



The Sizewell C Project

6.10 Volume 9 Rail Chapter 2 Description of Rail

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2. Description of Development

2.1 Introduction

2.1.1 This chapter of **Volume 9** of the **Environmental Statement (ES)** has been prepared in respect of the proposals relating to rail.

2.1.2 The construction of the Sizewell C Project would necessitate the delivery of substantial amounts of construction materials including (but not limited to) aggregates, cement, reinforced steel, and containerised goods. SZC Co. has developed proposals for the use of rail in the delivery of freight during the construction of the Sizewell C Project, reducing heavy goods vehicle (HGV) movements on local roads. The proposed development would be used by SZC Co. during construction of the Sizewell C Project to transport materials to the Sizewell C main development site.

2.1.3 The proposed green rail route in its entirety comprises a temporary rail extension of approximately 4.5 kilometres (km) from the existing Saxmundham to Leiston branch line to a terminal within the main development site.

2.1.4 The proposals detailed in this volume are as follows:

- The part of the green rail route comprising a temporary rail extension of approximately 1.8 km in length from a junction with the existing Saxmundham to Leiston branch line to the proposed B1122 (Abbey Road) level crossing inclusive (henceforth referred to as the 'proposed rail extension route') as shown on **Figure 2.1**.
- The permanent upgrades to the Saxmundham to Leiston branch line (including track replacement and level crossing upgrades) (henceforth referred to as the 'proposed rail improvement works') as shown in **Figure 2.11**.

2.1.5 Together these are referred to throughout this volume as 'the proposed development'.

2.1.6 The part of the green rail route of approximately 2.7 km in length, between the proposed B1122 (Abbey Road) level crossing and the terminal within the main development site, is detailed in **Volume 2, Chapters 1 to 5** and assessed in **Volume 2** of the **ES**.

2.1.7 Once the green rail route is no longer required for the construction of the Sizewell C Project, it will be removed and the land reinstated, including the 1.8 km proposed rail extension route described in this chapter. However,

the proposed rail improvement works to the Saxmundham to Leiston branch line would be permanent.

2.1.8 Further detail on the rail proposals, in the wider context of the construction transport strategy, is provided in the Sizewell C Project overview in **Volume 1** of the **ES**. Further details on the site selection and design evolution process can be found in **Chapter 3** of this volume, the **Site Selection Report** appended to the **Planning Statement** (Doc Ref. 8.4) and the **Consultation Report** (Doc Ref. 5.1). The **Planning Statement** also contains further detail on the DCO proposals and a specific Planning Statement for the proposed development as an appendix. **Appendix 2A** of this chapter contains a set of the relevant proposed development drawings for the proposed rail extension route and the proposed rail improvement works.

2.1.9 This chapter is divided as follows:

- Overview of works.
- Overview of construction works.
- Description of the proposed rail extension route – a temporary west to east rail extension route, circa 1.8 km in length from Saxmundham Road to a new automated level crossing on the B1122 (Abbey Road), from which point the proposed rail extension route would enter the Sizewell C main development site. The proposed rail extension route would be temporary to support the construction of the Sizewell C main development site. The illustrative masterplan for the proposed rail extension route is provided in **Figure 2.1**.
- Description of the proposed rail improvement works – permanent improvements to the Saxmundham to Leiston branch line between the junction with the East Suffolk line at Saxmundham and the Sizewell level crossing in Leiston. The proposed rail improvement works would include the laying of a new replacement track and upgrades to up to eight level crossings (see **Figure 2.11**).

2.2 Overview of works

2.2.1 The green rail route has been proposed to provide a new rail route from Saxmundham Road to a new rail terminal in the Sizewell C main development site, totalling approximately 4.5km in length.

- 2.2.2** The element of works described here is the 1.8km section (approximately) which would extend from Saxmundham Road up to and including a temporary level crossing on the B1122 (Abbey Road) , and the land east of the B1122 (Abbey Road) required for the temporary construction compound associated with the construction of this level crossing. This stretch would also include the proposed temporary level crossing at Buckleswood Road. The remaining 2.7 km stretch (approximately) of the green rail route forms part of the Sizewell C main development site and is detailed in **Volume 2, Chapters 1 to 5** of the **ES**.
- 2.2.3** In addition, proposed rail improvement works are required to the existing track and level crossings on the Saxmundham to Leiston branch line in order to accommodate up to three freight trains (six movements) per day once the green rail route is operational.
- 2.2.4** Prior to the construction of green rail route during the early years of the Sizewell C Project construction programme, as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref. 8.4), it is proposed to run two trains (four movements) per day along the East Suffolk line and Saxmundham to Leiston branch line to the Land East of Eastlands Industrial Estate (LEEIE). This would mean trains passing through Leiston on the Saxmundham to Leiston branch line.
- 2.2.5** During the early years of the Sizewell C Project, there would be two trains in and two trains out (four movements) at night on the East Suffolk line between 23:00 to 06:00. Freight trains would be held on the branch line, off of the East Suffolk line, between 06:00 to 07:00 due to the passenger service commencing on the main East Suffolk line.
- 2.2.6** Construction work for the green rail route is envisaged to take circa 18 months and is expected to be operational within the first two years of the Sizewell C Project construction programme as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref. 8.4). Once operational, three trains (six movements) per day will travel along the Saxmundham to Leiston branch line before turning onto the proposed rail extension route and passing along the green rail route to the new terminal within the main development site.
- 2.2.7** The proposed development, along with the 2.7 km part of the green rail route within the Sizewell C main development site, make up the rail proposals for the freight management strategy.
- 2.2.8** The proposed development would be constructed early in the construction programme for the Sizewell C Project and would play an important role in

reducing the amount of additional traffic generated by the transportation of construction materials.

