific criteria in Policy EM8 in respect of the impacts on agricultural activities, it is inherent in the broader development policies within the Local Plan that development proposals should take these into account.

### **15.3 Methodology**

15.3.1 There are no specific guidelines on how EIA should consider and assess the effects of development proposals on agriculture. Therefore, the general approach adopted by this study has been derived from the present planning advice from central and local Government on the treatment of agricultural issues in development affecting farmland. This advice provides a guide to the factors which ought to be examined in an assessment of the impacts of development proposals upon agriculture, as well as a policy framework within which weight can be attached to the significance of particular impacts.

15.3.2 These policy considerations thus form the basis of the assessment of the effects of the Scheme on agriculture and soils and have defined the scope of the effects to be identified and examined in this assessment. These are:

- The quantity and quality of agricultural land that would be taken temporarily and lost permanently;
- The effect of land loss and severance on agricultural holdings;
- The potential loss of agricultural buildings and other fixed farm capital;
- Any loss of access to farmsteads or fields; and
- Construction effects, such as disruptions to field drainage, nuisance from dust, construction traffic and general construction activities.

15.3.3 The farming community has been encouraged to diversify on-farm economic activity through the adding of value to agricultural products or utilising land and building resources for non-agricultural enterprises. The income from these sources can support the sustainability of farm businesses and the consequences of direct or indirect effects of development proposals on these activities need to be identified.

## Study Area

- 15.3.4 Given the narrow linear nature of the proposed scheme the study area has been limited to the land through which the proposed reinstated railway would run and the landholdings physically affected by the development.

## Limitations and Assumptions

- 15.3.5 The collection of baseline data necessarily requires participation with affected land owners in order to understand how the development will affect their land holding and agricultural activities. To date only limited discussions have been possible with the principal landowners and information regarding their agricultural activities is limited due to their objections to the scheme.
- 15.3.6 Although these discussions are ongoing with the aim of establishing a detailed understanding of the farming operations such that a full assessment of impacts can be completed, the agricultural assessment has had to make a number of assumptions, such as the soil quality, crop types and rotation practices and therefore is based on a precautionary approach.

## Assessment Criteria

- 15.3.7 The assessment of impacts and significance of effects has followed a similar approach to other topics. The assessment criteria are set out below.

## Sensitivity of Receptors

- 15.3.8 **Table 15.1** sets out the sensitivity of land use/ resources.

**Table 15.1 – Sensitivity of Land Use/ Resources**

| Receptor  | Sensitivity    |
|---|----------------|
| Land use/ resources of national/ international importance affected by the Scheme or in vicinity | Very High/High |
| Land use/resources of regional/county level importance affected by the Scheme or in vicinity.   | Medium         |
| Land use/resources of local importance affected by the Scheme or in vicinity.                   | Low            |
| Land use/resources of no importance affected by the Scheme or in vicinity.                      | Negligible     |

## Magnitude of Changes in Land Use Conditions

- 15.3.9 **Table 15.2** sets out the magnitude of change for land resources.

**Table 15.2 – Magnitude of Change- Land Resources**

| Land Resources   | Magnitude            |
|--|----------------------|
| The Scheme would directly lead to the loss of over 50 hectares of the best and most versatile agricultural land.           | Major                |
| The Scheme would directly lead to the loss of between 20 and 50 hectares of the best and most versatile agricultural land. | Moderate             |
| The Scheme would directly lead to the loss of less than 20 hectares of best and most versatile agricultural land.          | Minor                |
| No permanent effect on high quality agricultural land.   | Negligible/No Change |



- 15.3.10 It is implicit in national planning policy that the loss of any land of best and most versatile quality is a significant effect, since a policy distinction is made between such land and land of lower quality to which no weight is normally to be accorded. However, the degree of significance of the effect will vary with the magnitude of loss.
- 15.3.11 The size threshold adopted in this assessment has regard to the statutory consultation procedure in which development proposals, individually or cumulatively, involve more than 20ha of best and most versatile land, and do not relate to a development plan allocation, are referred to the national agricultural interest. It is implicit in this procedure that potential losses of best and most versatile land on this scale might be likely to raise considerations of national importance. Table 15.3 sets out the magnitude of change for farm holdings. It is a slight change from that set out in the EIA Scope and Methodology Report but is considered more appropriate for assessing the impacts on land and agricultural uses.

**Table 15.3 – Magnitude of Change- Land Use**

| Land Resources   | Magnitude            |
|--|----------------------|
| Existing land use will be unable to continue as a direct/indirect consequence of the Scheme.   | Major                |
| Existing land use will be able to continue as a direct/indirect consequence of the Scheme, but with noticeable operational changes and economic effects. | Moderate             |
| Small changes will not materially affect a continuation of the land use.   | Minor                |
| No change is predicted to occur in existing land use.  | Negligible/No Change |

## Significance of Changes

- 15.3.12 The above considerations have been assessed in the context of the following matrix in **Table 15.4**.

**Table 15.4 - Significance Matrix**

| Value/ Sensitivity | Magnitude of Impact  |            |          |          |            |
|--------------------|----------------------|------------|----------|----------|------------|
|                    | Neutral or No Change | Negligible | Minor    | Moderate | Major      |
| Very High          | Neutral              | Slight     | Moderate | Large    | Very Large |
| High               | Neutral              | Slight     | Slight   | Moderate | Large      |
| Medium             | Neutral              | Neutral    | Slight   | Slight   | Moderate   |
| Low                | Neutral              | Neutral    | Neutral  | Slight   | Slight     |
| Negligible         | Neutral              | Neutral    | Neutral  | Neutral  | Slight     |

- 15.3.13 The assessment of adverse effects of development is undertaken in the context of this framework. It is acknowledged, however, that the potential exists for beneficial effects, but these are less susceptible to clear assessment and categorisation.

## Consultation

- 15.3.14 Extensive consultation has been undertaken with Rother District Council on the proposals and the potential impacts on existing land uses along the alignment.
- 15.3.15 RVR recognises that the loss of agricultural land will have an impact on individual farm businesses and has sought to engage with the affected landowners to understand their concerns and seek to find appropriate and mutually acceptable ways of minimising the impacts and/or compensating the landowners. To date there has been only limited consultation with the three main landowners affected.
- 15.3.16 RVR will continue to work to find an acceptable solution and further meetings are intended.

## 15.4 Baseline conditions

### Historical Land Use

- 15.4.1 The predominant land use in this part of the Weald from the late 18<sup>th</sup> century until the late 1950's was a mixture of pasture land for the grazing of livestock (mainly dairy cows and sheep) and the growing of hops for the brewing industry in hop gardens along the valley floor. The hop farms were in decline from the 1950's and slowly disappeared being replaced by grassland to support an increase in livestock farming due to a growth in beef and sheep sales.
- 15.4.2 In recent times attempts have been made to drain this somewhat wet and low lying ground with some farmers attempting to produce arable crops. One or two hop gardens still exist to supply the new breed of micro-breweries, but these are run on more of a hobby basis rather than the industrial scale that they used to be.

### Current Land Use

- 15.4.3 Around half of the original formation of the former Kent & East Sussex Railway still exists and takes the form of a raised embankment and a tree lined route that differentiates it from the surrounding farmland. This section of extant railway (minus the track) runs from the B2244 Junction Road to a point just east of Salehurst village. From this point the embankment has been demolished and the land ploughed up to grow arable crops. There is a further short section of tree lined embankment alongside the former Salehurst Halt on the original railway. Between this point and the A21 the land is in arable production. Between the A21 and Northbridge Street the embankment has been removed and the land is permanent pasture used for grazing livestock.

### Soils and Agricultural Land Quality

- 15.4.4 A desktop assessment of the likely land quality of the area in which the Scheme is located has been undertaken. The assessment has relied on existing data sources, primarily:
- the Soil Survey of England and Wales soil association maps (1:250,000 scale);
  - aerial photography of the site.
- 15.4.5 This data has been considered in the context of the prescribed methodology for classifying the quality of agricultural land set out in 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for the grading of agricultural land' (Ministry of Agriculture, Fisheries and Food, 1988).
- 15.4.6 The agricultural land classification (ALC) is based on an assessment of the extent to which physical or chemical characteristics impose long term limitations on the use of land. The main groups of factors are:
- climatic – primarily rainfall and temperature;
  - site – gradient, microrelief and flood risk;
  - soil – texture, structure, depth and stoniness; and
  - chemical limitations.
- 15.4.7 The interaction of these factors enables land to be attributed to one of five grades in the classification with Grade 1 being the highest quality land and Grade 5 the lowest. Grade 3 is subdivided into two Subgrades; 3a and 3b. Land of Grades 1 and 2, and Subgrade 3a quality is described as land of best and most versatile agricultural quality, and attracts a degree of protection from development in terms of land use planning policy.

- 15.4.8 At the national level this is articulated at paragraphs 109 and 112 of the National Planning Policy Framework (NPPF).
- 15.4.9 Paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing soils (amongst other matters); and paragraph 112 then states that local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land (classified as Grades 1, 2 and 3a).
- 15.4.10 The NPPF also advises that where significant development of agricultural land is demonstrated to be necessary local planning authorities should seek to use poorer quality agricultural land (i.e. Grades 3b, 4 and 5) in preference to that of a higher quality.

### **Site Characteristics**

#### **General Features, Land Form and Drainage**

- 15.4.11 The site is located to the east of Robertsbridge and south of Salehurst, in the valley and floodplain of the River Rother. The site is approximately 3 km in length, though much of the line is not in agricultural use, being the alignment of a previous dismantled railway.
- 15.4.12 Topography at the site comprises a more or less flat plain formed by terraces of the River Rother.

#### **Soil Parent Material and Soil Type**

- 15.4.13 The principal underlying geology is that of the Weald Clay, comprising siltstones and mudstones.
- 15.4.14 The Soil Survey of England and Wales soil association map (1:250,000 scale) shows the Fladbury 3 association at this site. These soils typically develop in river alluvium derived from clayey parent materials and are characterised by heavy clay profiles with poorly permeable subsurface horizons. They experience severe winter wetness, of Wetness Class (WC) VI, which is poorly drained. With underdrainage and flood protection the situation may be improved to WC III, which is imperfectly drained. The situation next to the river may also lead to prolonged winter flooding.

#### **Agricultural Land Quality**

- 15.4.15 The absence of field survey precludes a definitive assessment of the ALC.
- 15.4.16 However, knowledge of Fladbury 3 soils in this area gives a strong indication that the likely ALC grade will be lower quality Subgrade 3b, or worse, due to a combination of restricted drainage and clayey topsoil textures which together produce a limitation to soil workability.
- 15.4.17 The limitation will be to this Subgrade whether the soils are of WC III or WC IV. In addition the risk of flooding may further downgrade the site, though that factor cannot be fully determined from a desk study. There is little possibility that any of the agricultural land along the route is of best and most versatile quality.

#### **Landholdings**

- 15.4.18 Three landholdings will be directly affected by the scheme and are described below (west to east along the line) although as noted earlier, detailed information has not been provided as the landowners are reluctant to engage with RVR.

#### **Landholding A**

- 15.4.19 The land from Northbridge Street to the A21 is currently laid to pasture for sheep/cattle grazing.
- 15.4.20 The remaining land is currently in arable rotation for the production of cereal crops, grazing/silage production and forage maize. The majority of the former low railway embankment and the hedges and trees alongside have been removed to allow the land to be used for agriculture.

#### **Landholding B**

- 15.4.21 This land which runs from Landholding A to what is known as Austen's Bridge. It appears to be in the main permanent pasture with the majority of the railway embankment still extant as are the lineside trees and hedges providing a green corridor across the land.

#### **Landholding C**

- 15.4.22 This relatively small piece of land runs from Austen's Bridge to the B2244 at Junction Road through farmland in an arable rotation. The former railway embankment is still extant as are the trees and hedges providing a green corridor which is currently being used as a pheasant feeding area for the local shoot.

### **15.5 Predicted Effects**

- 15.5.1 The assessment of the effects of the Scheme is concerned with three aspects of the development. First, the construction activity itself will generate land demands and operational effects. Second, the completed Scheme will make permanent land demands and generate operational effects of its own. Third, the Scheme may add to the effects of other developments which are already in progress or which could be stimulated by it.

#### **Construction**

- 15.5.2 The construction of the railway will be facilitated using a temporary access road running the full length of the new track alignment and connecting to a single construction compound at the eastern end of the line adjacent to the B2244 Junction Road. There will be four temporary access points, the longest of which will extend south from Church Street across farmland to the railway line.
- 15.5.3 During construction and restoration back to agriculture the land required for the haul and access routes will be unavailable for agricultural production.
- 15.5.4 During construction a total of 6.92 hectares of land will be directly affected by the works, of which 0.73ha is required only temporarily. Of the permanent land take, approximately 2.7 ha is agricultural land used for crop farming, with the remainder being unmanaged woodland.
- 15.5.5 Based on the assumption that all the agricultural land is Subgrade 3b a total of 3.43ha will be removed during the construction period. Insofar lower quality agricultural land is not considered a high sensitivity receptor (see **Table 15.1**) the loss of this area of land is assessed to be a **slight adverse effect** of minor magnitude.
- 15.5.6 The formation and operation of the access roads, construction compound and land used for temporary construction purposes only will result in direct and temporary impacts on the affected farming interests. The direct effects will primarily relate to the possible generation of dust, severance, and disruption to the movement of farm traffic although RVR will work with the relevant landowners to ensure that reasonable access is maintained to all actively farmed areas. The indirect effects will relate to the ability of farming interests to adjust their operations to accommodate the temporary loss of land.

---

### Landholding A

- 15.5.7 This is the largest landholding to be affected by the scheme and three of the four temporary access roads will cross this land, the most significant of which will be the one extending from Church Lane south to the works area (approximately 190m).
- 15.5.8 At the western end the track alignment will cut across a field between Northbridge Street and the A21, bounded on the northern side by the existing flood defence embankment that runs behind the residential properties on Northbridge Street and the River Rother to the south. This is currently used as pasture land. From the A21 the line runs through arable land bounded to the north by Church Lane and the River Rother to the south. Five fields will be affected which appear to be used primarily for growing arable crops. Early discussions indicate that this land is used in rotation with forage crops for livestock kept elsewhere on the landholding. There is also a grass field to the south of Salehurst which is also understood to be used for pasture.
- 15.5.9 Construction of the new railway embankment and line across this land will sever all the fields and will isolate land between the railway and the river. Two permanent bridges are to be constructed across the mill stream at the western end and at Salehurst. During construction access will be provided at three dedicated crossing points.
- 15.5.10 A total of approximately 3.3 hectares of land would be required for the construction phase, of which 0.5 hectares would be temporary and 2.7 hectares would be permanent land take. Until full details are available it is not possible to be determinative as to the overall impact of this land loss on the farming business, but it seems likely that the percentage land loss (compared to the total holding) will be small (less than 10%) and that the existing land uses will continue. In such circumstances the impact is assessed as **small to negligible**.

### Landholding B

- 15.5.11 The entire length of the line through this landholding is on the extant railway embankment which retains the original lineside trees and vegetation.
- 15.5.12 The land either side of the alignment is used primarily for arable crops to the north and pasture to the south. Construction of the line would sever the land to the south consisting of approximately four fields but a new farm access track is to be provided alongside the southern side of the railway with (what sort of crossing) a crossing at roughly the mid-way point.
- 15.5.13 There will potentially be some minor disturbance to farming activities during the construction phase and a small reduction in land to accommodate the farm access track.
- 15.5.14 A total of approximately 2.53 hectares of land would be required for the construction phase, of which 0.02 hectares would be temporary and 2.51 hectares would be permanent land take. Given that almost all the land required is wooded embankment of low sensitivity with only a very small area of high sensitivity land lost for the new farm track, overall the significance of the effect on the farming interest is assessed as **negligible**.

### Landholding C

- 15.5.15 The alignment through this landholding would be entirely along the extant railway embankment.
- 15.5.16 The land either side of the embankment appears to be used as pasture land. A small area (390m<sup>2</sup>) to the north, adjacent to the B2244, will be required temporarily as a construction compound.

15.5.17 Construction of the line would neither sever nor restrict access to the adjacent fields. However, it is understood that the wooded area along the extant embankment is used as a pheasant feeding area for the local shoot. Clearance of the embankment to facilitate reinstatement of the railway will render this activity impossible. However, without further information as to the extent of this activity it is not possible to be determinative as to the economic effects on the landholding.

15.5.18 A total of approximately 1.2 hectares of land would be required during the construction phase, of which 0.15 hectares would be temporary and 0.87 hectares would be permanent land take. Almost all the land is wooded embankment and the sensitivity to change is low. With a minor magnitude of impact predicted, the overall significance of the effect on the farming interest being assessed as **negligible**.

### **Operation**

15.5.19 Once the railway is completed, all temporary land take will be reinstated to its former use.

15.5.20 General effects on land and agriculture arising from the operation of the railway are anticipated to be limited. The railway will have culverts and drains installed along the alignment to facilitate drainage of water from the fields on the northern side and maintain flood plain operation. Where field drains are severed these will be either reinstated or re-routed to maintain flow. No livestock activity sensitive to noise has been identified close to the Scheme.

15.5.21 It is accepted that there will be some long term impacts on the operation of the individual landholdings - primarily associated with Landholding A - and will arise due to the loss of land. Further discussions are required to fully understand the potential impacts and to identify mitigation measures that can be put in place to minimise or offset them. No farming business will be rendered non-viable as a result of the Scheme.

## **15.6 Cumulative Effects**

15.6.1 The Scheme is located in a predominantly rural area in which there is a general planning policy restraint on development, other than that which is required by normal rural land use activities. The alignment is entirely within the flood plain and therefore housing and employment development of a general nature is unlikely to be permitted. There are no known major development proposals in the immediate vicinity of the Scheme that would likely add to the predicted loss of agricultural land. As such, there are not considered to be any significant cumulative effects on agriculture.

## **15.7 Mitigation**

### **Construction**

15.7.1 The mitigation measures most relevant to the effects of construction are:

- clear separation of working areas from adjacent agricultural land, particularly where livestock may be present;
- early identification of field drainage infrastructure or patterns of surface runoff and the installation of measures to ensure land remaining in agricultural use continues to drain effectively;
- measures to ensure drainage from construction sites does not discharge onto agricultural land;



- adoption of best working practices to minimise the generation of pollution in the vicinity of agricultural land and the provision of appropriate control measures;
- appropriate pre-planning of the formation of construction sites in order to safeguard in-situ soil resources, and the careful handling, storage and replacement of affected soil resources to enable reinstatement to agricultural use;
- avoidance of the unnecessary severance of existing field accesses and disruption to the operational movements of agricultural vehicles and equipment, and the provision of alternative means of the access to land where necessary;
- soil handling and land restoration will be undertaken in accordance with the guidance in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and the Good Practice Guide for Handling Soil (MAFF 2000).

### **Operation**

- 15.7.2 The assessment of operational effects assumes that the minimum permanent land take necessary to implement the railway reinstatement has been adopted, and that all agricultural land required temporarily will be restored in accordance with best practice.
- 15.7.3 The Scheme design has incorporated agricultural accesses to ensure no severance of agricultural land.
- 15.7.4 In terms of specific operational effects identified in relation to individual interests, the potential mitigation options are as follows:

#### **Landholding A**

- 15.7.5 Re-establishment of field accesses severed by the alignment:
- Provision of 5 no. agricultural level crossings: one adjacent to the River Rother at Northbridge Street; one east of the A21; two south of Salehurst and one to the east of the pond near the boundary with Landholding B.
  - Provision of 3 no. farm access bridges: one across the mill stream on the southern side of the line near the A21 and one across the drainage ditch near the Salehurst Halt.

#### **Landholding B**

- Provision of new farm access track along the southern side of the railway embankment and a new agricultural level crossing approximately mid-way along this section of the line.

#### **Landholding C**

- Reinstatement of the land used for the construction compound. No other mitigation necessary.

## **15.8 Residual Effects**

- 15.8.1 Assuming that the mitigation measures set out above are adopted, the residual effect of the Scheme on agricultural land resources will comprise the permanent loss of approximately 2.7 hectares of Subgrade 3a land, classified as best and most versatile agricultural land.
- 15.8.2 The residual effects for individual land holdings will relate primarily to the extent to which the Scheme provides access to severed parcels of land. The provision of access arrangements has ensured that no parcels of land that can reasonably be accessed will be left isolated.
- 15.8.3 Landholding A will be left with small parcels of land to the south of the Scheme which although still viable, may be slightly more difficult to farm.

---

15.8.4 Landholding B will have small parcels of land to the south of the Scheme but this simply reflects the current position with the extant embankment. Through the provision of a new crossing point, the land either side of the railway within this holding will effectively be re-connected. Landholding B will suffer no fragmentation of land.

15.8.5 The impact for Landholding C will be negligible.

## **15.9 Conclusion**

15.9.1 Construction of the railway line will require approximately 6.2 hectares, of which 2.7 hectares is in Subgrade 3b (subject to detailed survey). Overall, the loss of this land will have an adverse effect of **minor** significance.

15.9.2 Once the proposed mitigation is implemented, the construction and operational effects of the Scheme should be capable of being accommodated by the farming interests affected. The residual effects on these interests will be of neutral or slight adverse significance.

## 16.0 Cumulative Effects

### 16.1 Introduction

- 16.1.1 This chapter provides an assessment of the cumulative effects of the proposed Scheme as required by the EIA Regulations. Cumulative effects are defined as ‘both the combined effects of different development activities within the vicinity of the site and those different aspects of a single development on a particular receptor’ (Department for Communities and Local Government, 2006).
- 16.1.2 As such there are two types of cumulative effect that have been assessed in this EIA. Those effects associated purely with the RVR Scheme which in combination together could result in an greater adverse effect upon a receptor (for example, the combined effect of adverse noise and visual effects may in isolation be considered to have negligible effect but in combination may cause nuisance that may be assessed as causing a greater effect. These are termed intra-project effects.
- 16.1.3 The other type of cumulative effects are those associated with the project that act in combination with those resulting from another project to create a greater effect than was initially considered when the schemes were considered in isolation. Here these are termed as inter-project effects.
- 16.1.4 Both inter-project and intra-project cumulative effects have been considered for each discipline and the findings of the assessment reported in each discipline chapter.
- 16.1.5 There are criteria set to determine which other developments are deemed valid to assess in relation to cumulative effects. In terms of assessing the potential cumulative effects in relation to other relevant developments, the DCLG consultation paper *Environmental Impact Assessment: A guide to good practice and procedures* describes other developments as those that are “already begun or constructed or those that have not been commenced but have a valid planning permission.” (DCLG, 2006).

### 16.2 Methodology

- 16.2.1 The assessment of cumulative effects has considered the following:
- Will a receptor experience multiple effects of the same type from the Scheme and other projects? (e.g. will a receptor experience an increase in noise from the Scheme and another adjacent project?);
  - Will a receptor experience multiple effects of different types from the Scheme? (E.g. will a receptor experience noise, air and visual effects simultaneously, which will create a greater effect than when those effects were assessed in isolation?);
  - Will the effects of the Scheme add to similar effects generated by a recent development or one planned in the future?
  - Will the project stimulate proposals for new developments that will create greater effects than those predicted?; and
  - Will the cumulative effects be temporary or permanent?

## 16.3 Other Developments

- 16.3.1 Rother District Council in their scoping opinion (Volume 3, Report 2) indicated that they consider only one existing planning application to be relevant when considering cumulative effects. That application (RR/2013/2380/P) on land to the north of Station Road, Robertsbridge is for 1300m<sup>2</sup> of B1 commercial units and 17 dwellings. In addition to this application, two other applications in the vicinity of the site have been identified as well as three development designations from the Rother District Local Plan<sup>80</sup> (see Table 16.1).

**Table 16.1 – Committed Developments that have the Potential to Create a Cumulative Effect**

| Application number / Policy ID | Location                                      | Description  |
|--------------------------------|---|--|
| RR/2013/342/P                  | Forge Farm, Unit 4, Junction Road, Ewhurst    | Construction of B1/B8 unit comprising three floors of office (816m <sup>2</sup> ), warehouse (600m <sup>2</sup> ) and external secure storage for the storage and distribution of urban and landscape products.<br>Approved with conditions 24/04/2013 |
| RR/2013/342/P                  | Forge Farm, Unit 1/2, Junction Road, Ewhurst  | Construction of B1/B8 unit for fabrication, storage and distribution of plastic drainage components together with offices and welfare facilities, associated service areas and car parking.<br>Approved with conditions 25/04/2013                     |
| R89a (RD Local Plan)           | Robertsbridge Mill, SCATS, Northbridge Street | According to the Local Plan it is considered by as a key rural employment site.  |
| EM2 (RD Local Plan)            | District-wide                                 | Potential for employment and/or mixed use developments in accordance with Local Plan policies.   |
| VL7 (RD Local Plan)            | Land at Grove Farm, Robertsbridge             | Housing development allocation for at least 30 dwellings, approximately 0.9 hectares in area.  |
| RR/2013/2380/P                 | Land adjacent to Culverwells, Robertsbridge   | Mixed use development allocation (employment use and housing)  |

## 16.4 Intra-project Cumulative Effects

- 16.4.1 Although residual impacts have been identified for the Scheme, they have not been identified as affecting the same receptor. In addition, there are no multiple non-significant effects acting upon a single receptor that in combination could result in a significant effect. As such it is concluded that there are no intra-project cumulative effects.

## 16.5 Inter-project Cumulative Effects

- 16.5.1 Cumulative effects from other projects have been considered by each discipline, the findings of which have been summarised in Table 16.2.

<sup>80</sup> Rother District Council.(2006). Rother District Local Plan (Adopted July 2006). Available: [http://www.rother.gov.uk/media/pdf/c/s/local-plan\\_1.pdf](http://www.rother.gov.uk/media/pdf/c/s/local-plan_1.pdf). Accessed March 2013.

**Table 16.2 – Summary of Cumulative Effects with Other Developments**

| <b>Discipline</b>                         | <b>Description</b>  |
|---|---|
| Noise and Vibration                       | Due to the distance of other committed developments from site and the non-significant predicted effects there are not anticipated to be any cumulative noise and vibration effects generated during construction or operation.  |
| Air Quality                               | <p>Due to the distance of other committed developments from the site and the distance that fugitive dust can travel from site boundaries (200m) there would be no cumulative dust effects.</p> <p>Increase in pollutant emissions as a result of construction traffic was assessed as being insignificant. It is considered unlikely that the other developments could generate construction traffic of significant volume to create a significant change in air quality.</p> <p>The operational Scheme is not predicted to generate any air quality effects.</p> <p>No cumulative air quality effects generated during construction or operation.</p>  |
| Landscape and Visual                      | Due to the distance of the potential developments from the Site it is not anticipated that there would be any cumulative landscape or visual effects during construction or operation.  |
| Ecology and Nature Conservation           | <p>Due to the distance of the potential developments from the Site and the characteristics of the sites upon which the proposals may be developed it is not anticipated that there would be any significant additional impact upon local habitat.</p> <p>No cumulative ecology and nature conservation effects generated during construction or operation.</p>  |
| Water Quality, Hydrology and Hydrogeology | <p>It is assumed that any proposed development or valid planning application would be supported by a Flood Risk Assessment undertaken in line with NPPF 25.</p> <p>There are no planning applications that could be affected by the RVR in terms of Water, Hydrology and Hydrogeology, either upstream or downstream of the proposed scheme.</p> <p>No cumulative water quality, hydrology and hydrogeology effects generated during construction or operation.</p>   |
| Archaeology and Cultural Heritage         | <p>Potential impacts for local developments are considered to be comparable to that identified for the scheme. However, it is not considered that there would be cumulative effects as the same archaeological or cultural heritage resource would not be impacted by two different schemes.</p> <p>No cumulative archaeology and cultural heritage effects during construction or operation.</p>   |
| Traffic and Access                        | <p>In the event that there is overlapping construction periods between the Scheme and the proposed developments, it is unlikely to have a cumulative effect on the transport network, given the low impact of construction activity outlined in this report for RVR, and the relatively modest nature of the development proposals subject to current consideration. The operational assessment has factored in future traffic growth into the assessment and therefore any increase in traffic associated with future development has been included in the assessment and no significant impact has been identified.</p> <p>No cumulative traffic and access effects generated during construction or operation.</p> |
| Socio-economics                           | <p>We are unaware of any other schemes in the impact area or surrounding area that would result in an accumulative impact over and above the identified effects for the Scheme at the construction phase and the operational phase, especially given the robustness of the local economy.</p> <p>No cumulative socio-economic effects generated during construction or operation.</p>   |
| Land Use and Agriculture                  | <p>The Scheme is located in a predominantly rural area in which there is a general planning policy restraint on development, other than that which is required by normal rural land use activities. The alignment is entirely within the flood plain and therefore housing and employment development of a general nature is unlikely to be permitted. There are no known major development proposals in the immediate vicinity of the Scheme that would likely add to the predicted loss of agricultural land.</p> <p>No cumulative land use and agriculture effects generated during construction or operation.</p>   |

## 16.6 Conclusion

- 16.6.1 No cumulative effects have been identified as a result of the construction or operation of the Scheme in isolation or in combination with other proposed developments.

---

## **Appendix 1 Bibliography**

### **Noise and Vibration**

British Standard 5228-1:2009, Code of practice for noise and vibration control on construction and open sites.

British Standard 5228-2:2009, Code of practice for noise and vibration control on construction and open sites.

British Standard 6472-1:2008, Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting

British Standard 7445-1:1991, Description and measurement of environmental noise. Guide to quantities and procedures

Defra (2010), Noise Policy Statement for England

Department of Transport (1995), Calculation of Railway Noise. Department for Transport.

Department of Transport and the Welsh Office (1998), Calculation of Road Traffic Noise

Department of Transport (2011), Transport Analysis Guidance WEBTAG

The Highways Agency (2011), Design Manual for Roads and Bridges

DLC (2012), National Planning Policy Framework

HMSO (1974) Control of Pollution Act

HMSO (1990), Environmental Protection Act 1990

The Noise insulation (Railways and Other Guided Transport Systems) Regulations (1996) (as Amended)

ODPM (2005), Planning Policy Statement PPS1

ODPM (2004), PPS23: Planning and Pollution Control

ODPM (1994) Planning Policy Guidance 24: Planning and Noise

### **Air Quality**

Defra (2009) Technical Guidance for Local Air Quality Management TG

Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

Defra / DECC (2010) GHG Conversion Factors for Company Reporting

Defra (2010) Sustainable Development Indicators in your Pocket 2010 – An update of the UK Government Strategy indicators

Environment Agency (2004) Above ground oil storage tanks: Pollution Prevention Guidance 2



---

## Archaeology

Archaeology South-East. Unpublished client report Project No. 880 *Billingshurst Western Bypass, West Sussex*

Brandon P., 2003 *The Kent and Sussex Weald*

Cartwright, C. (1992) The excavation of a Romano-British iron working site at Broadfield, Crawley, West Sussex. *Sussex Archaeological Collections* **130**

Cleere H. and Crossley D., (1985), *The Iron Industry of the Weald*.

English Heritage, (2011), *The Setting of Heritage Assets*.

Lawson T. and Killingray D., (2004), *An Historical Atlas of Kent*.

Leslie K., and Short B. (eds.) (1999), *An Historical Atlas of Sussex*.

Priestly-Bell, G. 1994 Archaeological excavations at America Wood, Ashington, West Sussex. *Sussex Archaeological Collections* **132**, 33-51.

Rudling D., (ed.), (2003), *The Archaeology of Sussex to AD 2000*.

Salzman L. F., (1937), *The Victoria History of the Counties of England. Sussex IX*.

Scaife R. G., and Burrin P. J., (1987), Further evidence for the environmental impact of prehistoric cultures in Sussex from alluvial fill deposits in the Eastern Rother Valley. *Sussex Archaeological Collections* **125**, 1-9.

Wells, N., (2005), Excavation of a Late Bronze Age enclosure site at Gatwick Airport, 2001. *Sussex Archaeological Collections* **143**, 47-69.

## Ecology

Joint Nature Conservation Council, (2007), UK BAP list of priority habitats, Available: <http://jncc.defra.gov.uk/page-5706>, Accessed November 2013.

Joint Nature Conservation Council, (2003), Handbook for Phase 1 Habitat Survey – A technique for environmental audit. JNCC Peterborough.

Stace, C., (1997), *A New Flora of the British Isles*, Cambridge University press, Cambridge.

English Nature, (2001), Great crested newt mitigation guidelines (NEWT1). Available: <http://publications.naturalengland.org.uk/publication/810429>, Accessed November 2013.

## Landscape and Visual

Countryside Agency (now Natural England). (2001), *Areas of Outstanding Natural Beauty: A guide for AONB partnership members (CA24)*.

Department for Communities and Local Government (2006), *Environmental Impact Assessment: A guide to good practice and procedures*.

High Weald AONB Management Plan 2004: A 20-year strategy, (2004), Available: <http://www.highweald.org/downloads/publications/3-high-weald-aonb-management-plan-1st-edition-2004/file.html>, Accessed November 2013.

Landscape Institute and the Institute of Environmental Management & Assessment, (2013), Guidelines for Landscape and Visual Impact Assessment (GVLIA) (3rd Edition).

## **Water**

Department for Communities and Local Government (DCLG), (2012), National Planning Policy Framework.

Department for Communities and Local Government (DCLG), (2012), Technical Guidance to the National Planning Policy Framework.

Department for Environment, Food and Rural Affairs (Defra), (2005), Making space for water: Taking forward a new Government strategy for flood and coastal erosion risk management in England.

Department for Environment, Food and Rural Affairs (Defra), (2008), Future water: the Government's water strategy for England.

Department for Environment, Food and Rural Affairs (Defra), (2008), The Government's Response to Sir Michael Pitt's Review of the Summer 2007 Floods.

Environment Agency, (2012), Introducing Pollution Prevention: Pollution Prevention Guidance 1. Draft for consultation.

Environment Agency, (2011), Above ground oil storage tanks: Pollution Prevention Guidance 2.

Environment Agency, (2006), Use and design of oil separators in surface water drainage systems: Pollution Prevention Guidance 3.

Environment Agency, (2006), Treatment and disposal of sewage where no foul sewer is available: Pollution Prevention Guidance 4.

Environment Agency, (2007), Works and maintenance in or near water: Pollution Prevention Guidance 5.

Environment Agency, (2010), Pollution prevention guidance for working at construction sites: Pollution Prevention Guidance 6.

Environment Agency, (2007), Vehicle washing and cleaning: Pollution Prevention Guidance 13.

Environment Agency, (2009), Incident Response Planning: Pollution Prevention Guidance 21.

Environment Agency, (2011), Dealing with spills: Pollution Prevention Guidance 22.

Environment Agency, (2009), Rother and Romney Catchment Flood Management Plan. Summary Report.

Rother District Council, (2008), Strategic Flood Risk Assessment for Level 1.

---

## **Transport**

Department for Transport, (2007), Guidance on transport assessment, Available: <https://www.gov.uk/government/publications/guidance-on-transport-assessment> Accessed November 2013.

East Sussex County Council, (2011), Local Transport Plan 2011-2026, Available: <http://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/ltp3/downloadltp3.htm> Accessed November 2013.

Network Rail, (2010), Kent Route Utilisation Strategy, Available: <http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20utilisation%20strategies/kent/kent%20rus.pdf> Accessed November 2013.

Network Rail, (2010), Sussex Route Utilisation Strategy, Available: <http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20utilisation%20strategies/sussex/sussex%20rus.pdf> Accessed November 2013.

## **Socio-Economics**

NOMIS (2003), Ward Labour Market Profile 21UGGX: Salehurst, Available: <http://www.nomisweb.co.uk/reports/lmp/ward/1308623284/report.aspx?town=salehurst> Accessed May 2014.

Open Data Communities (2012), Deprivation Map Explorer, Available: <http://opendatacommunities.org/deprivation/map>. Accessed May 2014.

Rother District Council (2014), Wards, Available: <http://www.rother.gov.uk/article/187/Wards> Accessed May 2014.