- 2.2.9 The Saxmundham to Leiston branch line is expected to be operational within the first 12 months of the Sizewell C Project construction programme as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref. 8.4).
- 2.2.10 The descriptions of the proposed development, provided in **sections 2.4, 2.5** and **2.6** of this chapter, include:
- A summary of a general site layout of the proposed rail extension route from Saxmundham Road, through the proposed temporary level crossing at Buckleswood Road, and up to and including the proposed temporary level crossing on the B1122 (Abbey Road);
 - A summary of the works to the Saxmundham to Leiston branch line, including upgrades to up to eight existing level crossings on the line.
 - The sequence and methods of construction, including the number of construction personnel and vehicles.
 - Operation of the proposed development.
- 2.2.11 Once the green rail route is no longer required for the construction of the Sizewell C Project, it would be removed, including the 1.8 km proposed rail extension route and level crossings at Buckleswood Road and the B1122 (Abbey Road), and the land would be reinstated.
- 2.2.12 To facilitate the level crossing at the B1122 (Abbey Road), Lover's Lane and its junction with the B1122 (Abbey Road) will be permanently realigned. These works are required to take place before the level crossing can be constructed and form part of the works for the Sizewell C main development site, detailed in **Volume 2** of the **ES**.
- 2.2.13 The footpath diversion to the south of the proposed rail extension route, linking Footpaths E-363/006/0 and E-363/010/0 would be retained following completion of the Sizewell C Project as a permanent legacy benefit to the existing footpath network.
- 2.2.14 The proposed rail improvement works on the Saxmundham to Leiston branch line would be permanent.
- 2.2.15 The final proposals for the proposed development, following detailed design, will be in general accordance with the relevant sections of the

Associated Development Design Principles (Doc Ref. 8.3) and the relevant plans set out in Schedule 7 of the **Draft DCO** (Doc Ref. 3.1), save to the extent that alternative plans or details are submitted by the undertaker and approved by the local planning authority.

2.3 Parameters

2.3.1 SZC Co. has adopted a parameters approach which defines the envelope for the proposed rail extension route. A parameter approach has been adopted in order to ensure that the design process of the proposed rail extension route has adequate flexibility in order that the project can be delivered. This approach has followed the Rochdale Envelope, as set out in the Planning Inspectorate Advice Note Nine (Ref. 2.1). These parameters have informed the assessment presented in the **ES** and the flexibility being sought is consistent with the findings of the **ES**. The assessment has used a reasonable worst case basis on which to assess and mitigate potential adverse impacts arising from the scheme.

2.3.2 The site location plan and illustrative masterplan for the proposed rail extension route are shown in **Figure 1.1** and **Figure 2.1** of this volume respectively. These details show one possible iteration of a scheme delivered within the defined parameters set out within the application. The parameters of the site assessed within the **ES**, within which the proposed development may be constructed, operated and maintained are then shown on the **Work Plans** (Doc Ref. 2.3) as reproduced in **Appendix 2A** of this chapter.

2.3.3 **Schedule 1** of the **Draft DCO** (Doc Ref. 3.1) describes the authorised development. The **Draft DCO** states that the proposed rail extension route will be constructed, operated and maintained anywhere within the area as shown on the **Work Plans** (Doc Ref. 2.3) (showing lateral limits of deviation) and to a maximum of +/- 1 metre (m) vertically, and in accordance with the design principles set out in the **Associated Development Design Principles** (Doc Ref. 8.3) document.

2.4 Overview of construction activities

a) Introduction

2.4.1 The construction arrangements described in this chapter provide the basis for the assessment presented in this volume. The details of construction are necessarily broad and may be subject to modification during the detailed design stage and/or once a contractor has been appointed. However, the design of all rail works, and the selection of construction materials, would be in accordance with the suite of Network Rail standards

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and the Governance for Railway Investment Projects process, and best practice guidance at the time of the detailed design.

2.4.2 Any site-specific construction activities associated with the proposed development are reported within **sections 2.4** and **2.5** of this chapter.

2.4.3 Construction works would take place during Monday to Saturday 07:00 to 19:00 hours, with no working on Sundays or bank holidays. However, some activities may require working outside of these hours on occasion. Where this is the case, East Suffolk Council (ESC) would be notified in advance. There would also be a need for short-term possessions of the East Suffolk line, where the Saxmundham to Leiston branch line turns out, to facilitate upgrades to the track at the rail junction. This may require night or weekend working to avoid disruption to the timetabled passenger service on the East Suffolk line.

2.4.4 As the majority of construction would take place during normal working hours (07:00–19:00 Monday–Saturday), then some lighting may be required during the winter months, dependent upon what construction activities are taking place. The only lighting required at night would be for site security, unless 24-hour working is required on an ad hoc basis, in consultation with ESC.

2.4.5 It is proposed that construction drainage would be contained within the site, with infiltration to ground. Foul sewage arising on site during construction from the temporary welfare facilities will be collected and tankered off site for appropriate treatment and disposal.

2.4.6 A temporary sustainable drainage system (SuDS) would be implemented early during construction. Water management zones would intercept surface run off, sediment and contaminants from the construction compounds and laydown areas, and incorporate sustainable drainage measures such as swales, filter drains and infiltration basins to promote infiltration.

2.4.7 Temporary hardstanding will be constructed within the construction compounds to avoid spills and leaks.

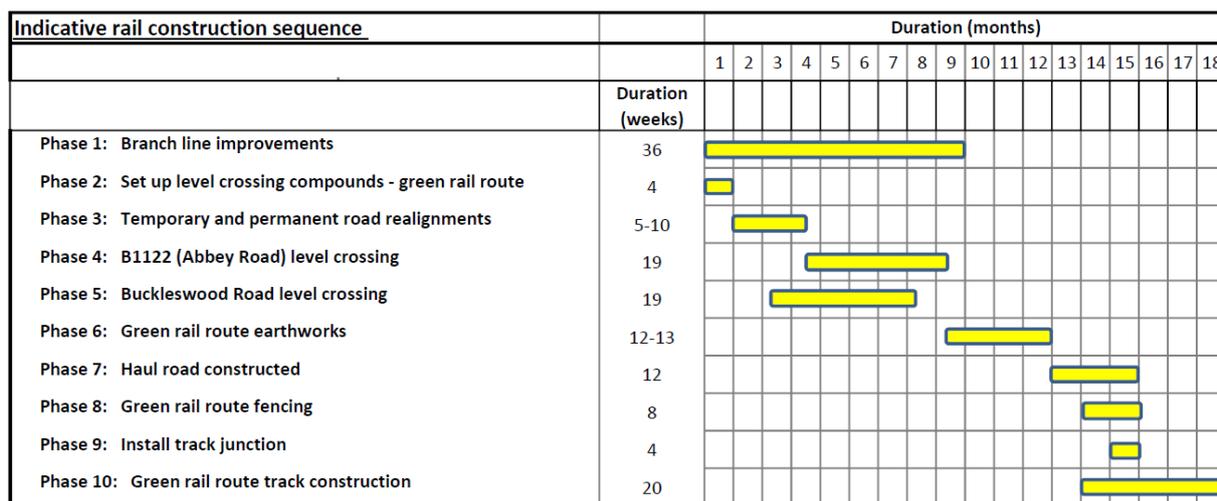
2.4.8 Site access for the proposed rail extension route would be located as far as practicable, and at least 10m, from nearby residential properties.

b) Construction sequence and duration

2.4.9 It is envisaged that all rail works, including the proposed development, would be undertaken in the early stages of construction of the Sizewell C Project. The proposed rail extension route is envisaged to take 18 months

to complete and expected to be operational within the first two years of the Sizewell C Project construction programme, and the proposed rail improvement works likely to take nine months to complete and expected to be operational within the first 12 months of construction. The indicative construction programme for rail works is provided in **Table 2.1**.

Plate 2.1: Indicative construction programme for the proposed development



c) Construction compounds

2.4.10 Construction of the proposed development will be managed from a primary compound located within the Sizewell C main development site. A secondary compound at the western end of the proposed rail extension route would also be set up to manage work at the western end of the proposed rail extension route and to act as the main compound for the proposed rail improvement works on the Saxmundham to Leiston branch line. The Saxmundham to Leiston branch line would have four satellite construction compounds located at the following level crossing upgrade sites (see **Figure 2.11** for each of their locations):

- Knodishall;
- West House;
- Saxmundham Road; and
- Leiston.

2.4.11 Two additional temporary compounds, one for each of the temporary level crossings at Buckleswood Road and the B1122 (Abbey Road) on the

proposed rail extension route, would be set up for the construction and removal and reinstatement of these level crossings.

- 2.4.12 The primary compound within the Sizewell C main development site would be used by core project management staff (such as construction workers, planning and construction delivery), and would directly manage or coordinate some of the works at the temporary construction compounds for the new level crossings on the proposed rail extension route.
- 2.4.13 The secondary western compound would be the main base for the construction of the proposed rail improvement works, whilst the four satellite compounds on the Saxmundham to Leiston branch line would be used as bases to manage specific works on a particular level crossing site, with only minimal facilities required.
- 2.4.14 The primary and secondary compounds, and those for the new temporary level crossings on the proposed rail extension route would include:
- office and welfare facilities for staff and operatives;
 - parking for staff and operatives;
 - secure storage of construction plant;
 - laydown and storage of materials and components prior to installation and use;
 - secure storage containers for weather-sensitive and high-value materials (e.g. signalling equipment); and
 - safe turning space for vehicles and plant.
- 2.4.15 The satellite compounds on the Saxmundham to Leiston branch line, depending on the nature and extent of the works, could include:
- a parking space for construction vehicles; and
 - a comfort facility for on-site staff.
- 2.4.16 Materials and components for the proposed rail improvement works to the existing level crossings would be stored trackside. Any parking space and comfort facility would be stored on geotextile matting without the need to removal topsoil from the satellite compounds.

2.4.17 The western compound would provide a more substantial welfare facility for staff to use on extended breaks.

2.4.18 Further detail on the construction compounds which would be used to manage the construction of the proposed rail extension route and proposed rail improvement works are reported within **sections 2.5** and **2.6** of this chapter respectively.

d) **Anticipated plant and equipment for construction**

2.4.19 Due to the varying nature of the works proposed across the sites, the anticipated plant and equipment required for construction would vary.

2.4.20 Further details of the anticipated construction plant likely to be required for the proposed rail extension route and proposed rail improvement works are reported within **sections 2.5** and **2.6** of this chapter respectively.

e) **Construction workforce**

2.4.21 Due to the varying nature of the works proposed, the number of workers needed for the rail works would vary between the sites, and would change during the course of the construction programme.

2.4.22 Site specific construction workforce numbers are reported within **sections 2.5** and **2.6** of this chapter respectively.

f) **Indicative material quantities**

2.4.23 The indicative materials and the quantities required for the proposed development can be found in **Table 2.1**. A more detailed breakdown of the material quantities for the proposed rail extension route can be found in **Table 2.3**.

Table 2.1: Indicative material quantities for the proposed development

| Material | Approximate Mass of Materials Required (tonnes) |
|---|--|
| Proposed rail extension route – 1.8 km from the Saxmundham to Leiston branch line to the temporary level crossing at the B1122 (Abbey Road), including the proposed temporary level crossings at Buckleswood Road and the B1122 (Abbey Road). | |
| Concrete | 850 (based on 250kg/sleeper plus allowance for the temporary level crossings). |
| Gravel | 17,010 (based on 2,250m ³ for roads and 7,200m ³ for rail at 1.8 tonnes/m ³). |
| Steel | 320 (based on 60 for sleeper reinforcement, 220 for rails, 40 allowance for level crossings, fencing and other items). |
| Bitumen | 750 (based on 2.5 tonnes/m ³). |

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| Material | Approximate Mass of Materials Required (tonnes) |
|--|--|
| Other | 10 timber (for switches and crossings). |
| Proposed rail improvement works – 7.2 km of the existing Saxmundham to Leiston branch line, including up to eight level crossings. | |
| Concrete | 3,100 (based on 250kg/sleeper plus allowance for the temporary level crossings). |
| Gravel | 33,300 (based on 4,500m ³ for roads and 28,800m ³ for rail at 1.8 tonnes/m ³). |
| Steel | 960 (based on 60 for sleeper reinforcement, 860 for rails, 40 allowance for level crossings, fencing and other items). |
| Bitumen | 3,750 (based on 2.5 tonnes/m ³). |
| Other | 30 timber (for switches and crossings). |

2.4.24 It is not intended that any earthworks materials would be removed from the site.

g) Waste quantities

2.4.25 Waste generated from the construction and earthworks activities associated with the proposed development is likely to include:

- vegetation;
- packaging, including wood pallets, plastics, cardboard, tins;
- plasterboard;
- rubble (broken bricks, blocks, tiles, etc.);
- timber (excluding pallets);
- cement;
- insulation;
- metal;
- dry concrete products (blocks, slabs, etc.);
- plaster products (excluding packaging);

- ceramic materials; and
- hazardous waste (remedial wastes, paint cans, oil/lubricants, etc).