## Appendix 2 Mitigation Summary Tables

|  | Phase of implementation | Method of implementation |
|--|-------------------------|--------------------------|
| <b>Noise and Vibration</b>   |                         |                          |
| <b>Construction</b>  |                         |                          |
| Use of Best Practicable Means including:   |                         |                          |
| <ul style="list-style-type: none"> <li>Unnecessary revving of engines will be avoided and equipment will be switched off when not in use;</li> <li>Internal haul routes will be kept well maintained;</li> <li>Drop heights of materials will be minimised;</li> <li>Plant and vehicles will be sequentially started up rather than all together;</li> <li>As far as reasonably practicable, sources of significant noise will be enclosed;</li> <li>Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas;</li> <li>Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications; and</li> <li>Screening e.g. noise barriers and blinds will be used as appropriate</li> </ul> | Construction            | CEMP                     |
| <b>Operation</b>   |                         |                          |
| None   | N/A                     | N/A                      |
| <b>Air Quality</b>   |                         |                          |
| <b>Construction</b>  |                         |                          |
| Mitigation of Dust Impacts from Earthworks and Material Storage  |                         |                          |
| <ul style="list-style-type: none"> <li>Dampening down dusty stockpiles during dry periods;</li> <li>Targeted use of sprinklers on potentially dust generating activities to prevent the escape of fugitive dust;</li> <li>Cutting, grinding or sawing equipment used in conjunction with suitable dust suppression techniques such as water sprays;</li> <li>Re-vegetation of earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;</li> <li>Removal of vegetative cover in small sections to control the area of exposed soil; and</li> <li>Minimisation of drop heights from loading shovels, hoppers and other loading or handling equipment and water sprays would be used on such equipment.</li> </ul>  | Construction            | CEMP                     |
| Mitigation of Dust Impacts from Vehicle Movements  |                         |                          |
| <ul style="list-style-type: none"> <li>Heavily-used construction site access routes would be kept free from dust and surfaces damped down during protracted periods of dry weather;</li> <li>Wheel wash facilities provided at each exit from the construction site to the local road network. Vehicles carrying loose materials to/ from the site should be free of mud and dust, and covered to minimise the risk of any spillage onto the highway; and</li> <li>Water assisted dust sweepers used on access and local roads to remove any material tracked out of the Site and inspections carried out on a regular basis.</li> </ul>   |                         |                          |
| <b>Operation</b>   |                         |                          |
| <ul style="list-style-type: none"> <li>None</li> </ul>   | N/A                     | N/A                      |

|  | Phase of implementation           | Method of implementation   |
|--|-----------------------------------|----------------------------|
| <b>Landscape and Visual Construction</b>   |                                   |                            |
| Landscape scheme   | Construction                      | CEMP                       |
| <b>Operation</b>   |                                   |                            |
| None   | N/A                               | N/A                        |
| <b>Ecology and Nature Conservation Construction</b>  |                                   |                            |
| <ul style="list-style-type: none"> <li>Minimum 3ha of native broadleaved woodland to be planted.</li> <li>Minimum 1ha scrub habitat to be planted</li> <li>Hedgerow planting</li> <li>Creation of 0.4ha of floodplain grazing marsh habitat</li> <li>Enhancement to existing grazing marsh habitat</li> <li>Creation of 3 replacement ponds</li> <li>Great crested newt translocation</li> <li>Reptile translocation</li> <li>Bat boxes</li> <li>Vegetation clearance between November and March</li> <li>Badger mitigation to be agreed within a badger disturbance licence</li> </ul>  | Pre-construction                  | Ecological Management Plan |
| <b>Operation</b>   |                                   |                            |
| <ul style="list-style-type: none"> <li>Post-construction monitoring</li> </ul>   | Operation                         | Ecological Monitoring Plan |
| <b>Water Quality, Hydrology and Hydrogeology Construction</b>  |                                   |                            |
| <ul style="list-style-type: none"> <li>Flood Defence Consents</li> <li>Consideration must be given during construction into the possibility of flooding, and precautions taken to ensure that construction works can pass flood water without obstruction.</li> <li>Construction would be carried out in accordance with relevant Best Practice guidance, including the Environment Agency Pollution Prevention Guidelines, in particular:<br/>PPG1: Introducing pollution prevention;<br/>PPG5: Works and maintenance in or near water;<br/>PPG6: Working at construction and demolition sites;<br/>PPG21: Pollution incident response planning; and<br/>PPG22: Dealing with spills.</li> </ul>   | Pre-construction/<br>Construction | CEMP                       |
| <ul style="list-style-type: none"> <li>Runoff from activities would be separated into 'contaminated' water (sewage and/or trade effluent) which would receive appropriate treatment before discharge to a suitable water body, and 'uncontaminated' water (drainage from roof or clean yard areas) which can be discharged directly to a water body.</li> <li>Discharge of treated, contaminated water requires a Permit from the Environment Agency.</li> <li>Petrol, oil and chemicals would be stored out of the floodplain, and preferably above ground to minimise the risk of pollution from spills and leaks.</li> <li>Vehicles and plant would be washed in a dedicated, contained washing area with runoff collected and either treated and discharged to a water body with an Environmental Permit, or discharged to a foul sewer subject to agreement from the Sewerage Undertaker.</li> <li>Good site practice during construction would ensure that pathways for pollutants are minimised.</li> </ul> |                                   |                            |

|   | Phase of implementation           | Method of implementation |
|---|-----------------------------------|--------------------------|
| <b>Operation</b>  |                                   |                          |
| <ul style="list-style-type: none"> <li>Raising of flood defences in Robertsbridge (TBC)</li> </ul>  | Construction                      | Scheme design            |
| <b>Archaeology and Cultural Heritage</b>  |                                   |                          |
| <b>Construction</b>   |                                   |                          |
| <ul style="list-style-type: none"> <li>Targeted watching briefs</li> </ul>  | Construction                      | CEMP                     |
| <b>Operation</b>  |                                   |                          |
| <ul style="list-style-type: none"> <li>None</li> </ul>  | N/A                               | N/A                      |
| <b>Transport and Access</b>   |                                   |                          |
| <b>Construction</b>   |                                   |                          |
| <ul style="list-style-type: none"> <li>Implementation of permanent speed management measures (identified in 2011 Traffic Impact Report) in advance of temporary accesses being constructed on A21 and B2244; and</li> <li>B2244 Junction Road access, consideration of additional traffic management measures at site access to account for limited road width, presence of bridges / localised narrowings and manoeuvrability of large vehicles access / egressing construction site.</li> <li>Timing of weekend and overnight closures for level-crossing installation to be agreed with highway authorities.</li> <li>Encouragement of car sharing between operatives where practical to reduce localised impacts.</li> </ul>  | Pre-construction/<br>Construction | CEMP                     |
| <b>Operation</b>  |                                   |                          |
| <ul style="list-style-type: none"> <li>None</li> </ul>  | N/A                               | N/A                      |
| <b>Socio-Economics</b>  |                                   |                          |
| <b>Construction</b>   |                                   |                          |
| <ul style="list-style-type: none"> <li>None</li> </ul>  | N/A                               | N/A                      |
| <b>Operation</b>  |                                   |                          |
| <ul style="list-style-type: none"> <li>None</li> </ul>  | N/A                               | N/A                      |
| <b>Land Use and Agriculture</b>   |                                   |                          |
| <b>Construction</b>   |                                   |                          |
| <ul style="list-style-type: none"> <li>clear separation of working areas from adjacent agricultural land, particularly where livestock may be present;</li> <li>early identification of field drainage infrastructure or patterns of surface runoff and the installation of measures to ensure land remaining in agricultural use continues to drain effectively;</li> <li>measures to ensure drainage from construction sites does not discharge onto agricultural land;</li> <li>adoption of best working practices to minimise the generation of pollution in the vicinity of agricultural land and the provision of appropriate control measures;</li> <li>appropriate pre-planning of the formation of construction sites in order to safeguard in-situ soil resources, and the careful handling, storage and replacement of affected soil resources to enable reinstatement to agricultural use;</li> </ul> | Construction                      | CEMP                     |



**Rother Valley Railway Limited**

Track Reinstatement between Northbridge Street and Junction Road  
Environmental Statement, Volume 2 – Main Statement  
Final



|  | Phase of implementation | Method of implementation |
|--|-------------------------|--------------------------|
| <ul style="list-style-type: none"><li>• avoidance of the unnecessary severance of existing field accesses and disruption to the operational movements of agricultural vehicles and equipment, and the provision of alternative means of the access to land where necessary;</li><li>• soil handling and land restoration will be undertaken in accordance with the guidance in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and the Good Practice Guide for Handling Soil (MAFF 2000).</li></ul> |                         |                          |
| <b>Operation</b>   |                         |                          |
| <ul style="list-style-type: none"><li>• Agricultural level crossings</li><li>• Farm access bridges</li><li>• Land reinstatement</li></ul>  | Design                  | Design                   |

## Appendix 3 Residual Effects Summary Table

### Summary of Residual Effects

|   |
|---|
| <b>Noise and Vibration</b>  |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |
| There are no residual effects during the operation phase  |
| <b>Air Quality</b>  |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |
| There are no residual effects during the operation phase  |
| <b>Landscape and Visual</b>   |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |
| There are no residual effects during the operation phase  |
| <b>Ecology and Nature Conservation</b>  |
| <b>Construction</b>   |
| Displacement/ disturbance of bats   |
| Displacement/ disturbance of birds  |
| Loss of a limited number of mature trees  |
| Effect on dormouse  |
| <b>Operation</b>  |
| There are no residual effects during the operation phase  |
| <b>Water Quality, Hydrology and Hydrogeology</b>  |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |
| Reduction in flood levels on Northbridge Street in the 1 in 100 year +20% scenario  |
| Increase in flood levels at industrial/ business units on Station Road in the 1 in 100 year +20% scenario   |
| Increase in flood levels at electrical sub-station north of Station Road in the 1 in 100 year +20% scenario   |
| Increase in flood levels at residential and business properties on High Street in the 1 in 100 year +20% scenario                                     |
| Increase in flood levels at The Bungalow, museum and sports pavillion on The Clappers in the 1 in 100 year +20% scenario                              |
| Increase in flood levels at electrical sub-station at the confluence of the River Rother and Mill Stream in the 1 in 100 year +20% scenario           |
| Increase in flood levels residential properties by Robertsbridge Abbey in the 1 in 100 year +20% scenario   |
| <b>Archaeology and Cultural Heritage</b>  |
| <b>Construction</b>   |
| Effect on the setting of Robertsbridge Abbey during construction.   |
| Potential beneficial effect from removal of mature vegetation, resulting in reconnection of historic place with its wider historic landscape setting. |
| <b>Operation</b>  |
| Moderate adverse effect on the setting of Robertsbridge Abbey during operation.   |
| <b>Traffic and Access</b>   |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |
| There are no residual effects during the operation phase  |
| <b>Socio-Economics</b>  |
| <b>Construction</b>   |
| There are no residual effects during the construction phase   |
| <b>Operation</b>  |

**Rother Valley Railway Limited**

Track Reinstatement between Northbridge Street and Junction Road  
Environmental Statement, Volume 2 – Main Statement  
Final



---

There are no residual effects during the operation phase

**Agriculture**

**Construction**

There are no residual effects during the construction phase

**Operation**

There are no residual effects during the operation phase

---

**Rother Valley Railway Limited**

Track Reinstatement between Northbridge Street and Junction Road  
Environmental Statement, Volume 2 – Main Statement  
Final



---

## **Appendix 4 Draft Construction Environmental Management Plan**

# Draft Construction Environmental Management Plan



**TEMPLE**

LEADERS IN ENVIRONMENT,  
PLANNING & SUSTAINABILITY.

June 2014

---

**Report for – Rother Valley Railway Limited**  
Track Reinstatement between Northbridge Street and Junction Road  
Draft Construction Environmental Management Plan

---

## Document Version Control

| Version | Date       | Author         | Approver        |
|---------|------------|----------------|-----------------|
| 1.0     | 04/06/2014 | Emma Devenport | Robert Slatcher |
| 2.0     | 16/06/2014 | Emma Devenport | Robert Slatcher |

**Report for:** **David Slack**  
Rother Valley Railway Ltd.

**Main Contributors:** **Emma Devenport**  
**Robert Slatcher**

## Copy to

This report has been prepared by Temple Group Ltd with all reasonable care and diligence within the terms of the contract with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. We accept no responsibility to third parties to whom this report, or any part, thereof is made available. Any such party relies upon the report at their own risk.



---

## **Contents**

- 1.0 Introduction
  - 1.1 General Principles
  - 1.2 Scheme Scope and Background
  - 1.3 Purpose of the Environmental Management Plan
  - 1.4 Responsibilities for this Document
- 2.0 Implementation and Operation
  - 2.1 Structure and Responsibility
  - 2.2 Training, Awareness and Competence
  - 2.3 Communication
  - 2.4 Emergency Preparedness and Response
- 3.0 Environmental Management
  - 3.2 Project Specific Aspects and Effects
  - 3.3 Noise and Vibration
  - 3.4 Air Quality
  - 3.5 Landscape
  - 3.6 Ecology and Nature Conservation
  - 3.7 Water Quality, Hydrology and Hydrogeology
  - 3.8 Land Quality
  - 3.9 Archaeology and Built heritage
  - 3.10 Transport and Access
  - 3.11 Land Use & Agriculture

## **Appendices**

- Appendix 1 – Environmental Aspects and Effects Register
- Appendix 2 – Environmental Incident Control Plan
- Appendix 3 – Legislation Register

---

## 1.0 Introduction

### 1.1 General Principles

- 1.1.1 This draft Construction Environmental Management Plan (CEMP) details the organisation and procedures that will be employed during the construction phase of the Rother Valley Railway Project (hereafter referred to as “the Scheme”) to ensure that adverse effects upon environmental and sensitive local receptors are suitably mitigated.
- 1.1.2 The Scheme consists of works being carried out on behalf of Rother Valley Rail Ltd.
- 1.1.3 The objective of this CEMP is to provide a documented organisational structure and set of processes to ensure that relevant construction issues and their effects upon the local environment are considered and appropriately managed during the design and construction phase of the Scheme. This document forms the link between the Environmental Impact Assessment (EIA) as reported in the Environmental Statement and the construction phase to ensure that the constraints identified and the mitigation recommendations made in the EIA are implemented during construction. This CEMP is a draft document; once appointed, the construction project manager, along with the contractors, should take ownership of the CEMP and maintain and complete as necessary. The CEMP should be a living document which is reviewed through the pre-construction and construction process.
- 1.1.4 The CEMP provides a framework on how the contractor will address, as a minimum, environmental requirements and issues appropriate to their activities. The CEMP is required so that the contractor ensures they comply with environmental requirements applicable to their work programme.
- 1.1.5 The CEMP describes how the construction phase will meet the best practice objectives for sound environmental management, namely:
- **Compliance with relevant environmental requirements** – including national legislation and other regulatory requirements;
  - **Minimisation of environmental risk** – namely potential risks to living organisms and the environment arising from the project’s activities along with potential risks to the project and client, linked to environmental and local community factors;
  - **Minimisation of adverse environmental effects** – with particular focus on areas where there is the greatest environmental risk; and
  - **Optimising environmental performance** – i.e. preventing pollution, making more efficient use of natural resources and minimising significant environmental effects, wherever practicable.

### 1.2 Scheme Scope and Background

- 1.2.1 The Scheme proposes to reinstate approximately 3.4km of the former Kent and East Sussex Railway between the B2244 Junction Road in the east and Northbridge Street in Robertsbridge to the west.

### 1.3 Purpose of the Environmental Management Plan

- 1.3.1 The identification and careful management of significant environmental issues is essential to the successful completion of the construction works associated with the development. Consequently, environmental awareness and responsible decision making by the construction team are essential to the Scheme and on-going protection of the environment.
- 1.3.2 This CEMP has been developed to facilitate and manage the environmental aspects and effects of the Scheme throughout the construction process. It demonstrates how all activities associated with the construction works will be undertaken so as not to cause significant adverse environmental effects.
- 1.3.3 The Environmental Aspects and Effects Register (**Appendix 1**) will be used to highlight mitigation measures identified during the EIA that are fundamental to the alleviation/minimisation of adverse effects throughout the construction programme. The CEMP will take account of the measures and transpose them into actions developed by the construction project manager and contractor that are applicable to the construction phase of the project.
- 1.3.4 Guidance and instruction provided by this CEMP aims to reduce the risk of adverse effects to both the environment and those involved in the project.
- 1.3.5 The overall purpose of this CEMP is therefore to:
- Facilitate environmental management by providing an overview of the key environmental issues and actions;
  - Set out how environmental effects and disturbance of sensitive receptors will be minimised as a result of direct or indirect activities associated with the project; and,
  - Provide a document that will become an integral part of the contractor's environmental management procedures in relation to the Scheme.
- 1.3.6 The following specific topics have been taken into consideration within this CEMP and have been derived in relation to the EIA that has been completed for the project:
- Noise and Vibration;
  - Air Quality;
  - Landscape;
  - Ecology and Nature Conservation;
  - Water Quality, Hydrology and Hydrogeology;
  - Land Quality;
  - Archaeology and Built heritage;
  - Transport and Access;

- Land use & Agriculture.

## **1.4 Responsibilities for this Document**

- 1.4.1 The Construction Project Manager will have specific responsibilities for the management of environmental issues and maintenance of the CEMP during the construction phase. The Construction Project Manager will ensure that the CEMP is applied as necessary during construction.

---

## 2.0 Implementation and Operation

### 2.1 Structure and Responsibility

2.1.1 It is vital, for the CEMP to be successfully implemented, that the key roles, responsibilities and authorities for environmental management are clearly defined and communicated. The structure of the project team and associated roles are detailed in the following sections.

#### 2.1.2 Contractor's Responsibilities:

- Adhering to the requirements of the CEMP when planning and undertaking work,
- Undertaking construction in accordance with European and UK environmental regulations and legislation;
- Advising the project of any emergent environmental issues and changes to their activities that may fall outside of the controls set out in the CEMP.