2.4.26 Earthworks would be designed to maximise cut and fill balance in order to prevent material being sent off-site. Where appropriate, topsoil and subsoil would be stored on-site in landscape bunds for reuse during the removal and reinstatement works to return the site to agricultural use, in accordance with the **Outline Soil Management Plan** found at **Appendix 17C of Volume 2, Chapter 17** of the **ES**. Furthermore, contractors would be required to investigate opportunities to minimise and reduce waste generation where possible.

2.4.27 Any inert and non-hazardous waste material that cannot be reused on-site would be removed by licensed waste carriers and sent for reuse, recycling or recovery or for disposal at appropriately licenced facilities (these are expected to be inert waste landfill sites) in accordance with the Waste Hierarchy, as defined in the EU Waste Framework Directive (2008/98/EC). However, works would be carried out in such a way that, as far as is reasonably practicable, the amount of waste to be disposed at landfill is minimised.

2.4.28 It is estimated that approximately 30,660 tonnes (t) of construction waste would be generated by the 1.8 km proposed rail extension route and the proposed rail improvement works, comprised of approximately 23,000 t of inert waste, 6,130 t of non-hazardous waste and 1,530 t of hazardous waste. Refer to **Volume 2, Appendix 8A** of the **ES** for further details on the types of wastes likely to be generated, the assumptions used for calculating waste quantities and the proposed measures for waste management.

h) Construction and environmental management

2.4.29 A **Code of Construction Practice (CoCP)** (Doc Ref 8.11) is included in the application for the Sizewell C Project, which sets out the measures and controls that SZC Co. would require its contractors to adopt during both the construction and the removal and reinstatement of the proposed development (where appropriate). In summary, the **CoCP** sets out the following:

- General construction environmental management arrangements, including details of the environmental management system.

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- How construction environmental management arrangements would be implemented, reviewed and monitored.
- Community and stakeholder engagement arrangements that would be implemented during the construction period.
- General measures relating to topics such as training and competence, construction consents, workforce code of conduct, working hours and construction site layout.
- Measures relating to waste management and resource use, land quality, ecology, landscape, cultural heritage, noise and vibration, air quality, water environment, traffic and transport, amenity and recreation, carbon emissions and emergency arrangements.
- Any site-specific controls to be applied at any of the Sizewell C Project sites.

2.4.30 The management measures and controls included in the **CoCP** (Doc Ref 8.11) have been identified through the Environmental Impact Assessment process and would minimise impacts on the environment and human receptors, as far as reasonably practicable.

2.4.31 In addition to the **CoCP** (Doc Ref 8.11), the arrangements for the management of construction traffic and workforce travel are set out in the **Construction Traffic Management Plan (CTMP)** (Doc Ref 8.7) and **Construction Worker Travel Plan (CWTP)** (Doc Ref 8.8) respectively. These documents include a series of measures to reduce the impact of construction vehicle traffic upon the highway network and for the sustainable travel of construction workforce to the Sizewell C Project sites.

2.4.32 The **CoCP** (Doc Ref 8.11) is secured by a requirement in **Schedule 2** of the **Draft DCO** (Doc Ref 3.1) and the appointed contractors will be required to undertake the construction works in accordance with the arrangements set out within the **CoCP**. The **Section 106 Heads of Terms** (appended to the **Planning Statement** (Doc Ref 8.4)) then secures the **CTMP** (Doc Ref 8.7) and **CWTP** (Doc Ref 8.8). Any work undertaken by a contractor would be reviewed and approved by relevant SZC Co. personnel prior to the work commencing.

2.4.33 In addition, there may be a need to apply for additional permits, consents or licences prior to and during the construction works (such as land drainage consents, environmental permits or protected species licences, if required). As the programme of works and design are progressed, these permissions

will be identified and scheduled in a timely manner to enable determination by the appropriate regulatory body. Any requirements of a granted permit, consent or licence will be provided to contractors undertaking the work to ensure compliance with those requirements.

2.5 Description of the proposed rail extension route

a) Site masterplan and design

2.5.1 The green rail route would be a temporary rail extension with a total length of approximately 4.5km from the existing Saxmundham to Leiston branch line to a new rail terminal in the Sizewell C main development site. It would run from west to east in three main parts:

- Saxmundham Road to Buckleswood Road.
- Buckleswood Road to B1122 (Abbey Road).
- B1122 (Abbey Road) to Sizewell C main development site. This 2.7 km section is reported in **Volume 2** of the **ES** concerning the main development site.

2.5.2 The 1.8 km stretch of the proposed rail extension route, from Saxmundham Road to the B1122 (Abbey Road) level crossing inclusive, comprises:

- Automated level crossing on Buckleswood Road.
- Diversion of footpath E-363/003/0.
- Automated level crossing where the rail extension crosses the B1122 (Abbey Road).
- Diversion of Footpath E-363/006/0.
- Diversion of Footpath E-363/010/0.
- SuDS to include swales alongside the track with the potential for a larger infiltration pond at low points or adjacent to the cuttings, if required.
- Landscaping including the provision of landscape bunds, grassed areas and other areas of proposed planting.

- 2.5.3 The above works are illustrated on **Figure 2.1**. The site layout has been optimised to reduce the overall land take.
- 2.5.4 To facilitate the level crossing at the B1122 (Abbey Road), Lover’s Lane and its junction with the B1122 (Abbey Road) will be permanently realigned. These works are required to take place before the level crossing can be constructed and form part of the works for the Sizewell C main development site, detailed in **Volume 2** of the **ES**.
- 2.5.5 Where required for the safe design, management or operation of the temporary level crossings as part of the proposed rail extension route, the undertaker may erect, replace and maintain traffic signs on any highway, private road or other land, whether within or outside the site boundary.
- i. [Saxmundham Road to Buckleswood Road \(including level crossing\)](#)
- 2.5.6 The proposed rail extension route would connect into the existing Saxmundham to Leiston branch line via a new junction approximately 500m east of the Saxmundham Road level crossing and approximately 230m south of Buckle’s Wood. This section would be approximately 400m long and at grade. A new turnout will be installed at the point where the proposed rail extension route joins the existing Saxmundham to Leiston branch line.
- 2.5.7 Key features of the proposed rail extension route within this section include:
- A landscape bund of 2m in height (from existing ground level), running alongside the north of the rail extension route, which would help provide visual screening for a number of isolated residential receptors located to the north of the proposed rail extension route.
 - A temporary automated level crossing would be constructed where the proposed rail extension route crosses Buckleswood Road, providing safe access over the rail extension route for vehicles and non-motorised users. This would reduce potential severance impacts by enabling continued access to land on both sides of the proposed rail extension route.
 - The diversion of Footpath E-363/003/0 via the Buckleswood Road level crossing. The footpath links Saxmundham Road and Abbey Lane, before crossing Buckleswood Road to the west of Wood Farm. It would be diverted in a north-easterly direction, south of the proposed rail extension route, until it meets Buckleswood Road. It would then follow Buckleswood Road to the west, over the new Buckleswood Road level crossing, before meeting the existing

footpath again, north of Buckleswood Road. The diversion route would be approximately 500m in length.

2.5.8 The proposed level crossing on Buckleswood Road would be automated, most likely a manually controlled barriers with obstacle detection (MCB-OD) type level crossing. The proposed rail extension route will be one-track only at the location of the level crossing and it will not be electrified. Further detail of the types of level crossing is provided in **Table 2.4**.

2.5.9 The existing highway on Buckleswood Road will be widened to approximately 6m for a distance of approximately 15m beyond the stop line on each approach to the level crossing. A masterplan of the Buckleswood Road level crossing can be found at **Figure 2.2**.

ii. **Buckleswood Road to B1122 (Abbey Road) (including level crossing)**

2.5.10 From Buckleswood Road, the proposed rail extension route would continue further north-eastwards through open countryside and farmland to the south of Abbey Lane.

2.5.11 This section would be approximately 1.4 km long with elements at grade, on embankments up to 2.5m high (above ground level) and in cuttings to a depth of up to 3.5m.

2.5.12 Key features of this section of the proposed rail extension route include:

- A landscaped bund approximately 2m in height (above ground level), running alongside the north of the proposed rail extension route, and a second bund (also approximately 2m high) to the south of the rail extension at the eastern end of the proposed rail extension route, west of the B1122 (Abbey Road).
- A temporary level crossing where the proposed rail extension route meets the B1122 (Abbey Road), providing safe access over the rail extension for vehicles and non-motorised users.
- Modifications to the B1122 (Abbey Road) to incorporate the level crossing.
- The permanent realignment of Lover's Lane and relocation of its junction with the B1122 (Abbey Road) which is detailed further in **Volume 2** of the **ES**.

- The diversion of two footpaths (Footpath E-363/006/0 and Footpath E-363/010/0) to utilise the B1122 (Abbey Road) level crossing.

- 2.5.13 The design of the proposed rail extension route has sought to minimise its visibility from Leiston Abbey, with the route following a line downhill of a slight crest. This topographical feature would be accentuated by landscaping, through the landscape bunds, which would respond to the existing contours of the landscape to further reduce visibility of the proposed rail extension route, providing a further measure of screening.
- 2.5.14 Where the rail extension route would meet the B1122 (Abbey Road) an automated level crossing, likely an MCB-OD, is proposed to cross the rail extension route safely. The rail extension route will be one-track only at the location of the level crossing and it will not be electrified. Further detail of the types of level crossing is provided in **Table 2.4**.
- 2.5.15 The modifications to the B1122 (Abbey Road) required to facilitate the level crossing would comprise waiting areas on each side of the proposed rail extension route for pedestrians, cyclists and horses.
- 2.5.16 To provide the necessary space between the level crossing and the junction between the B1122 (Abbey Road) and Lover's Lane, the junction would be permanently relocated approximately 100m to the south of its existing position, as shown in **Figure 2.3**. This requires Lover's Lane to be permanently realigned for a length of approximately 200m and would improve visibility at this junction for all road users.
- 2.5.17 Both the realignment of Lover's Lane and a new non-motorised user route (Bridleway 19 diversion), which would cross the level crossing, would fall within the Sizewell C main development site which is detailed further in **Volume 2** of this **ES**.
- 2.5.18 To the west of the B1122 (Abbey Road) the proposed rail extension route cuts across two public footpaths. These are Footpath E-363/006/0 linking Westward Ho and Abbey Lane, and Footpath E-363/010/0 passing alongside the second Leiston Abbey site linking the B1122 (Abbey Road) and Abbey Lane. The footpaths would be diverted eastwards to the proposed Bridleway 19 diversion, on the western side of the B1122 (Abbey Road) level crossing, before heading back westwards and re-joining the original alignment. For Footpath E-363/006/0, the diversion would be for a length of approximately 1.2km, whilst Footpath E-363/010/0 would be diverted by approximately 510m.
- 2.5.19 The footpath diversion to the south of the proposed rail extension route, linking Footpaths E-363/006/0 and E-363/010/0 would be retained following

completion of the Sizewell C Project as a permanent legacy benefit to the existing footpath network.