#### 2.1.3 Construction Project Manager

2.1.4 The Construction Project Manager (**insert name of individual, once appointed**) will make the contractor aware of relevant environmental matters that may arise in relation to the Scheme. Ultimately, they will be responsible for:

- Maintaining the Construction Environmental Management Plan;
- Soliciting environmental specialist support if required; and
- Addressing any information gaps with respect to licensing and permits.

### 2.2 Training, Awareness and Competence

2.2.1 For the successful implementation of the CEMP, it is essential that all persons working for, or on behalf of, the project who have responsibility to undertake work activities (that have the potential to cause significant environmental effects) are appropriately trained and are competent to fulfil their designated roles within the project.

2.2.2 Rother Valley Railway Limited and their appointed contractors have a responsibility to ensure that all staff on site are properly trained for their roles; they are also required to maintain a record of all training provided.

2.2.3 Being that the project will involve the help of volunteers, contractors must ensure procedures are in place and that they receive sufficient training before works on the site commence.

2.2.4 The primary focus of such training will be to ensure that all team members understand the key environmental issues and requirements associated with the project works as outlined within this document.

2.2.5 Training will generally include briefing on environmental issues of concern as part of Induction Training and Toolbox Talks, and cover general and specific environmental responsibilities with respect to:

- Applicable legislative, regulatory and other requirements;

- 
- Waste management;
  - Noise reduction and abatement;
  - Protected species/areas;
  - Air quality management;
  - Housekeeping requirements;
  - Pollution prevention; and
  - Incident management and use of the Environmental Incident Control Plan (EICP).

2.2.6 Environmental awareness among site personnel will also be promoted through media such as notice boards and newsletters. All site personnel will be made aware of the structure and individuals by which environmental issues are managed.

## **2.3 Communication**

2.3.1 Effective co-ordination and liaison on project activities is paramount to the successful implementation of the CEMP. The project team will be committed to ensuring all issues requiring liaison and co-ordination are identified.

2.3.2 Examples of activities that need co-ordinating are:

- Identification of key stakeholders and the messages that need to be communicated;
- Consultation with regulatory bodies including the informal and formal permission and consent process; and
- Liaison with local authorities and local residents.

2.3.3 Communications can be divided into internal communications, such as communications within the project team and contractors and those that are considered external communications, such as communications between the project team and other interested parties that may include the local community and local businesses.

### **2.3.4 Internal Communication**

2.3.5 Effective communication is essential if the environmental aspects and effects are to be managed successfully within the project. Environmental information will predominantly be communicated by ensuring that all relevant parties have access to the CEMP. This will be effective as the CEMP details all the relevant environmental information.

2.3.6 The Project Team will in turn develop additional means of communication wherever necessary which may comprise meetings, workshops and training where applicable.

### **2.3.7 External Communication**

2.3.8 It is imperative for the smooth running of the project that relevant external stakeholders and lineside residents are kept informed of the works that are to be undertaken and the potential environmental effects that may result. This will help to minimise disruption and it is widely acknowledged that keeping the public informed reduces the likelihood of complaints and adverse publicity.



---

2.3.9 The Construction Project Manager should develop a programme on how to communicate with lineside residents about future construction work. Those residents affected by works should be notified at least 14 days in advance of works commencing.

2.3.10 All communications from the public will go through the Construction Project Manager who will log each communication and deal with the communication as appropriate.

## **2.4 Emergency Preparedness and Response**

2.4.1 An Environmental Incident Control Plan (EICP) details documented procedures to be followed in the event of an emergency.

2.4.2 The EICP will principally deal with any potential oil, fuel or chemical spillages, as these are considered the most likely accidental events. Other incidents addressed will include:

- Noise complaints;
- Dust releases and any nuisance complaints;
- Discovery of or harm to protected species; and,
- Discovery of or damage to protected/valued structures, features, hard and soft landscaping etc.

---

## 3.0 Environmental Management

- 3.1.1 The Project will aim to minimise, and if reasonably practical, eliminate all risks including environmental, planning, health and safety commercial and operational risks associated with the Scheme.
- 3.1.2 To ensure that environmental aspects and effects are identified and addressed throughout the construction of the Scheme, all works will be undertaken in accordance with the requirements set out in the Environmental Aspects and Effects Register (**Appendix 1**). This register provides guidance for those undertaking works on the project on mitigation measures designed to prevent adverse effects from general and specific working. This guidance includes:
- A description of work activities that pose a particular risk to environmental receptors on site or within proximity of the site;
  - A summary of the key potential adverse environmental effects of undertaking work activities required for construction of the project;
  - Management techniques that shall be adopted and adhered to which will reduce the risk of an environmental incident occurring;
  - On-site personnel who is/are responsible for the management of the environmental aspect; and
  - Reference to further information which provide support, advice and instruction on work activities and how they are undertaken in the most environmentally sensitive manner.

## 3.2 Project Specific Aspects and Effects

- 3.2.1 In relation to the Environmental Impact Assessment that has been undertaken for the Project, the following topics have been taken into consideration within this CEMP:
- Noise and Vibration;
  - Air Quality;
  - Landscape;
  - Ecology and Nature Conservation;
  - Water Quality, Hydrology and Hydrogeology;
  - Land Quality;
  - Archaeology and Built heritage;
  - Transport and Access;
  - Land Use & Agriculture.
- 3.2.2 This CEMP addresses issues that may arise from the construction phase of the Project only.

---

### **3.3 Noise and Vibration**

- 3.3.1 The noise assessment completed for the Environmental Statement states that significant effects as a result of construction noise on the proposed Scheme are unlikely to occur during daytime working hours.
- 3.3.2 Evening and weekend construction works, along with night-time works, have the potential to cause significant noise effects. As part of the implementation of Best Practicable Means (BPM), a range of measures, which have been set out in the ES, will be incorporated during construction to minimise potential effects to nearby receptors.
- 3.3.3 The ES proposes to limit working hours where works are located close to noise sensitive receptors and to keep within agreed working hours. There is also advice that to minimise construction noise, the contractors will adhere to the Approved Code of Practice BS 5228.
- 3.3.4 As part of the implementation of BPM the following measures will be adopted where appropriate:
- Selection of low noise plant and working methods;
  - Proper maintenance of plant and equipment;
  - Avoidance of percussive piling as far as possible in areas sensitive to noise;
  - Turning off plant and vehicle engines when not in use;
  - Use of screening and enclosure of plant wherever practicable when working in the vicinity of sensitive receptors; and
  - Strategic use of hoardings, screens and barrier options where appropriate.
- 3.3.5 Detailed mitigation measures for night-time works will be discussed with Rother District Council as the detailed design and the construction arrangements are refined. On this basis, the significant construction noise effects that have been identified will be mitigated as far as it is reasonable practicable
- 3.3.6 It is unlikely that the construction activities will generate significant levels of vibration at sensitive receptors due to piling. Persistent low levels of vibration could be expected at close proximity to the works but the energy will dissipate rapidly as distance from the source increases.

### **3.4 Air Quality**

- 3.4.1 As set out in the ES, the traffic generation over the construction period is anticipated to be very small and well below the Design Manual for Roads and Bridges (DMRB) assessment criteria threshold of an additional 200 HGV vehicles (AADT).
- 3.4.2 Construction traffic effects will not have a significant effect on local air quality.
- 3.4.3 During construction, there is likely to be a low risk of dust effects. While a medium risk of dust effects is anticipated due to earthworks and track-out construction activities. The

restoration of embankments will be the most significant earthworks associated with this type of construction work.

- 3.4.4 Best practice would be implemented on-site to minimise any nuisance impacts from fugitive dust during the construction phase of the proposed scheme. Such measures could include but not be limited to those listed below which are also included in the draft CEMP (Volume 2, Appendix 4).

#### **Mitigation of Dust Impacts from Earthworks and Material Storage**

- Dampening down dusty stockpiles during dry periods;
- Targeted use of sprinklers on potentially dust generating activities to prevent the escape of fugitive dust;
- Cutting, grinding or sawing equipment used in conjunction with suitable dust suppression techniques such as water sprays;
- Re-vegetation of earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Removal of vegetative cover in small sections to control the area of exposed soil; and
- Minimisation of drop heights from loading shovels, hoppers and other loading or handling equipment and water sprays would be used on such equipment.

#### **Mitigation of Dust Impacts from Vehicle Movements**

- Heavily-used construction site access routes would be kept free from dust and surfaces damped down during protracted periods of dry weather;
- Wheel wash facilities provided at each exit from the construction site to the local road network. Vehicles carrying loose materials to/ from the site should be free of mud and dust, and covered to minimise the risk of any spillage onto the highway; and
- Water assisted dust sweepers used on access and local roads to remove any material tracked out of the Site and inspections carried out on a regular basis.

### **3.5 Landscape**

- 3.5.1 The addition of new infrastructure will not have a significant impact upon local visual receptors as it will be in keeping with the existing railway environment. However, there may be some temporary adverse impacts related to the construction phase of the works.

### **3.6 Ecology and Nature Conservation**

- 3.6.1 Mitigation measures have been developed to minimise the potential footprint of the Scheme where it unavoidably affects ecological receptors.

---

### **Broadleaved woodland**

- 3.6.2 A minimum 1.5ha of native broadleaved woodland will be planted alongside the railway line to be planted from a mix of native tree of species of local provenance. This will be planted in to run through previously un-wooded areas of the arable fields to provide connectivity with the woodland remaining on the rail embankments. An additional 1.5ha to be planted as a single block within an area of Improved grassland.

### **Scrub**

- 3.6.3 A minimum 1ha of scrub habitat will be planted alongside the railway line to be primarily made up of native species of local provenance. This would ideally be in a single linear block alongside the rail route and within habitats of currently Improved grassland or Arable.

### **Hedgerows**

- 3.6.4 In order to ensure that the current value of the woodland and scrub on the old line as 'linking habitat' is not reduced a number of hedgerows and shaws will be bolstered so that viable links are maintained. It may also be necessary to provide Dormouse crossing points at intervals along the track where total severance would otherwise be unavoidable.
- 3.6.5 The width of land take through hedgerows is the minimum necessary to meet engineering requirements. Retained sections of hedgerow would be safeguarded during construction through use of protective fencing.
- 3.6.6 All hedgerow loss associated with construction of temporary site access would be re-instated following construction. New planting would be carried out between October and February in any given year to improve establishment.
- 3.6.7 The footprint of the Scheme and number of existing trees to be lost is to be kept to the absolute minimum necessary with work, wherever possible, being limited to the area where the trackbed will be laid. Retained trees and their root zones/canopies would be safeguarded during construction through identification of an adequate stand-off zone and protective fencing.

### **Wetland: Floodplain grazing marsh habitat**

- 3.6.8 In order to directly compensate for the loss of approximately 0.4 ha of this habitat when the railway embankment an equivalent area will be created on land ecologically linked to the current area of habitat. In addition to this extra parcel of land the current habitat area will be enhanced through the creation of scrapes and rills in order to provide better habitat for wintering wildfowl. The precise location of these works will be covered within a Landscaping Scheme.

### **Ditches and water courses**

- 3.6.9 The expected loss of ditch and watercourse habitat is negligible and what loss there is will be compensated for through the creation of equivalent habitat within the 0.4 ha of Floodplain grazing marsh creation.

### **Ponds**

- 3.6.10 Three new permanently wet ponds will be created to mitigate for each of the ponds lost. These ponds will be located in strategic positions to ensure effective habitat connectivity

---

and proximity to existing ponds potentially used by great crested newts and to encourage colonisation by aquatic invertebrates. The precise location of these works will be covered within a Landscaping Scheme.

3.6.11 Pond design would follow the Natural England 'Great Crested New Mitigation Guidelines' (2001). New native species planting would be introduced to the ponds to facilitate their establishment prior to translocation of great crested newts and other species, if necessary. It is expected that these plants would colonise remaining areas rapidly during the first growing season.

3.6.12 It will be necessary to find suitable sites in the immediate area (i.e. those that do not currently support the species) to which translocation of Great crested newt can take place. RVR have already started to look into the acquisition of suitable sites.

### **Great crested newts**

3.6.13 Following surveying work using accepted methodologies at suitable seasons to establish more precisely population locations and sizes a European Protected Species Mitigation licence (EPSM) will be obtained once planning permission has been granted. Mitigation will comprise a translocation scheme to relocate individual great crested newts from the development footprint with a trapping strategy designed to reflect relative population size and the types of habitat to be lost/disturbed. Translocated newts would be relocated to dedicated receptor site outside the construction footprint.

3.6.14 The creation of new railway embankments, the 2:1 provision of new woodland and scrub habitats (see above) and the creation of a minimum of 0.4 ha of Floodplain grazing marsh with its associated wetland features will provide mitigation for the high value terrestrial habitats lost as a result of construction. In addition hibernacula will be created at suitable sites.

3.6.15 All temporary habitat loss would be re-instated and suitable measures put in place during the construction period to ensure the survival of individuals.

### **Reptiles**

3.6.16 The creation of up to 1.3 km of new railway embankment will provide the opportunity to create significant extra benefit for reptiles by providing the high insolation, rough grassland and scrub habitat in which all the common species thrive.

3.6.17 Mitigation strategy to be based on displacement where there is contiguous habitat of sufficient value and the population is small. This is to be done using habitat manipulation and reptile exclusion fencing during the construction phase.

3.6.18 For larger populations and/or no contiguous habitat, reptiles will be translocated to areas of high value habitat along the route. Again this will require habitat manipulation, reptile exclusion fencing and sufficient trapping effort using refugia and releasing individuals to the receptor site. The receptor site will have had suitable habitat created through the establishment/maintenance of tussocky grassland, the encouragement of moderate levels of scrub and bare ground and the provision of artificial hibernacula.



---

## **Birds**

3.6.19 As far as possible, vegetation clearance would take place outside the breeding bird season (i.e. March to August inclusive). This will require careful planning and substantial vegetation clearance activity during the autumn/winter period to ensure that this can be achieved. Where vegetation must be removed during the breeding season, this should be done under the supervision of a suitably qualified ecologist. The compensation planting of woodland and scrub will also compensate for the loss of nesting habitat for birds.

## **Bats**

3.6.20 European Protected Species Licences would be required to deliver mitigation for loss. Mitigation for the loss of any non-breeding roosts will be through provision of purpose built bat boxes and sensitive timing of any operations.

3.6.21 In the case of the bridge crossing the Rother an artificial roost should be incorporated into the replacement structure.

3.6.22 Mitigation for the loss of tree roosts should be by retention of long sections of the trunk and limbs and fixing these to existing trees as close to their current positions as possible.

3.6.23 Replacement roosts would be provided prior to the loss of the existing roost sites and construction related light, noise and vibration would be minimised in the vicinity of the new roost sites by identification and fencing off of suitable 'stand-off' zones. Suitable foraging habitats would be retained, managed and linked to replacement roost locations.

3.6.24 The planting of woodland and bolstering of hedgerows and shaws will further enhance continuity of foraging habitat across the area. Furthermore the provision of scrapes in grassland will also enhance foraging potential for species such as Daubenton's and Natterer's bat. A dedicated Landscape Plan will help enhance connectivity with respect to bat foraging habitats and commuting.

3.6.25 Only very limited amounts of new lighting are proposed along the route and is not anticipated to disadvantage any species such that no specific mitigation is proposed. Lighting specification will follow BCT guidance.

## **Dormouse**

3.6.26 Any vegetation clearance would take place between November and March and care will be taken to ensure it is possible for individuals within the area to reach retained habitat. Works which could affect hibernating dormice (for example removal of tree roots and other intrusive works) must be programmed to avoid the hibernation period. Any animals present in areas where habitat loss is unavoidable will be translocated to a predetermined receptor area under an EPSM licence from Natural England

3.6.27 Although the planting of woodland and the bolstering of hedges and shaws will offset the loss of Dormouse habitat and provide links to other suitable areas it will be necessary to provide Dormouse 'bridges' where the proposed route entirely severs that link.

## **Water vole**

3.6.28 It is not considered necessary to provide mitigation for the minor adverse effects associated with the construction. Whatever loss of any other potential habitat will be compensated for

---

through the creation of up to 0.4 ha of additional Floodplain grazing marsh with its associated ditches and scrapes.

### **Otters**

3.6.29 It is not considered necessary to provide mitigation for the minor adverse effects associated with the construction.

### **Badger**

3.6.30 A disturbance licence in relation to development will be obtained from Natural England and is required to close any sett which might be encountered during survey work undertaken prior to construction and which is directly within the path of the proposed trackbed or associated works.

3.6.31 The loss of a main sett will require a new compensation sett to be built. An artificial badger sett would be constructed at least six months prior to loss of the existing main sett and all entrances fitted with one-way gates to exclude badgers prior to closure. The artificial main sett will be located in close proximity to the existing sett to avoid severance of the badger territory. Badgers will not be excluded from the new track but shall be allowed to continue to cross at existing pathways during and after construction as largely nocturnal mammals they are not going to be encountered to any significant degree when trains are running during the day.

3.6.32 All temporary habitat loss during construction would be re-instated and the creation of new woodland, scrub, grazing marsh and hedgerow planting will provide suitable badger foraging habitat.

## **3.7 Water Quality, Hydrology and Hydrogeology**

3.7.1 The proposed works will not occur within the vicinity of a watercourse. There are no ground water Source Protection Zones on site or in the immediate surrounding area. However, there are track drainage structures that could act as potential contamination pathways.

### **Flood Risk**

3.7.2 Consideration must be given during construction into the possibility of flooding, and precautions taken to ensure that construction works can pass flood water without obstruction.

3.7.3 Temporary works would be required in the channel during construction of the crossings, but provided precautions are taken to minimise the scale and timescales of these works, the effect on the extent and depth of flooding in a 1 in 100 year flood event during construction is considered negligible. Temporary river diversions may also be required to 'dewater' areas and enable construction.

3.7.4 The consequences of flooding will also be managed through the train operators signing up for flood warnings and ceasing services when there is a risk of flooding.

### **Surface Water**

3.7.5 The proposed railway is considered at low risk of surface water/sewer flooding. The track is generally higher than the surrounding ground and water is considered unlikely to pond on

---

the tracks in significant volumes. The railway line will be built on a permeable base with no significant change in surface water run-off.

### **Water Quality**

3.7.6 Construction would be carried out in accordance with relevant Best Practice guidance, including the Environment Agency Pollution Prevention Guidelines, in particular:

- PPG1: Introducing pollution prevention;
- PPG5: Works and maintenance in or near water;
- PPG6: Working at construction and demolition sites;
- PPG21: Pollution incident response planning; and
- PPG22: Dealing with spills.

3.7.7 Runoff from activities would be separated into 'contaminated' water (sewage and/or trade effluent) which would receive appropriate treatment before discharge to a suitable water body, and 'uncontaminated' water (drainage from roof or clean yard areas) which can be discharged directly to a water body.

3.7.8 Trade effluent includes runoff from vehicle and plant washing, contaminated hard surface runoff, excavations and foundation dewatering. Discharge of treated, contaminated water requires a Permit from the Environment Agency.

3.7.9 Petrol, oil and chemicals would be stored out of the floodplain, and preferably above ground to minimise the risk of pollution from spills and leaks. Vehicles and plant would be washed in a dedicated, contained washing area with runoff collected and either treated and discharged to a water body with an Environmental Permit, or discharged to a foul sewer subject to agreement from the Sewerage Undertaker.

3.7.10 Good site practice during construction would ensure that pathways for pollutants are minimised. Mitigation measures specific to minimising leaching of contamination and silt from displaced soils during construction are also discussed in the Preliminary Land Quality Risk Assessment (Volume 3, Report 6).

### **Groundwater**

3.7.11 The proposed railway is considered at low risk of groundwater flooding and low to medium risk of flooding from artificial sources. Dewatering may be required for the construction of the two underbridges (Underbridge 6 and 12) to keep the works dry to allow excavation.

## **3.8 Land Quality**

3.8.1 A Preliminary Land Quality Risk Assessment (PLQRA) has been prepared (Volume 3, Report 6) which considers the risks to controlled waters, human health and the proposed infrastructure during the construction phase.

3.8.2 The PLQRA outlines the potentially contaminative historic off site land-uses within the surrounding area as an extension of the railway line on site, a gas works (600m off site), a corn mill, a brick and tile works (c.600m), a gravel pit, a railway station, saw mills and a

---

depot. However, all of these activities are considered to be too distant to have had a significant impact on the site.

- 3.8.3 To date, no contamination testing has been undertaken on the site. Testing should be undertaken to characterise the nature of the made ground and track ballast so that this information can suitably inform the PLQRA.

### **3.9 Archaeology and Built heritage**

- 3.9.1 Due to the nature of the site it is unlikely that there will be any archaeological remains which have not already been disturbed by previous works on the site. In addition the largely non-intrusive nature of the works reduces the risk of affecting such items. However, it will be necessary to remain vigilant while groundworks are being undertaken. Any suspected archaeological remains should be reported to the local archaeological officer. Discuss with the County Archaeologist any requirement for targeted watching briefs during construction.

### **3.10 Transport and Access**

- 3.10.1 Works along the proposed track are likely to require total or partial temporary closure to vehicle traffic and may affect pedestrians as well. The local highway authority should be contacted regarding any closure and mitigation measures developed in coordination with the authority. The Scheme should be designed to minimise road closures and works scheduled to reduce conflict with highway users. East Sussex County Council should be consulted for requirements and guidance on implementing a Traffic Management Plan, which should be developed for the Scheme.
- 3.10.2 It is estimated that many of the construction effects may be neutral provided the construction programme is agreed in advance with the Highway Authority (Highways Agency and East Sussex County Council). Specific construction mitigation measures are suggested as follows:

#### **Temporary site access**

- 3.10.3 Implementation of permanent speed management measures (identified in Mott MacDonald 2011 Traffic Impact Report) in advance of temporary accesses being constructed on A21 and B2244.
- 3.10.4 B2244 Junction Road access, consideration of additional traffic management measures at site access to account for limited road width, presence of bridges / localised narrowings and manoeuvrability of large vehicles access / egressing construction site.

#### **Level Crossing Construction**

- 3.10.5 Timing of weekend and overnight closures to be agreed with highway authorities.

#### **Site Operatives**

- 3.10.6 Encouragement of car sharing between operatives where practical to reduce localised impacts.

---

### **3.11 Land Use & Agriculture**

3.11.1 The mitigation measures most relevant to the effects of construction are:

- clear separation of working areas from adjacent agricultural land, particularly where livestock may be present;
- early identification of field drainage infrastructure or patterns of surface runoff and the installation of measures to ensure land remaining in agricultural use continues to drain effectively;
- measures to ensure drainage from construction sites does not discharge onto agricultural land;
- adoption of best working practices to minimise the generation of pollution in the vicinity of agricultural land and the provision of appropriate control measures;
- appropriate pre-planning of the formation of construction sites in order to safeguard in-situ soil resources, and the careful handling, storage and replacement of affected soil resources to enable reinstatement to agricultural use;
- avoidance of the unnecessary severance of existing field accesses and disruption to the operational movements of agricultural vehicles and equipment, and the provision of alternative means of the access to land where necessary;
- soil handling and land restoration will be undertaken in accordance with the guidance in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and the Good Practice Guide for Handling Soil (MAFF 2000).

---

## **Appendix 1 – Environmental Aspects and Effects Register**



---

An Environmental Aspects and Effects Register will be compiled prior to commencement of works, once the contractor has been appointed. The register has been left blank for the following reasons:

- Allows the contractor the opportunity to actively consider environmental constraints and the need to implement mitigation;
- Promotes the concept of the project taking ownership of the CEMP and responsibility for mitigation prior to the commencement of construction;
- Allow the contractor to implement mitigation in line with their own procedures; and
- To avoid the stifling of innovation and to allow contractors to develop approaches that improve the efficacy of the construction process.

The register shall cover all construction methodology (including best practice methodology) and site specific mitigation strategies for addressing the potential environmental effects assessed in the main Environmental Statement across the following discipline areas:

- Noise and Vibration;
- Air Quality;
- Landscape;
- Ecology and Nature Conservation;
- Water Quality, Hydrology and Hydrogeology;
- Land Quality;
- Archaeology and Built heritage;
- Transport and Access;
- Land Use & Agriculture.

The register should include reference to the relevant legislation for each potential effect and also assess the significance of each effect against the following<sup>1</sup>:

- 1 - Aspect subject to legal requirement
- 2 - Aspect subject to a standard or requirements of planning
- 3 - Aspect associated with significant project cost
- 4 - Aspect subject to a justified complaint

A blank template for completion is shown on the following pages.

| Ref. No         | Environmental Aspect  | Environmental Effect  | Legislation Reference                                   | Significance Assessment <sup>1</sup> |   |   |   | Comments and Mitigation  | Status |
|-----------------|---|---|---|--------------------------------------|---|---|---|--|--------|
|                 |   |   |   | 1                                    | 2 | 3 | 4 |  |        |
|                 |   |   |   | Noise and Vibration                  |   |   |   |  |        |
| Construction    |   |   |   |                                      |   |   |   |  |        |
| e.g.<br><br>A01 | General construction activities including breaking ground, removal of spoil, piling activities etc. | Noise and vibration generated during construction activities.<br><br>Disruption to Sensitive Receptors in the vicinity of the construction sites.<br><br>Potential effect will only be temporary in nature. | Insert relevant legislation – use legislation register. | x                                    | x |   |   | Application for a Section 61 consent under the Control of Pollution Act 1974 should be made.<br><br>Noise management should be undertaken throughout construction and the mitigation measures outlined in this procedure should be adhered to at all times to ensure minimisation of nuisance to neighbours and sensitive receptors.<br><br>Ensure dialogue is maintained with affected parties during construction to minimise potential for complaints and to optimise noise mitigation. | Active |
| Air Quality     |   |   |   |                                      |   |   |   |  |        |
| Construction    |   |   |   |                                      |   |   |   |  |        |
| B01             |   |   |   |                                      |   |   |   |  |        |
| Landscape       |   |   |   |                                      |   |   |   |  |        |
| Construction    |   |   |   |                                      |   |   |   |  |        |
| C01             |   |   |   |                                      |   |   |   |  |        |

| Ref.<br>No                                | Environmental Aspect | Environmental Effect | Legislation<br>Reference |   |   |   |   |                         |        |  |
|---|----------------------|----------------------|--------------------------|---|---|---|---|-------------------------|--------|--|
|   |                      |                      |                          | Significance<br>Assessment <sup>1</sup> |   |   |   | Comments and Mitigation | Status |  |
|   |                      |                      |                          | 1                                       | 2 | 3 | 4 |                         |        |  |
| Ecology and Nature Conservation           |                      |                      |                          |   |   |   |   |                         |        |  |
| Construction                              |                      |                      |                          |   |   |   |   |                         |        |  |
|   |                      |                      |                          |   |   |   |   |                         |        |  |
| Water Quality, Hydrology and Hydrogeology |                      |                      |                          |   |   |   |   |                         |        |  |
| Construction                              |                      |                      |                          |   |   |   |   |                         |        |  |
|   |                      |                      |                          |   |   |   |   |                         |        |  |
| Land Quality                              |                      |                      |                          |   |   |   |   |                         |        |  |
| Construction                              |                      |                      |                          |   |   |   |   |                         |        |  |
|   |                      |                      |                          |   |   |   |   |                         |        |  |

| Ref. No                        | Environmental Aspect | Environmental Effect | Legislation Reference |                                      |   |   |   |                         |        |  |
|--------------------------------|----------------------|----------------------|-----------------------|--------------------------------------|---|---|---|-------------------------|--------|--|
|                                |                      |                      |                       | Significance Assessment <sup>1</sup> |   |   |   | Comments and Mitigation | Status |  |
|                                |                      |                      |                       | 1                                    | 2 | 3 | 4 |                         |        |  |
| Archaeology and Built Heritage |                      |                      |                       |                                      |   |   |   |                         |        |  |
| Construction                   |                      |                      |                       |                                      |   |   |   |                         |        |  |
|                                |                      |                      |                       |                                      |   |   |   |                         |        |  |
| Transport and Access           |                      |                      |                       |                                      |   |   |   |                         |        |  |
| Construction                   |                      |                      |                       |                                      |   |   |   |                         |        |  |
|                                |                      |                      |                       |                                      |   |   |   |                         |        |  |
| Land Use and Agriculture       |                      |                      |                       |                                      |   |   |   |                         |        |  |
| Construction                   |                      |                      |                       |                                      |   |   |   |                         |        |  |
|                                |                      |                      |                       |                                      |   |   |   |                         |        |  |



---

## **Appendix 2 – Environmental Incident Control Plan**

---

The Pollution Incident and Control Plan should be developed by the construction project manager in cooperation with the appointed contractor.

As a minimum, the plan should include:

- individual site roles and responsibilities in the event of an environmental incident, spillage or emergency;
- identification of those personnel to be contacted in the event of an emergency, including managers and plant operators as required;
- an Environmental Incident Reporting Form and contact details for reportable incidents, spillages and environmental complaints;
- immediate actions to protect or prevent further damage or pollution; and,
- notification procedures for ceasing works and, if required, agreeing remediation action and terms for commencing works.

## **Introduction**

This Environmental Incident Control Plan (EICP) provides guidance on the management of environmental incidents during the construction/implementation phase of all works that are to be undertaken as part of the Rother Valley Railway Project.

Hard copies of the EICP will be kept readily available at each works location.

## **Pollution Releases to Water**

The pollution of controlled waters, which includes both surface watercourses and groundwater, is prohibited under the Water Resources Act (1991) and the Groundwater Regulations (2009).

This section details actions to be followed in the event of a pollution release to controlled waters these procedures will only be implemented however, if it is safe to do so. No actions will be taken that could endanger site personnel or members of the public.

The following will be initiated in the event of pollution release, e.g. spillage of diesel, engine oil or hydraulic oil, to controlled waters, such as rivers, streams, groundwater, water wells, open drains and drainage channels:



### Cease Work

- Immediately cease all aspects of work associated with the pollution incident.
- The maintenance and refuelling of vehicles and plant would be the most likely activities at a construction site that could result in pollution of controlled waters

### Investigate and Stop or Remove

- Investigate the source of the pollution and, if practicable and safe, prevent further leakage immediately by stopping the source of the pollution.
- If it is not possible to stop the leak but it is possible to move the source of the leak away from any potentially sensitive receptors, such as rivers, streams and drains, then do so and place it on hardstanding or a bunded area to prevent further spread of the leak.

### Use Equipment

- If possible use the spill response kits on site to bund downstream of the leak to prevent the pollution from spreading and protect any open watercourses and drains as a priority.
- If the spillage or leak has entered an open surface watercourse, such as a river or stream, deploy a floating boom downstream of the leak to prevent it from spreading any further
- If safe, use the spill kits provided to clean up the spillage or leak using appropriate absorbent materials and personal protective equipment.
- Place all contaminated absorbent materials in suitable plastic bags, double bag them and store in a bunded location until an appropriate disposal route has been found for the waste

### Report

- Once the pollution incident is under control contact the Construction Project Manager using the specified contact numbers. The Construction Project Manager will determine with the appropriate site personnel any additional actions to be taken, if required they will:
- Assess whether the incident requires reporting to the Environment Agency (on their 24 hour hotline 0800 807060) and any other regulatory bodies.
- Complete a non-conformance form as part of an audit or an Environmental Incident Reporting Form when there is a spill or other environmental incident, detailing the nature and extent of the nuisance, the corrective actions taken, the root cause of the incident and the nature of any preventative actions to be taken. The form will be copied to the Rother Valley Railway representative and any lessons that can be learnt will be determined and reported.
- Ensure that all wastes resulting from the incident are disposed of in accordance with Environmental Protection (Duty of Care) Regulations (1991) and any other relevant legislation

---

The main preventative measures to reduce the risk of pollution resulting from any spillages and leaks include:

- The provision of sufficient and suitable oil and chemical spill response kits at strategic locations around the works. The type and quantity of the spill response kits required will be determined by the construction project manager and will depend on the types and quantities of oils and chemicals used and stored at the works sites;
- Once the appropriate type and quantity of spill response kits has been determined relevant site personnel will require training in the use of the spill response kits.
- No oils or chemicals are to be stored within a minimum distance of 25 metres away from any open surface watercourses or drain; and
- All oils and chemicals stored in containers greater than 200 litres in volume will be bunded in accordance with the Pollution Prevention (Oil Storage) Regulations 2001 (SI 2954) and the Environment Agency's Pollution Prevention Guidance Notes 2 & 26.

### **Pollution Releases to Ground**

The Contaminated Land Regulations (2006) and the Environment Act (1995) implement Part IIA of the Environmental Protection Act (1990), measures to provide a legislative framework for contaminated land. Under this framework land must be suitable for its intended use and that the polluter is responsible for any remediation work that is required to return the land to a suitable condition. Consequently, it is important that the project does not involve contamination that could lead to either the site being unsuitable or for remediation works being necessary.

Appropriate measures that will be implemented to prevent pollution of land occurring as a result of the project include:

- The provision of sufficient and suitable oil and chemical spill response kits at strategic locations around the works. The type and quantity of the spill response kits required will be determined by the construction project manager and will depend on the types and quantities of oils and chemicals used and stored at the works sites;
- Once the appropriate type and quantity of spill response kits has been determined, relevant site personnel will require training in the use of the spill response kits.
- No oils or chemicals are to be stored within a minimum distance of 25 metres away from any open surface watercourses or drain; and
- All oils and chemicals stored in containers greater than 200 litres in volume will be bunded in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 (SI 2954) and the Environment Agency's Pollution Prevention Guidance Notes 2 & 26.
- Detergents and degreasers used on the tracks will be suitably contained and disposed of rather than being allowed to infiltrate into the ground;
- Drip trays will be used in areas where chemicals and oil are being transferred between vessels;
- All hazardous substances will be stored and handled in accordance with the Control of Substances Hazardous to Health Regulations (2002);
- All substances and chemicals will be handled in accordance with all guidance provided with them.

The following details the actions to be followed in the event of pollution release to land e.g. spillage of diesel, engine oil or hydraulic oil. Procedures should only be implemented however, if it is safe to do so. No actions should be taken that could endanger site personnel or members of the public.

### Cease Work

- Immediately cease all aspects of work associated with the pollution incident.
- The maintenance and refuelling of vehicles and plant would be the most likely activities at a construction site that could result in pollution of land.

### Investigate and Stop or Remove

- Investigate the source of the pollution and, if practicable and safe, prevent further leakage immediately by stopping the source of the pollution.
- If it is not possible to stop the leak but it is possible to move the source of the leak away from any potentially sensitive receptors, such as rivers, streams and drains, then do so and place it on hardstanding or a **bunded** area to prevent further spread of the leak.

### Use Equipment

- If possible use the spill response kits on site to bund downstream of the leak to prevent the pollution from spreading and protect any open land and drains as a priority.
- If safe, use the spill kits provided to clean up the spillage or leak using appropriate absorbent materials and personal protective equipment.
- Place all contaminated absorbent materials in suitable plastic bags, double bag them and store in a **bunded** location until an appropriate disposal route has been found for the waste

### Report

- Once the pollution incident is under control contact the Construction Project Manager using the specified contact numbers. The Construction Project Manager will determine with the appropriate site personnel any additional actions to be taken, if required they will:
  - Assess whether the incident requires reporting to the Environment Agency (on their 24 hr hotline 0800 807060) and any other regulatory bodies.
  - Complete a non-conformance form as part of an audit or an Environmental Incident Reporting Form when there is a spill or other environmental incident, detailing the nature and extent of the nuisance, the corrective actions taken, the root cause of the incident and the nature of any preventative actions to be taken. The form will be copied to the Rother Valley Railway representative and any lessons that can be learnt will be determined and reported.
- Ensure that all wastes resulting from the incident are disposed of in accordance with Environmental Protection (Duty of Care) Regulations (1991) and any other relevant legislation

---

## **Pollution Releases to Air**

Under Part III of the Environmental Protection Act 1990, a local authority has a duty to inspect its area from time to time to detect any statutory nuisances and to take such steps as are reasonably practicable to investigate any complaint of a statutory nuisance made by a person living within its area.