b) Landscaping

- 2.5.20 The landscaping for the proposed rail extension route has been designed to minimise potential impacts on ecological, amenity and recreation, and landscape and visual receptors through the provision of landscape bunds and planting, in accordance with the **Associated Development Design Principles** (Doc Ref 8.3). The illustrative landscaping is shown on **Figure 2.1** and an overview of the landscaping is summarised below.
- 2.5.21 The landscaping retains existing woodland, scrub and hedgerows within the site and adjacent to the site boundaries, where possible.
- 2.5.22 Buckle’s Wood county wildlife site and the majority of hedgerows would be retained, with only four small sections of defunct, species-poor hedgerow and one section of species-rich ‘important’ hedgerow to be removed as the proposed rail extension route crosses Buckleswood Road, the B1122 (Abbey Road), and three field boundaries.
- 2.5.23 Two landscape bunds approximately 2m in height would be provided on either side of the proposed rail extension route. On the north side, the landscape bund would run along the length of the proposed rail extension route (for approximately 1.8km), from the new rail junction with the Saxmundham to Leiston branch line at the western end to the B1122 (Abbey Road) to the east. At its eastern end, west of the B1122 (Abbey Road), the landscape bund would widen to on land between the proposed rail extension route and the footpath diversion within the northern boundary of the site.
- 2.5.24 The second landscape bund is proposed to the south of the proposed rail extension route, at the eastern end, and would be approximately 2m in height and 500m in length. To the south-east of this bund, an area would remain available for the potential provision of an infiltration basin if required.
- 2.5.25 Both bunds at the eastern part of the proposed rail extension route would be flanked by proposed fencing at its outer edges close to the boundaries of the site.

c) Utilities and drainage

i. Utilities

- 2.5.26 Utility connections would be made to existing local utility services (such as electricity) in the public highway, where practicable. Any utility services put

in place on-site as part of the construction of the proposed rail extension route would be removed during the removal and reinstatement works.

ii. Drainage

- 2.5.27 SuDS would be implemented for the operation of the proposed rail extension route. An indicative drainage plan can be found at **Figure 2.6**.
- 2.5.28 Whilst the proposed rail extension route is located within Flood Zone 1, it is anticipated that drainage would be required along the proposed rail extension route that will collect and hold runoff on a temporary basis allowing infiltration to ground over time. This would ensure track stability and durability throughout operation and also ensure that there would be no flooding which could prevent operation.
- 2.5.29 Although located in Flood Zone 1, a robust approach to SuDS has been presented. However, subject to the results of infiltration testing, some of the proposed drainage infrastructure may not be required.
- 2.5.30 Periodic inspection and maintenance of the drainage infrastructure would be required to ensure the continued efficacy of the surface water drainage system.
- 2.5.31 Rail track drainage systems shall comply with the Network Rail – NR/L2/CIV/005 (Ref. 2.2) Drainage Systems Manual. This Network Rail standard includes mandatory requirements for track drainage design.
- 2.5.32 Where collector drains and carrier drains are used to convey surface water away from the rail, the surface water shall be treated in swales and infiltration trenches adjacent to the track. Further detail on the indicative drainage plan is outlined in the following sections.

Drainage where the rail extension route is in cutting

- 2.5.33 The drainage infrastructure would be designed to collect runoff from both sides of the track and the cutting. Swales are proposed to the north of the proposed rail extension route (between the landscape bund and the track), up to 1m wide and located 200 millimetres (mm) below the base of the sub-ballast. Runoff which does not infiltrate will pass through the sub-ballast to the swales.

Drainage where the proposed rail extension route is at grade or on embankment

- 2.5.34 The drainage infrastructure would be designed to collect runoff from the track and any overland flow which is interrupted by the embankment or

track. Swales would be provided on the north side of the track (between the landscape bund and the track), with side slopes at a gradient of one in three and a width of 1m at base. The base of the swales would be 200mm below the base of the sub-ballast if the track is on the level or at the toe of the embankment.

2.5.35 There is also the potential for a larger infiltration basin proposed at the eastern end of the site, between the proposed rail extension route and the landscape bund to the south, to provide for additional temporary surface water storage if required.

d) Security and lighting

2.5.36 The rail extension route would be bounded by security fences 1.8m to 2.4m in height. The security fencing around the proposed rail extension route would be sufficient to resist damage by livestock and would include a buried return and would be sufficient to prevent access by badgers and so prevent badgers establishing setts within the landscaped bunds. All security fencing would be regularly checked and maintained in a suitable condition. Any damage to boundary fencing would be repaired immediately.

2.5.37 Lighting would be provided at the B1122 (Abbey Road) level crossing and the level crossing at Buckleswood Road. The lighting columns would be 10m in height and there would also be CCTV at a height of 9m. However, the proposed rail extension route itself would be unlit.

2.5.38 The level crossing lighting would be in compliance with the Network Rail standard (NR/L2/SIG/30017/H – Lighting & CCTV systems and level crossings). The lighting would provide a maintained illuminance of not less than 20 lux, measured over the usable area of the crossing in the horizontal plane at a height of 1.0m above ground level. The lighting would not cause substantial levels of glare to road users, train drivers or signallers and others operating the crossing.

2.5.39 The proposed lighting will ensure safety during hours of darkness whilst minimising light spill. For further detail, refer to the **CoCP** (Doc Ref 8.11). The illustrative lighting plans for the proposed temporary level crossings at both Buckleswood Road and the B1122 (Abbey Road) are provided in **Figure 2.9** and **Figure 2.10** respectively.

e) Description of construction

2.5.40 The indicative construction programme for the proposed development is provided in **Plate 2.1**. Construction work for the green rail route is envisaged to take circa 18 months and is expected to be operational within the first two years of the Sizewell C Project construction programme as

shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref 8.4). This would enable the proposed development to be in place as soon as possible to support the construction of the Sizewell C main development site.

i. **Rail extension route**

2.5.41 Following initial site clearance and enabling works (including vegetation clearance and erection of temporary worksite fencing), the proposed rail extension route would be constructed in two principal phases:

- Earthworks: Construction of the earthworks to support the trackform and construction of a temporary haul route.
- Track installation: Installation of the track which would link the Sizewell C main development site to the existing Saxmundham to Leiston branch line.