Where a local authority is satisfied of the existence or of the likely occurrence or recurrence of statutory nuisance, it must serve an abatement notice. This may be served upon the person responsible for the nuisance, or the owner or occupier of the premises where the person responsible for the nuisance cannot be found or the nuisance has not yet occurred.

Relevant statutory nuisances are set out under section 79(1) EPA, relevant ones are detailed below:

- smoke emitted from premises so as to be prejudicial to health or a nuisance;
- any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance;
- artificial light emitted from premises so as to be prejudicial to health or a nuisance;
- noise emitted from premises so as to be prejudicial to health or a nuisance;
- noise that is prejudicial to health or a nuisance and is emitted from or caused by a vehicle, machinery or equipment in a street; and

Consequently it is important that the project does not cause a statutory nuisance and as such the preventative measures as detailed in the CEMP will be taken, where practicable. The most likely causes of nuisance from the works would be excessive dust from haul roads, excavations and stockpiles of spoil or excessive noise and vibration from the construction works out of normal working hours.

In the event that a complaint from a member of the public or regulatory body is received related to nuisance the following actions will be taken:

- Determine if the source of the alleged nuisance originates from within the works and immediately cease all aspects of work associated with the nuisance;
- Investigate the source of the nuisance and, if practicable and safe, prevent further nuisance occurring immediately by stopping the source of the nuisance;
- Once the nuisance has ceased contact the construction project manager using the specified contact numbers. The construction project manager will determine with the appropriate site personnel any additional actions to be taken, if required, to prevent the nuisance from re-occurring and whether or not the work can re-commence;
- If the work is permitted to re-commence site personnel will monitor the work to ensure that the nuisance does not re-occur. If the nuisance does re-occur work will cease immediately and the construction project manager will be contacted;
- The construction project manager will contact Rother Valley Railway Ltd representatives verbally to inform them of the nature and extent of the nuisance and the corrective action taken by the site personnel;
- Rother Valley Railway Ltd will decide whether the incident should be reported to the local authority and any other regulatory bodies;
- The construction project manager in conjunction with site personnel will complete a non-conformance form as part of an audit or an Environmental Incident Reporting Form when there

---

is a spill or other environmental incident, detailing the nature and extent of the nuisance, the corrective actions taken, the root cause of the incident and the nature of any preventative actions to be taken.

### **Encountering evidence of protected species or cultural heritage**

Although every endeavour has been undertaken to determine if, and if so where, protected species and sites of cultural heritage are located it cannot be guaranteed that they have all been identified. Protected species are defined and protected by the Wildlife and Countryside Act 1981, as amended, whilst sites of archaeological value are protected by the Ancient Monuments and Archaeological Areas Act (1979).

Examples of protected species include the Dormouse, Bats, Badgers and Great crested newts. A full list of the UK protected species is listed in the various applicable Schedules of the Wildlife and Countryside Act, as amended.

To ensure that any evidence of protected species or cultural heritage is not overlooked, due care should be taken during the works and any discontinuities or other evidence sites or species will be investigated prior to the works continuing in a manner that could have a detrimental effect on what has been found. If evidence is encountered that is believed to indicate the presence of either protected species or sites of cultural heritage the following actions will be taken:

- Immediately cease all works that could adversely affect the potential protected species or site of what has been encountered;
- Contact and inform the construction project manager of the nature of the protected species or cultural heritage site that has been identified. The construction project manager will confirm, as appropriate, that any work that can potentially adversely affect will not be permitted to recommence;
- The construction project manager will contact the appropriate Rother Valley Railway Ltd representative and inform them of the situation and confirm appropriate actions to be taken;
- The construction project manager will seek the use of specialist advice and expertise to confirm the presence of a protected species or site of potential cultural heritage importance;
- Once the presence of a protected species or site of potential cultural heritage importance has been confirmed the construction project manager will inform the appropriate regulatory bodies, such as English Nature and English Heritage etc;
- The construction project manager will ensure that all appropriate permissions are sought and measures taken to enable the works to recommence at the earliest possible opportunity.

### **Encountering potential contaminated land**

As discussed above it is necessary for the site to be suitable, in terms of any contamination present in the soil and/or groundwater, for its intended use. It is possible that there is historical contamination in the soil and/or groundwater, which is not currently known about and which could affect the sites suitability for its intended use. Consequently it is necessary for any evidence of potential historical soil and/or groundwater contamination to be treated with due care to protect both the health and welfare of site personnel and to prevent the remobilisation of contamination resulting in pollution.

If previously unknown contaminated land is encountered or suspected the following actions will be taken:

- 
- Cease all aspects of work in the area where the evidence of contamination has been encountered or is suspected;
  - Until the presence of contaminated land has been confirmed or proven otherwise all personnel must wear appropriate personal protective equipment (PPE) when coming into contact with potentially contaminated soil and/or groundwater. Advice on the PPE will be provided by the Construction Project Manager;
  - Contact and inform the Construction Project Manager of the nature and extent of the potentially contaminated land;
  - The Construction Project Manager will inform the appropriate Rother Valley Railway representative and agree what type of investigation or actions should be taken next to enable the works to recommence;
  - The Construction Project Manager with agreement from Rother Valley Railway will organise, as appropriate, any soil and/or groundwater testing that is required to confirm the presence of contamination;
  - If the presence of contamination is confirmed a remedial strategy will be developed, with the approval of Rother Valley Railway and the Construction Project Manager, to remove the contamination.



---

## **Appendix 3 – Legislation Register**

---

A legislation register should be compiled and kept up-to-date by the construction project manager, once appointed.

This should cover all relevant legislation in areas to include, but not be limited to:

- Air quality;
- Archaeology and Cultural Heritage;
- Contaminated Land;
- Ecology and Biodiversity;
- Hazardous Materials and Waste Management;
- Noise and Vibration; and
- Water.

The construction project manager will have responsibility to compile the register initially and keep up to date with all relevant changes in legislation, which will need to be communicated to the project team.

The construction project manager will need to ensure that the project EMS and the CEMP are compliant with legislation and will need to plan for compliance with any future legislation changes that may come into effect during the construction phase of the project.

Example sections of a legislation register are shown on the following page.

**Rother Valley Railway Limited**

Track Reinstatement between Northbridge Street and Junction Road  
Draft Construction Environmental Management Plan



| Reference Number                            | Legislation / Guidance  | Summary of Relevant Environmental Aspects in Legislation   | Applicable Section of Legislation / Guidance |
|---|---|--|--|
| Noise                                       |   |  |  |
| Example:<br>E01                             | The Environmental Protection Act 1990 (as amended by the Noise and Statutory Nuisances Act, 1993) | Sets out fact that noise can be a statutory nuisance, owners can be served with an abatement notice (plant on-site). | Part III                                     |
|   |   | Definitions  | S79  |
|   |   | Issuing of abatement notices and exemption   | S80  |
|   |   |  |  |
| Environmental Guidance Documents for Design |   |  |  |
| I01   | EA Pollution Prevention Guidelines  | PPG 01: General guide on prevention of water pollution   |  |
|   |   | PPG 05: Works in, near or liable to affect watercourses  |  |
|   |   |  |  |
| Forthcoming legislation                     |   |  |  |
|   |   |  |  |
|   |   |  |  |
|   |   |  |  |

---

**Temple Group Ltd**  
Devon House  
58-60 St Katharine's Way  
London E1W 1LB

Tel: +44 (0) 20 7394 3700  
Fax: +44 (0) 20 7394 7871

[www.templegroup.co.uk](http://www.templegroup.co.uk)

---



**TEMPLE**

LEADERS IN ENVIRONMENT,  
PLANNING & SUSTAINABILITY.

## Appendix 5 Noise and Vibration Appendices

### Baseline noise survey results

The detailed baseline noise survey results for each monitoring location are presented in tables A and B and figures A – C below:

**Figure A: Location 1 11 Greenleigh Walk**

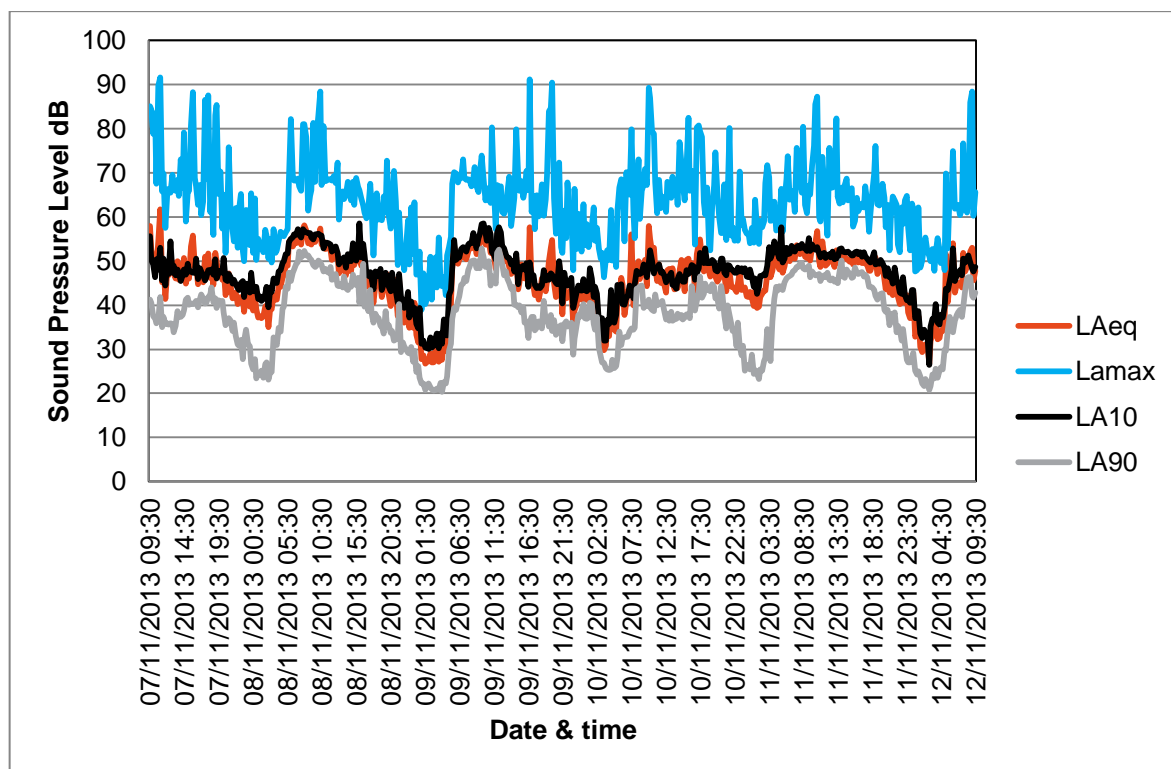


Figure B: Location 3, Goodgrooms, Church Lane

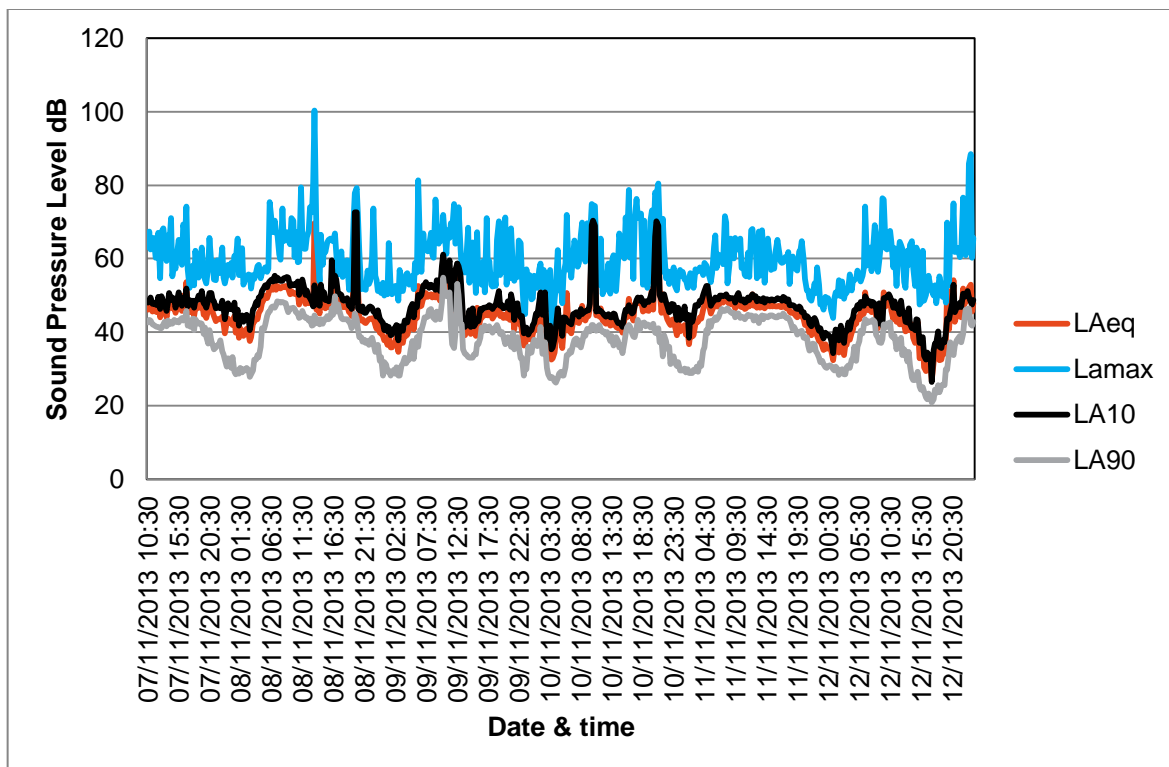
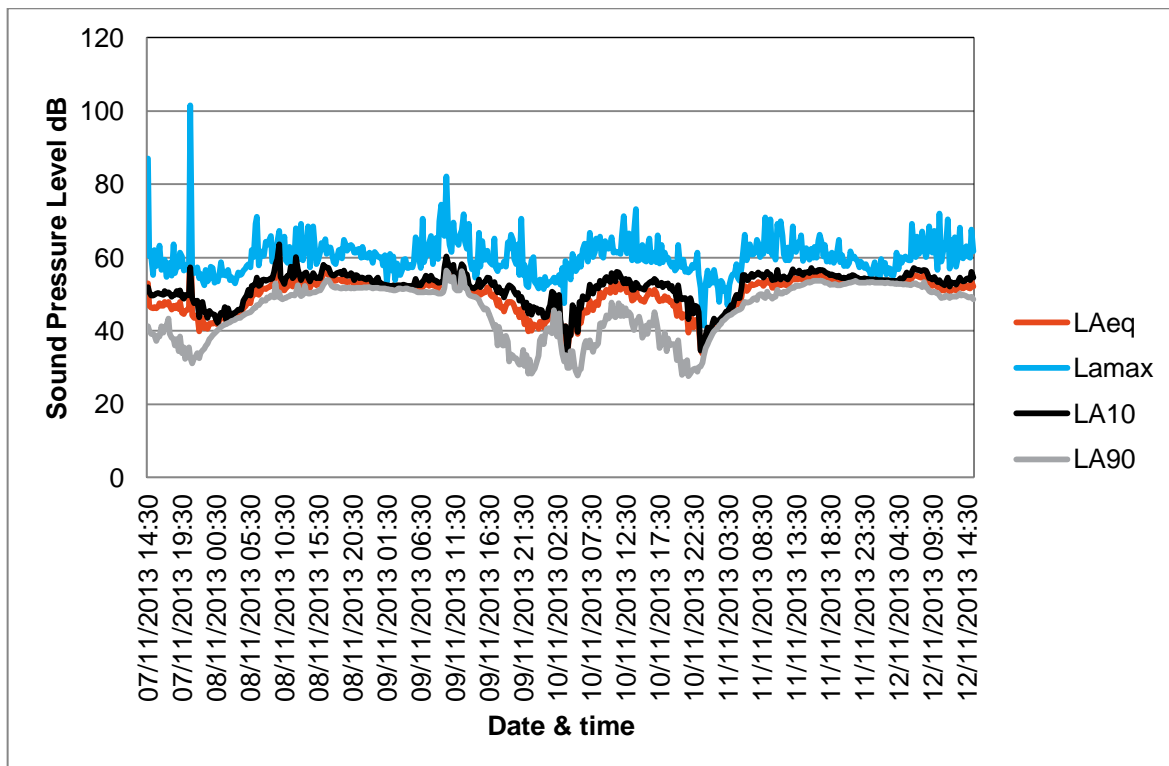


Figure C: Location 4, Udiam Farm, Junction Lane





**Table A: Location 2, Rutley Close**

| Date/Time        | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
|------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| 07/11/2013 13:38 | 55.8                     | 79.4                       | 57.2                     | 42.1                     |
| 07/11/2013 13:45 | 51.7                     | 68.2                       | 54.6                     | 44.5                     |
| 07/11/2013 14:00 | 53.5                     | 64.9                       | 57.4                     | 45.9                     |
| <b>Totals</b>    | 54                       | 79.4                       | 56.                      | 44.2                     |
| Date/Time        | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
| 23/04/2014 10:35 | 50.8                     | 65.3                       | 54.3                     | 41.9                     |
| 23/04/2014 10:40 | 53.2                     | 69.2                       | 57.4                     | 44.1                     |
| 23/04/2014 10:45 | 54.4                     | 66.6                       | 58.8                     | 43                       |
| <b>Totals</b>    | 53                       | 69.2                       | 56.8                     | 43                       |
| 23/04/2014 11:38 | 52.7                     | 66.9                       | 56.4                     | 44                       |
| 23/04/2014 11:43 | 54.9                     | 70.2                       | 57                       | 45.3                     |
| 23/04/2014 11:48 | 50.6                     | 64.4                       | 53.5                     | 43.3                     |
| <b>Totals</b>    | 53.1                     | 70.2                       | 55.6                     | 44.2                     |
| 23/04/2014 12:32 | 54.1                     | 69.8                       | 56.5                     | 42                       |
| 23/04/2014 12:37 | 53                       | 65.8                       | 56.7                     | 45                       |
| 23/04/2014 12:42 | 53.9                     | 65.9                       | 58.1                     | 43.1                     |
| <b>Totals</b>    | 53.7                     | 69.8                       | 57.1                     | 43.4                     |
|                  | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
| <b>Summary</b>   | 53.5                     | 79.4                       | 56.5                     | 43.7                     |

**Table B: Location 5, Junction Road**

| Date/Time        | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
|------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| 14/11/2013 14:15 | 55.6                     | 75.2                       | 62.3                     | 43.4                     |
| 14/11/2013 14:30 | 55.5                     | 74.4                       | 61.9                     | 42.1                     |
| 14/11/2013 14:45 | 57.3                     | 71.4                       | 64.3                     | 46.2                     |
| <b>Totals</b>    | 56.2                     | 75.2                       | 62.8                     | 43.9                     |

| Date/Time        | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
|------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| 23/04/2014 11:09 | 61.4                     | 82.8                       | 64.2                     | 42.9                     |
| 23/04/2014 11:14 | 58.8                     | 72.9                       | 63.4                     | 46.6                     |
| 23/04/2014 11:19 | 59.2                     | 74.6                       | 63.9                     | 44.4                     |
| <b>Totals</b>    | 60                       | 82.8                       | 63.8                     | 44.6                     |
| 23/04/2014 12:05 | 60                       | 77.1                       | 64                       | 45.4                     |
| 23/04/2014 12:10 | 59                       | 73.4                       | 63.5                     | 46.6                     |
| 23/04/2014 12:15 | 56.7                     | 72.3                       | 61.1                     | 44.7                     |
| <b>Totals</b>    | 58.8                     | 77.1                       | 62.9                     | 45.6                     |
| 23/04/2014 13:02 | 59.4                     | 74.8                       | 62.9                     | 41.5                     |
| 23/04/2014 13:07 | 58.9                     | 75.4                       | 63.4                     | 44.2                     |
| 23/04/2014 13:12 | 58.7                     | 73.3                       | 63.6                     | 41.6                     |
| <b>Totals</b>    | 59                       | 75.4                       | 63.3                     | 42.4                     |

|                | L <sub>Aeq</sub><br>(dB) | L <sub>Afmax</sub><br>(dB) | L <sub>A10</sub><br>(dB) | L <sub>A90</sub><br>(dB) |
|----------------|--------------------------|----------------------------|--------------------------|--------------------------|
| <b>Summary</b> | 58.7                     | 82.8                       | 63.2                     | 44.1                     |

## NOISE MODELLING ASSUMPTIONS

### Prediction Methods – Operational Railway Noise

Railway operational noise has been calculated with reference to the Calculation of Railway Noise (CRN). Noise propagation from steam trains is relatively unknown as such a field measurement exercise was undertaken for four train pass by events along the existing Rother Valley line. The measurement survey was undertaken at a representative location along the existing line. The location was selected on the day of the survey and location had a clear unobstructed view of the line with predominantly soft ground between the line and the measurement locations.

Measurements of the pass-bys were undertaken at three distances from the near side track simultaneously, 10m, 25m, and 60m. Table C details the measurements for each of the four pass-by events.

It is understood that the engines measured represent the typical worst case units currently operating on the line.

**Table C: measured train pass by noise levels  $L_{Aeq}$  (dB)**

| Distance (m) | Pass by 1 | Pass by 2 | Pass by 3 | Pass by 4 |
|--------------|-----------|-----------|-----------|-----------|
| 10 m         | -         | -         | 66.4      | 63.8      |
| 25 m         | 65.0      | 45.1      | 60.8      | 58.4      |
| 60 m         | 57.6      | -         | 59.3      | 52.0      |

From these measurements it was possible to interpolate the distance propagation characteristics of the noise emitted by the trains; this is detailed in table D below along with the predicted distance attenuation using the method set out in CRN.

**Table D: Measured and predicted distance attenuation for train pass-by (dB)**

| Distance (m) | Pass by 1 | Pass by 3 | Pass by 4 | CRN prediction |
|--------------|-----------|-----------|-----------|----------------|
| 10-25 m      | -         | 5.6       | 5.4       | 3.9            |
| 10-60 m      | -         | 7.1       | 11.8      | 7.8            |
| 25-60 m      | 7.4       | 1.5       | 6.4       | 3.8            |

The results detailed in table D demonstrate that the measured decrease in noise level with was greater than those predicted using CRN. As such for the purpose of this assessment the CRN method has been used as a worst case methodology and will in reality under predict the attenuation of noise from the trains with distance.

## Construction Noise Modelling

The construction methodology is currently high level in nature therefore certain assumptions have been made in terms of plant to be used to carry out the work. These plant assumptions have been formed from our extensive experience on other previous similar projects.

Contractors may vary in their approach; however, they will need to adhere to BPM.

Plant sound power levels ( $L_{WA}$ ) have been referenced from BS5228.

**Table E** below details the plant items and sound power levels identified for each key construction activity while **Table F** summarises the predicted noise levels at the nearest approach to the identified receptors for each activity.

**Table E – Construction plant per phase**

| Activity  | Equipment                         | $L_{WA}$ (dB) | % operating time in 10hr day |
|---|-----------------------------------|---------------|------------------------------|
| Set up signalling - Install LOC Bases/Walkways/Signal Poles (daytime) | 15T 360 deg Excavator             | 97            | 25.0                         |
|   | Mobile Crane 25T                  | 98            | 25.0                         |
|   | Generator (power for site cabins) | 87            | 80.0                         |
| Existing Railway Clearance  | 15T 360 deg Excavator             | 97            | 75.0                         |
|   | Chain saw (veg clearance)         | 113           | 25.0                         |
|   | Wood Chipper (veg clearance)      | 114           | 25.0                         |
|   | pick up                           | 102           | 80.0                         |

| Activity  | Equipment                             | L <sub>WA</sub> (dB) | % operating time in 10hr day |
|---|---------------------------------------|----------------------|------------------------------|
| <b>Embankment - Site Clearance</b>                      | Chain saw (veg clearance)             | 113                  | 25.0                         |
|   | Wood Chipper (veg clearance)          | 114                  | 25.0                         |
|   | pick up                               | 102                  | 80.0                         |
| <b>Embankment - Topsoil Strip</b>                       | 15T 360 deg Excavator                 | 97                   | 25.0                         |
|   | 2T Dumper                             | 105                  | 25.0                         |
|   | Dozer 11T                             | 106                  | 80.0                         |
| <b>Embankment - Filling</b>                             | 15T 360 deg Excavator                 | 97                   | 75.0                         |
|   | Vibrating Roller Small                | 102                  | 25.0                         |
|   | Dozer 11T                             | 106                  | 25.0                         |
|   | 2T Dumper                             | 105                  | 80.0                         |
| <b>Embankment - Resoiling</b>                           | 15T 360 deg Excavator                 | 97                   | 25.0                         |
|   | 2T Dumper                             | 105                  | 25.0                         |
|   | Dozer 11T                             | 106                  | 80.0                         |
| <b>Culvert/Drainage</b>                                 | Wheeled backhoe loader 8T             | 96                   | 75.0                         |
|   | Mini digger                           | 101                  | 25.0                         |
|   | Water Pump                            | 90                   | 25.0                         |
|   | Mobile Crane 25T                      | 98                   | 80.0                         |
| <b>Bridge</b>   | Wheeled backhoe loader 8T             | 96                   | 75.0                         |
|   | Mini digger                           | 101                  | 25.0                         |
|   | Water Pump                            | 90                   | 25.0                         |
|   | Mobile Crane 25T                      | 98                   | 80.0                         |
| <b>Underbridge 13 / Site Clearance &amp; Excavation</b> | Chain saw (veg clearance)             | 113                  | 75.0                         |
|   | Wood Chipper (veg clearance)          | 114                  | 25.0                         |
|   | 2T Dumper                             | 105                  | 25.0                         |
|   | 15T 360 deg Excavator                 | 97                   | 80.0                         |
| <b>Pile &amp; Base</b>                                  | CFA Piling Rig                        | 108                  | 75.0                         |
|   | 15T 360 deg Excavator                 | 97                   | 25.0                         |
|   | 2T Dumper                             | 105                  | 25.0                         |
|   | Concrete Mixer Truck                  | 108                  | 80.0                         |
|   | Generator (power for bentonite plant) | 87                   | 90.0                         |
|   |                                       |                      |                              |
| <b>Roof &amp; Finishes</b>                              | crawler crane                         | 103                  | 25.0                         |

| Activity  | Equipment                           | L <sub>WA</sub> (dB) | % operating time in 10hr day |
|---|-------------------------------------|----------------------|------------------------------|
|   | concrete mixer truck                | 108                  | 25.0                         |
|   | Vibrating Roller Small              | 102                  | 80.0                         |
|   | 15T 360 deg Excavator               | 97                   | 75.0                         |
|   | D6 Dozer 28T                        | 107                  | 25.0                         |
|   | Grader                              | 114                  | 25.0                         |
| <b>Formation/ Sub-ballast</b>                                 | Vibrating Roller Medium (Bomag 120) | 106                  | 80.0                         |
| <b>Install LOC Bases/Walkways/Signal Poles for Night Time</b> | Mobile Crane 25T                    | 98                   | 25.0                         |
|   | Generator (power for site cabins)   | 87                   | 80.0                         |

**Table F: Predicted construction noise levels**

| Receiver                                     | Works  | Predicted noise Level L <sub>Aeq, 10hr</sub> (dB) |
|--|--|---|
| <b>Location 1 - Glenleigh Walk</b>           | Formation Sub-Ballast                        | 66  |
|  | Embankment- Site Clearance                   | 70  |
|  | Embankment -Topsoil Strip                    | 66  |
|  | Embankment Filling                           | 66  |
|  | Embankment - Resoiling                       | 66  |
|  | Formation Sub-Ballast                        | 69  |
|  | Install LOC Bases/Walkways/Signal Poles      | 51  |
|  | Bridge 11                                    | 54  |
| <b>Location 2- Rutly Close</b>               | Bridge 10                                    | 57  |
|  | Bridge 9                                     | 58  |
|  | Bridge 8                                     | 61  |
|  | Culvert 7                                    | 51  |
|  | Install LOC Bases/Walkways/Signal Poles      | 43  |
|  | Underbridge 13 / Site Clearance & Excavation | 63  |
|  | Pile & Base                                  | 59  |
|  | Roof & Finishes                              | 54  |
|  | Embankment- Site Clearance                   | 67  |
|  | Embankment -Topsoil Strip                    | 63  |
|  | Embankment Filling                           | 63  |
| <b>Location 3 – Goodgrooves, Church Lane</b> | Embankment - Resoiling                       | 63  |
|  | Bridge 16                                    | 58  |
|  | Culvert 15                                   | 57  |
|  | Bridge 17                                    | 55  |
|  | Formation/ Sub-ballast                       | 66  |
| <b>Location 4 – Udiam Farm,</b>              | General                                      | 62  |

**Rother Valley Railway Limited**

Track Reinstatement between Northbridge Street and Junction Road  
Environmental Statement, Volume 2 – Main Statement  
Final



|   |   |    |
|---|---|----|
| <b>Junction Road</b>                    | Culvert/Drainage 27                     | 52 |
|   | Install LOC Bases/Walkways/Signal Poles | 46 |
|   | Formation/ Sub-ballast                  | 61 |
| <b>Location 5 – Junction Road</b>       | General                                 | 63 |
|   | Culvert/Drainage 27                     | 52 |
|   | Install LOC Bases/Walkways/Signal Poles | 47 |
|   | Formation/ Sub-ballast                  | 62 |
|   |   |    |
| <b>Location A –Redlands</b>             | Embankment- Site Clearance              | 58 |
|   | Embankment -Topsoil Strip               | 54 |
|   | Embankment Filling                      | 54 |
|   | Embankment - Resoiling                  | 54 |
|   | Culvert/Drainage 24                     | 48 |
|   | Formation/ Sub-ballast                  | 57 |
| <b>Location B – Robertsbridge Abbey</b> | Embankment- Site Clearance              | 60 |
|   | Embankment -Topsoil Strip               | 56 |
|   | Embankment Filling                      | 56 |
|   | Embankment - Resoiling                  | 56 |
|   | Bridge 22                               | 50 |
|   | Formation/ Sub-ballast                  | 59 |
| <b>Location C – Moat Farm</b>           | Embankment- Site Clearance              | 55 |
|   | Embankment -Topsoil Strip               | 51 |
|   | Embankment Filling                      | 51 |
|   | Embankment - Resoiling                  | 51 |
|   | Formation/ Sub-ballast                  | 54 |



## Appendix 6A Archaeological and Cultural Heritage Appendices

### Appendix 6-A: Archaeology Baseline Data

| Item | HER Ref. | Grid Ref                     | Notes  |
|------|----------|------------------------------|--|
| 1    | MES2300  | TQ 754 238                   | Site of Robertsbridge Abbey; Scheduled Ancient Monument (UID ES 134). Remains of Cistercian Abbey founded in 1176; relocated to this site about 1210; dissolved in 1538.<br>The remains of the Abbey have been incorporated in, or obscured by the Abbey Farm. The building now used as the farmhouse was erected c.1250 and is usually described as the Abbott's House. Remains of the warming house, frater and laybrothers' range are still extant. The outline of the abbey church is marked by lines of parched grass, visible on an air photographs. The moat to the north may have delimited the precinct and may also have served as a leet to feed the probable fishponds to the north-west, which can be seen on aerial photographs to extend beyond the designated area. The position of a (subordinate?) gatehouse SE of the claustral complex, was traced during clearing operations along the S boundary of the precinct.  |
| 2    | MES2031  | TQ 7514 2307 to TQ 7528 2307 | Remains of a post-medieval pond bay; the centre portion has been levelled to construct a farm road, and this may conceal the site of the furnace - there is a general light scatter of slag but no concentration is to be seen. A breach, carrying a drainage ditch, may be the site of the wheel, and at the E end of the bay are the remains of a stone spillway. A furnace is marked here on Bugden's Map of 1724.  |
| 3    | MES2302  | TQ 73 23                     | Imprecise find spot of a Neolithic polished stone axe found in Robertsbridge.  |
| 4    | MES2461  | TQ 8056 2150                 | Course of the Rochester to Hastings Roman Road. Located beyond the east edge of Figure ***.  |
| 5    | MES2304  | TQ 7325 2462                 | Find spot of Romano-British pottery, including coarse wares and decorated Samian dating from 2nd century, in the east bank of the River Rother; thought to be a possible rubbish dump for a nearby settlement.   |
| 6    | MES2307  | TQ 750 231                   | Farm of possible medieval origin.  |
| 7    | MES2334  | TQ 733 235                   | Robertsbridge station; 19 <sup>th</sup> century railway platform.  |
| 8    | MES2376  | TQ 7380 2360                 | Historic core of Robertsbridge<br>The town emerged as a significant settlement in the 13 <sup>th</sup> century and this is presumably associated with the relocation of the Abbey from its original location in that part of the town now known as The Green to its 'current' site. By 1300, it was an important centre for trading and manufacturing, perhaps at the expense of nearby Salehurst. A substantial phase of expansion c.1314 has been suggested, although Robertsbridge between the 16 <sup>th</sup> and early 19 <sup>th</sup> centuries appears to have been largely indistinguishable from a village. Notwithstanding this, the growth of the Wealden Iron Industry (late 15 <sup>th</sup> to 18 <sup>th</sup> centuries) is likely to have acted as a stimulus for the town, as may have the positioning of an army barracks in the late 18 <sup>th</sup> century some 2km to the north of the town.<br>Additional source: Harris R., 2009 Robertsbridge Historic Character Assessment Report. Sussex Extensive Urban Survey |
| 9    | MES2377  | TQ 7380 2330                 | Alleged site of a Romano-British settlement.   |
| 10   | MES2378  | TQ 7379 2347                 | Original site of Robertsbridge Abbey, founded in 1176.   |
| 11   | MES2395  | TQ 7379 2347                 | Site of late 19 <sup>th</sup> century brickworks.  |
| 12   | MES2396  | TQ 7405 2442                 | Documentary evidence records a house and a barn at this spot in 1658. Fifteenth/sixteenth century pottery was recovered during archaeological work, but no structural evidence was found.  |

| Item | HER Ref. | Grid Ref     | Notes   |
|------|----------|--------------|---|
| 13   | MES2399  | TQ 7514 2314 | <p>Salehurst Park Farm: site of a medieval aisled hall and deserted medieval settlement.</p> <p>The hall was first built in the 13th century, presumably after the site was granted to Robertsbridge Abbey following its relocation in 1210 from Robertsbridge itself. The building is identified as part of the Robertsbridge Abbey grange of Park. Traces of earlier activity beneath the hall are associated with the Domesday village of 'Drisnesel', perhaps home to about 25 families. Part of Park Farm is still called 'Drigsell'.</p> <p>Additional source: Burleigh, G. R. 1973 An introduction to deserted medieval villages in East Sussex. <i>Sussex Archaeological Collections</i> 111, 45-83</p>   |
| 14   | MES2400  | TQ 7553 2376 | Find spot of several unusual medieval floor tiles.  |
| 15   | MES2401  | TQ 751 249   | Site of a post-medieval or earlier brick kiln; demolished prior to 1937.  |
| 16   | MES3479  | TQ 778 251   | Undated crop mark recorded during a dry summer; probably drainage in water meadows rather than an archaeological feature.   |
| 17   | MES3490  | TQ 771 251   | Location (extent not known) of a deer park documented as an appurtenance of the manor (of Bodiam) from the late 12th century. In the later medieval and modern period it apparently lay detached from Bodiam castle to the west of Bodiam village, where Park Farm is located.  |
| 18   | MES3826  | TQ 7567 2364 | <p>Site of a post-medieval iron working forge.</p> <p>The forge at Robertsbridge Abbey Farm has a recorded history of 260 years from 1541 to 1801. Field evidence includes a large bay with some brickwork at the sluice, slag below the bay, and a great deal of forge cinder. Water from the furnace pond at TQ 7520 2303 maintained a supply pond in a low-lying natural hollow centred at TQ 752 237. This in turn supplied the forge with water power via a leat, approximately 300.0m in length, extending from TQ 7536 2364 to TQ 7566 2367. Most of the leat is extant and still contains water at the W end. The forge was probably immediately below it. There is an additional, low bay, 230.0m in length, but it was probably built to protect the forge site from flooding. There is a heavy concentration of cinder and ash, in the gardens of cottages built behind the bay at TQ 7564 2370.</p> |
| 19   | MES3842  | TQ 772 243   | Junction Road Halt<br>Nineteenth century railway platform.  |
| 20   | MES3859  | TQ 77 24     | <p>Udham</p> <p>A settlement of medieval origin: place name evidence suggests the presence of a medieval settlement from at least the late 12<sup>th</sup> century.</p>   |
| 21   | MES3861  | TQ 7813 2482 | <p>Site of Romano-British bloomery. The evidence comprises two very concentrated areas of tap slag, several pieces of coarse pottery dating from the 2nd century AD, one piece of tuyere and several pieces of Roman tile - including a boss from a terra mammellata tile. The finds of tile and pottery were scattered more widely around the original finds of slag. Other noticeable concentrations of slag, ore and limestone were found over the northern half of the adjacent field.</p> <p>Located beyond the east limit of Figure 1***</p>  |
| 22   | MES3865  | TQ 783 249   | <p>Site of a possible Roman Villa or other building.</p> <p>A concentration of Roman brick and tile, including pieces of tegulae and box flue tile, as well as some sizable pieces of flooring tile spread over two fields on opposite sides of the road.</p> <p>Located beyond the east limit of Figure ***</p>  |
| 23   | MES3866  | TQ 7573 2319 | <p>Bowl Barrow in Wellhead Wood</p> <p>Scheduled Monument UID 24387</p> <p>A Bronze Age Bowl Barrow situated on the north-east side of a hill</p>   |