2.5.42 It is proposed to utilise the Saxmundham to Leiston branch line as much as possible to import materials for the construction of the proposed rail extension route. As such HGV traffic on the road network would be minimised and is expected to be required for the delivery of the switches and crossing only. This is estimated to require 11 HGVs per week over a two-week period during the construction of the switches and crossing. For track construction most HGV movements would be confined to a temporary haul route to be constructed alongside the proposed track alignment.

2.5.43 The proposed site clearance plan for the proposed rail extension route is shown on **Figure 2.4**.

Earthworks

2.5.44 The earthworks would take approximately three to four months to complete and would involve the movement of material as required to create the necessary cutting and embankments along the route. The proposed landscape bunds would be constructed from the excess cut and fill material with additional material imported from the cutting for the part of the green rail route which lies within Sizewell C main development site if necessary.

2.5.45 It is expected that the majority of the construction works for the rail extension route and earthworks would start from the eastern end of the site, which has better road access for construction plant and equipment, and workers from the Sizewell C main development site. It is anticipated that the groundworks would proceed westwards along the route corridor

towards the Saxmundham to Leiston branch line. However, works may take place on other parts of the route as required.

2.5.46 The plant and equipment used would include an excavator, dumper truck and bulldozer to achieve the desired track form alignment. Compaction of the track form upon which the sleepers and rail are to be laid will be undertaken using a heavy roller/vibratory roller as ground conditions require.

2.5.47 Following the completion of earthworks along the proposed rail extension route corridor, a temporary haul route would be constructed and track drainage and culverts would be installed followed by the laying of railway ballast to construct the track bed. Cable containment infrastructure for railway systems would also be installed together with the necessary railways systems, such as signalling.

Track installation

2.5.48 This stage of works would consist of track laying activities (rails and ballast) and is expected to take approximately up to five months.

2.5.49 It is envisaged that materials to the site would be delivered via one rail ballast train per day (based on assumed ballast construction productivity rate) to the junction of the proposed turnout on the Saxmundham to Leiston branch line. The rails and ballast would be delivered on the Saxmundham to Leiston branch line and unloaded at the western end of the site. Other materials (such as switches and crossings) would be transported by an HGV flatbed via Lover's Lane and the temporary haul route to the turnout worksite if they are unable to be transported by rail.

2.5.50 A new track construction train would be deployed from the Saxmundham to Leiston branch line and would commence track construction beyond the turnout, laying sleepers, moving rails into final position and clipping the rail to sleepers. Following use of the new track construction train, auto-ballast trains would be deployed from the Saxmundham to Leiston branch line to lay top-ballast along the length of the proposed rail extension route.

2.5.51 Once the ballast has been dropped, a tamper train would be run over the section of newly ballasted rail to lift the rails and stabilise/compact the ballast. The process of dropping ballast will continue until the track is at its designated vertical alignment.

2.5.52 Upon completion of the ballasting, a stabiliser train would be run over the newly laid track to provide a final compaction of the ballast before the proposed rail extension route becomes operational.

Construction compounds

- 2.5.53 Construction for the proposed rail extension route would be managed from two compounds; a primary temporary construction compound, located within the Sizewell C main development site at the eastern end of the rail extension which is detailed in **Volume 2** of the **ES**, and a secondary temporary construction compound at the western end of the site.
- 2.5.54 The secondary western compound would be bounded to the north by Buckleswood Road, to the south and east by the proposed rail extension route, and to the west by the adjacent field. It would include forming a rectangular hardstanding within a secure hoarding. Site cabins, worker accommodation, vehicles and plant would be placed as required.
- 2.5.55 Access to the secondary western compound would be via Buckleswood Road. An area of land has been identified in this location for use as a contractor's laydown area.
- 2.5.56 The number of workers needed to construct the proposed rail extension route would fluctuate during the course of the construction programme. It is estimated that between 14–16 construction workers would be required on site during the earthworks, rising to between 22–26 construction workers for the track installation. In addition, it has been assumed that ten supervisors and managers would be required for the duration of the track construction.

ii. B1122 (Abbey Road) level crossing

- 2.5.57 Construction of the B1122 (Abbey Road) level crossing is expected to take approximately five months and would be completed within nine months of the construction of the proposed rail extension route commencing. The level crossing will be constructed in isolation, independent from the construction of the rest of the rail extension route. The rest of the route, on either side of the level crossing, will be constructed thereafter.
- 2.5.58 It is envisaged that the B1122 (Abbey Road) level crossing would be constructed as follows:
- Temporary construction compound and access established within the Sizewell C main development site.
 - Offline construction of Lover's Lane realignment and temporary realignment of the B1122 (Abbey Road), including necessary earthworks and paving. Traffic would then be diverted on the new temporary alignment.

- Excavation of the track alignment for the length of the B1122 (Abbey Road) level crossing only.
- Level crossing equipment installed (including foundations, communications and power cables, structures, barriers, traffic signals).
- Track (ballast, sleepers and rails) installed.
- Signalling equipment installed (including communications and power cables, signals).
- Lighting and CCTV installed.
- Level crossing panels installed across track.
- Permanent highway reinstated and commissioned.

2.5.59 The construction of the B1122 (Abbey Road) level crossing, together with the associated temporary and permanent highway realignments, would be complete within nine months. A total length of 60m of track will be installed in conjunction with the level crossing, centred on the level crossing.

2.5.60 The level crossing at B1122 (Abbey Road) involves the construction of a temporary highway alignment to avoid long-term road closures during construction. The temporary highway alignment will be approximately 300m in length and 5m wide, including the connections to the existing highway. Both B1122 (Abbey Road) and Lover's Lane would remain open to traffic for the duration of the level crossing construction works, with the exception of short closures to allow connections to/from the temporary alignment. An indicative plan of the road realignment and temporary construction compound can be found at **Figure 2.7**.