| Item | HER Ref.                                  | Grid Ref          | Notes   |
|------|---|-------------------|---|
|      |   |                   | overlooking the River Rother. The barrow measures 13m in diameter and 1.5m in height. There is evidence of a ditch to the north-west of the mound, approximately 4m wide and 0.4m deep. The barrow is generally in good condition but has been mutilated by a pit cut into the centre of the mound.   |
| 24   | MES3882                                   | TQ 7760 2334      | An oval enclosure, or set of enclosures, which may be prehistoric in date; recorded on aerial photographs.  |
| 25   | MES3886                                   | TQ 7819 2434      | Possible large ore pits which may be connected to the Roman bloomery to the north.<br>Located beyond the east limit of Figure ***   |
| 26   | MES3888                                   | TQ 7849 2457      | Site of an undated charcoal burning platform.<br>Located beyond the east limit of Figure ***  |
| 27   | MES3890                                   | TQ 7570 2297      | Remains of a brick and tile kiln surviving as a horseshoe-shaped cut, with brick and tile rubble visible in the sides. Probing suggested that there was a substantially surviving kiln floor. It has been dated to probably the 16th or 17th century.   |
| 28   | MES3892                                   | TQ 7555 2335      | Site of a medieval roof and floor tile kiln. Abundant wasters are probably 13th century. The kiln may be connected with Robertsbridge Abbey as this land used to belong to them.  |
| 29   | MES3893                                   | TQ 7576 2347      | Several short lengths of bank possibly forming part of a (medieval?) park pale.   |
|      | MES3894                                   | TQ7561 2309       |   |
| 30   | MES3895                                   | TQ 758 231        | Site of six probable charcoal burning platforms lying on a north-east facing slope. Charcoal was submitted for radiocarbon dating and indicated they were in use in the 17th to 18th centuries. This may link it with the nearby Robertsbridge Furnace.   |
| 31   | MES3896                                   | TQ 7601 2307      | Site of a charcoal burning platform.  |
| 32   | MES7201                                   | TQ 7380 2303      | Find spot of 14 <sup>th</sup> century pottery associated with a ditch; recorded during field evaluation for the Robertsbridge bypass.   |
| 33   | MES8677                                   | TQ 75250<br>23690 | Cropmarks indicating the presence of former field boundaries; now part of a larger amalgamated field. The former boundaries are shown on the Tithe map for Salehurst and as existing up to at least the 1940's where they can be seen on aerial photographs. They appear to include part of a former drove way as well as field boundary banks and ditches. |
| 34   | MES16662                                  | TQ 7712 2514      | Park Farm<br>Probably occupying the site of a large farmstead of medieval origin.   |
| 35   | MES19037                                  | TQ 7390 2364      | Post-medieval well and other features recorded during watching brief.   |
| 36   | MES19149                                  | TQ 7378 2344      | Eighteenth- twentieth century features and deposits were identified during archaeological work, with some earlier residual finds of 16th – 17th date.   |
| 37   | MES19253<br>MES2303<br>MES2337<br>DES9222 | TQ 7489 2432      | Village of Saxon origin; recorded as 'Salhert' in the Domesday Book (1086).<br>Extent of settlement based on OS County Series 1:10,560 map of 1874  |
| 38   | MES19254                                  | TQ 7456 2379      | Farm probably originating as a medieval farmstead; recorded as 'Retherlonde' in 1305.   |
| 39   | MES19261                                  | TQ 7680 2341      | Location of a possible Saxon farmstead; recorded as Eslede in the Domesday Book 1086.   |
| 40   | MES19263<br>DES9677                       | TQ 7579 2438      | Moat Farm<br>Farm of probable medieval origin. The name suggests the presence of a moat, although there is no recorded field or cartographic evidence.  |
| 41   | MES19569                                  | TQ 7524 2382      | Remains of the bridge to the Abbey.   |
| 42   | MES19646                                  | TQ 7383 2401      | Site of medieval house destroyed after 1750.  |
| 43   | MES19647                                  | TQ 7384 2407      | Site of medieval house rebuilt after 1750.  |
| 44   | MES19648                                  | TQ 7383 2412      | Site of medieval barn, stable and stall destroyed after 1750.   |
| 45   | MES19649                                  | TQ7368 2407       | Site of medieval house rebuilt after 1750.  |

| Item | HER Ref. | Grid Ref     | Notes  |
|------|----------|--------------|--|
| 46   | MES19650 | TQ 7401 2417 | Site of medieval house destroyed after 1750.   |
| 47   | MES19651 | TQ 7403 2425 | Site of medieval house destroyed after 1750.   |
| 48   | MES19652 | TQ 7400 2427 | Site of medieval house destroyed after 1750.   |
| 49   | MES19653 | TQ 7401 2425 | Site of a medieval house rebuilt after 1750.   |
| 50   | MES19654 | TQ 7400 2422 | Site of a medieval house rebuilt after 1750.   |
| 51   | MES19655 | TQ 7396 2416 | Site of a medieval house rebuilt after 1750.   |
| 52   | MES19656 | TQ 7390 2413 | Site of medieval house destroyed after 1750.   |
| 53   | MES19657 | TQ 7391 2414 | Site of medieval house destroyed after 1750.   |
| 54   | MES19658 | TQ 7393 2415 | Site of medieval house destroyed after 1750.   |
| 55   | MES20040 | TQ 7710 2427 | A line of anti-tank bouys on a verge, possibly from a roadblock between the two bridges.   |
| 56   | MES21060 | TQ 7537 2394 | Medieval fishponds associated with Robertsbridge Abbey.  |
| 57   | MES21560 | TQ 7359 2349 | Areas of geophysical anomalies/potential archaeological features.  |
|      | MES21561 | TQ 7356 2379 |  |
| 58   | MES22277 | TQ 7544 2374 | Site of a probable 16 <sup>th</sup> century malt-drying kiln located during archaeological excavation.   |
| 59   | MES19570 | TQ 7501 2406 | WWII pillbox: with 5 prefabricated embrasures, with semi-circular concrete tables below each. Originally fitted with a false chimney on its roof as camouflage as a railway gangers hut. This has now gone and part of the roof has been demolished, which has led to the pillbox being flooded. |
| 60   | MES19778 | TQ 7703 2471 | Unusual 2-storey WWII pillbox of brick-shuttered concrete.   |
| 61   | MES19779 | TQ 7688 2451 | Type 28a WWII pillbox.   |
| 62   |          | TQ 7516 2401 | Possible relict channel visible as earthworks on aerial photographs held by EHNMR. Ref: MAL/75009 7272 199   |
| 63   |          | TQ 7484 2394 | Possible relict channel visible as earthworks on aerial photographs held by EHNMR. Ref: RAF/26H/14/1 6528  |
| 64   |          | TQ 7528 2390 | Extension of fishponds beyond boundary of scheduled monument. Visible as earthworks aerial photographs held by EHNMR. Ref: MAL/75009 7272 199  |
| 65   |          | TQ           | Curvilinear soil marks tie up with field boundaries that were removed over the last half of the 20 <sup>th</sup> century. Visible as soil marks on digital aerial images held by EHNMR. Ref: TQ 7524/1 NMR26864-029.   |
| 66   | MES3477  | TQ 779 252   | Undated crop mark recorded once in dry summer.   |

| Reference | Description  |
|-----------|--|
| DES8710   | Bodiam Bridge: identified principally for Roman assets located at and around the crossing of the River Rother by the Hastings to Rochester Roman Road. |
| DES10026  | Eyelids Farm: potential for Saxon, medieval and post-medieval settlement, including precursors to the current buildings.                               |
| DES9299   | Hastings to Ashford Roman Road.  |
| DES8721   | Lordship Wood: Bronze Age bowl barrow.   |
| DES9677   | Moat Farm: medieval settlement (moated?).  |
| DES9893   | Northbridge Street: medieval and post-medieval suburb.   |
| DES8720   | Park Farm: deserted medieval settlement; post-medieval furnace site and farm complex.  |
| DES9678   | Park Farm: medieval and post-medieval farm complex.  |
| DES10033  | Redland: medieval and post-medieval farm complex   |
| DES8716   | Robertsbridge: medieval and post-medieval town.  |
| DES8718   | Robertsbridge Abbey  |
| DES9222   | Salehurst: village of Saxon origin.  |
| DES8719   | Stainsmore Wood: earthwork enclosure   |
| DES9983   | Wellhead Wood Kiln: site of 16 <sup>th</sup> century kiln.   |

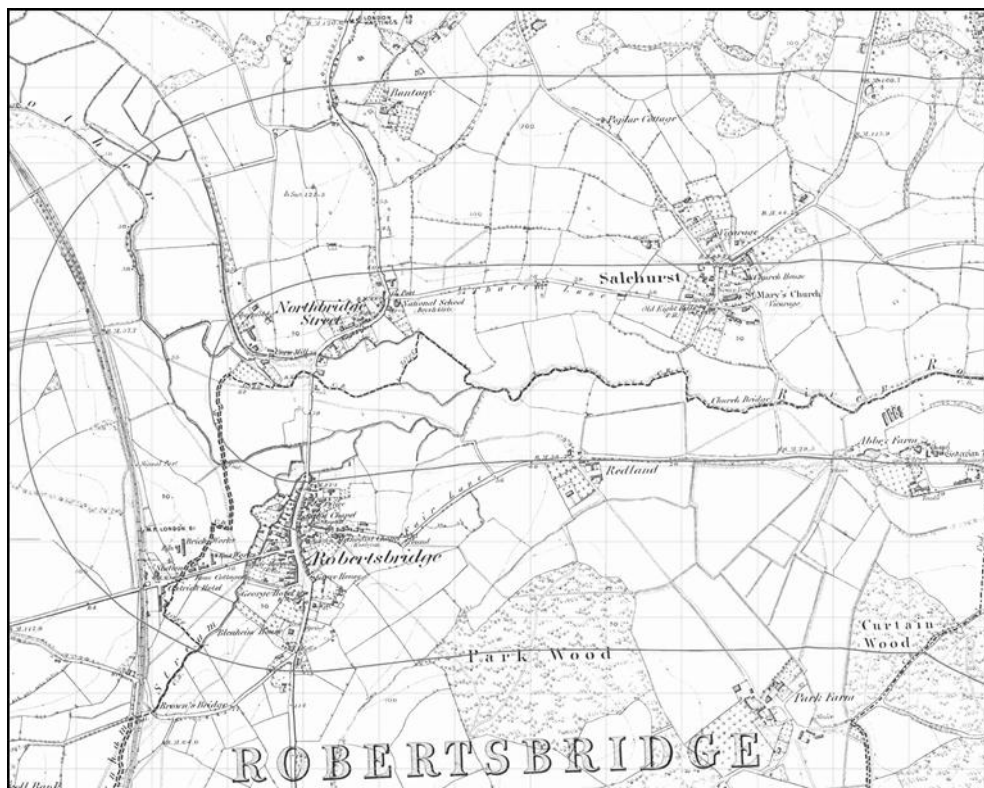
## Appendix 6B Assessment of Historic Maps

### Maps consulted during the Assessment

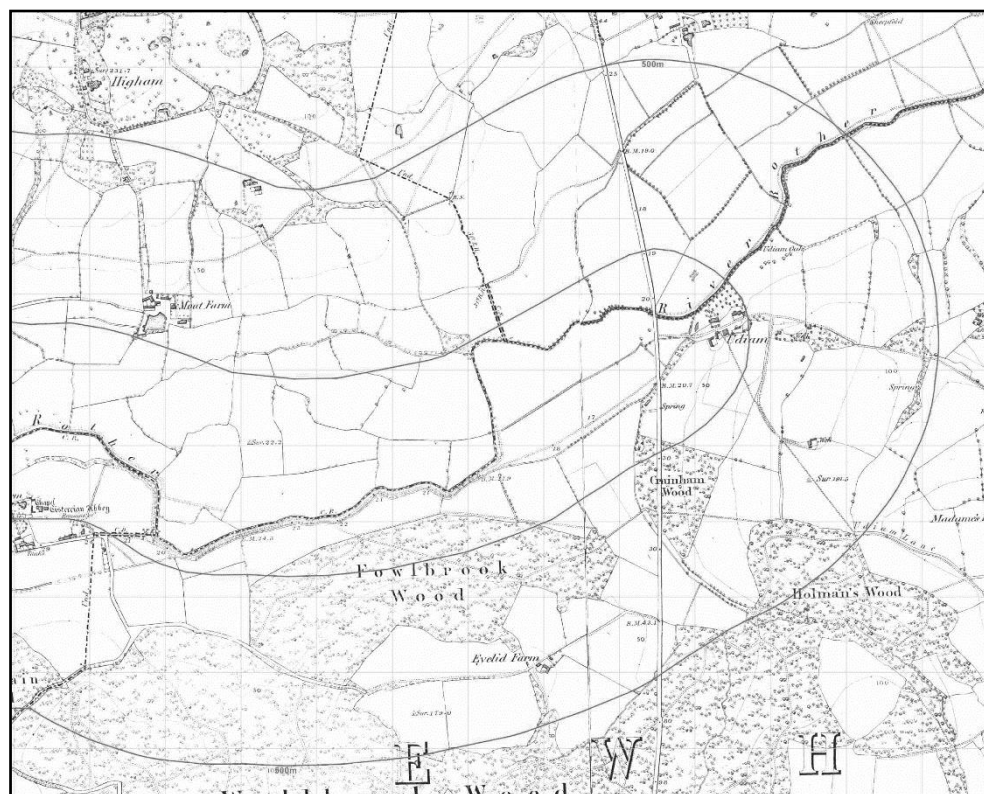
| Source   | Date           | Commentary   |
|--|----------------|--|
| Robert Morden's Sussex   | 1695           | A county map in colour. The scale is too small to provide useful information.  |
| Emanuel Bowen<br>Sussex divided into its RAPES<br>Containing City Borough & Market<br>Towns, with the principal roads and<br>Distance &c | 1756           | The scale is too small to provide useful information.  |
| Thomas Yeakell & William Gardiner's<br>Sussex  | 1777-<br>83    | 2": 1 mile<br>Unfortunately, the original survey did not cover the Study Area.   |
| Ordnance Survey Drawings<br>Hastings 8   | 1806           | This early detailed survey gives a good indication of the location and extent of historic settlement. It predates the mid-19 <sup>th</sup> century turnpike road (now known as the B2244, Junction Road in this area). It provides a useful benchmark to judge changes in the historic landscape, although the configuration of individual field boundaries should be treated with some caution.   |
| Ordnance Survey County Series<br>1:10,560  | 1874           | The 'Junction Road' Turnpike is recorded cutting across field boundaries and woodland along the east of the Study Area. The Kent & East Sussex line has not yet been built. Figures A2.1 A2.2  |
| Ordnance Survey County Series<br>1:10,560  | 1908 &<br>1910 | The railway has been constructed on a low embankment over the floodplain. No substantive change to the earlier survey. A small building visible on earlier surveys immediately north of the river, on the east side of the London to Hastings Road, is no longer recorded and may have been demolished during construction of the railway.<br>The Junction Road Halt is noted, but it is not clear on this (or the contemporary 1:2500 survey) to which structure this refers. |
| Ordnance Survey County Series<br>1:10,560  | 1929 &<br>1930 | No substantive change from earlier surveys. Coverage was not available for the extreme east part of the Study Area.<br>A cricket ground is now shown south of the railway on the west side of the London to Hastings Road.   |
| Ordnance Survey County Series<br>1:10,560  | 1957           | No substantive change from earlier surveys.  |
| Ordnance Survey 1:10,000   | 1977           | The railway shown as dismantled; it is not clear if the embankment is still extant.  |
| Ordnance Survey 1:10,000   | 2002           | The landscape has been altered by the widespread removal of historic field boundaries in the floodplain south and south-west of Salehurst, possibly associated with the removal of the railway embankment in this area; changes east of Salehurst are minor.   |



**Figure A2.7.1: (1874) Ordnance Survey County Series 1:10.560**



**Figure A2.7.2: (1874) Ordnance Survey County Series 1:10.560**





---

**Temple Group Ltd**  
Devon House  
58-60 St Katharine's Way  
London E1W 1LB

Tel: +44 (0) 20 7394 3700  
Fax: +44 (0) 20 7394  
7871

[www.templegroup.co.uk](http://www.templegroup.co.uk)

---



**TEMPLE**

LEADERS IN ENVIRONMENT,  
PLANNING & SUSTAINABILITY.