2.5.61 The existing highway is 7.3m wide with a 1.5m footway and this width will be maintained over the level crossing. No significant length of the existing highway will be resurfaced beyond the point of connection with the level crossing.

Construction compound

2.5.62 A temporary construction compound would be established on site to manage the construction of the B1122 (Abbey Road) level crossing. The indicative compound arrangement is shown in **Figure 2.7**.

NOT PROTECTIVELY MARKED

2.5.63 This will most likely be facilitated by forming a rectangular hardstanding within a secure hoarding. Site cabins, worker accommodation, vehicles and plant can be placed as required.

iii. Buckleswood Road level crossing

2.5.64 The construction of the Buckleswood Road level crossing and temporary construction compound will take approximately five to six months, with the highway realignment taking approximately two and a half months. The level crossing will be constructed in isolation, independent from the construction of the rest of the rail extension route. The rest of the route, on either side of the level crossing, will be constructed thereafter.

2.5.65 It is envisaged that the construction of the Buckleswood Road level crossing would be constructed as follows:

- Construction compound and access established south of Buckleswood Road.
- Temporary realignment of Buckleswood Road, including necessary earthworks and paving. Traffic would then be diverted on the new temporary alignment.
- Excavation of the track alignment for the length to include the Buckleswood Road level crossing.
- Level crossing equipment installed (including foundations, communications and power cables, structures, barriers, traffic signals).
- Track (ballast, sleepers and rails) installed. A total length of 60m of track will be installed, centred on the level crossing.
- Signalling equipment installed (including communications and power cables, signals).
- Level crossing panels installed across track.
- Lighting and CCTV installed.
- Permanent highway reinstated and commissioned.

2.5.66 The level crossing construction also involves the construction of a temporary highway alignment to avoid long-term road closures during construction. The existing alignment of Buckleswood Road lends itself to a straight temporary alignment. The temporary highway alignment will be approximately 300m in length and 5m wide, including the connections to the existing highway. An indicative plan of the road realignment and temporary construction compound can be found at **Figure 2.8**.

2.5.67 Buckleswood Road will remain open to traffic for the duration of the level crossing construction works, with the exception of short closures to allow connections to/from the temporary alignment.

Construction compound

2.5.68 For construction of the level crossing, a site compound will be established at the location of the works. The indicative compound arrangement is also shown in **Figure 2.8**.

2.5.69 This will most likely be facilitated by forming a rectangular hardstanding within a secure hoarding. Site cabins, worker accommodation, vehicles and plant can be placed as required.

iv. Anticipated construction plant and equipment

2.5.70 The anticipated plant and equipment are set out in **Table 2.2**.

Table 2.2: Summary of indicative plant and equipment

| Activity | Plant/Equipment | Expected Maximum Number of Plant on Site at Any One Time |
|--|-------------------------------|--|
| Proposed rail extension route. | | |
| Lay bottom ballast. | Ballast delivery train. | 1 |
| | Tracked excavators. | 3 |
| | Articulated dump truck. | 3 |
| | Triple vibrator plate. | 1 |
| Rail delivery train. | Rail delivery train. | 1 |
| Drag rail to locations. | Wheeled excavators. | 2 |
| Build track with the new track construction train. | New track construction train. | 1 |
| Lay top ballast. | Auto-ballast train. | 1 |
| Tamp. | Tamper train. | 1 |
| Build switches and crossing for turnout. | Wheeled excavators. | 2 |

| Activity | Plant/Equipment | Expected Maximum Number of Plant on Site at Any One Time |
|----------------------------|--|--|
| For each level crossing. | | |
| Earthworks. | CAT D400 dumper. | 2 |
| | CAT D8 bulldozer. | 1 |
| | CAT 350 excavator. | 2 |
| | Dropping sub-base material. | 1 |
| Paving. | Rigid tipper lorry (delivering). | Varies |
| | CAT AP355F Asphalt paver. | 1 |
| | CAT CB34B Tandem Vibratory Roller. | 1 |
| | Compaction – Wacker Neuson DPU 110 (or similar). | 1 |
| Track (at level crossing). | Flat-bed lorry (with HIAB crane fitted). | 1 |
| | Telehandler. | 1 |
| | Dropping ballast. | 1 |
| | Compaction – Wacker Neuson DPU 110 (or similar) coupled. | 3 |
| | Tamping – 2-stroke breaker (or similar). | 1 |
| | Rail Mounted Impact Wrench – Geismar TB2 (or similar). | 1 |

v. Drainage and lighting

2.5.71 SuDS would be implemented early in the construction period and would intercept site run-off before infiltrating it to ground. The proposed SuDS would also prevent the supply of sediment and other contaminants into the surface drainage network.

2.5.72 During construction of the proposed rail extension route, lighting may be required for certain periods to enable the safety and security of the site, construction staff and members of the public. Construction lighting would be designed to comply with relevant regulations and standards, and would meet health and safety requirements. In accordance with the **CoCP** (Doc Ref 8.11), lighting would be positioned to minimise the potential impact upon the surrounding area as far as practicable.

2.5.73 Artificial lighting during construction of the proposed rail extension route would only be used during hours of darkness, low levels of natural light, or

for specific construction methods or processes to ensure the health, safety and welfare of construction staff and members of the public.

2.5.74 Construction lighting would also be designed, positioned and directed so as to not unnecessarily intrude on adjacent buildings, ecological receptors or habitat used by protected species, and to prevent unnecessary disturbance and interference with local residents, public rights of way users and passing motorists.

vi. Management of materials

2.5.75 Ballast stockpiling would be required during construction of the proposed rail extension route and would be located as far as practicable from receptors. The ballast would be stored at the western end of the site at an unloading point adjacent to the existing Saxmundum to Leiston branch line at the proposed intersection with the rail extension route.

2.5.76 The re-use of soil would be undertaken in line with the **Outline Soil Management Plan** found at **Appendix 17C of Volume 2, Chapter 17** of the **ES**. The proposed storage locations would be re-used as described in the **CoCP** (Doc Ref 8.7).

2.5.77 An estimate of some principle material quantities is summarised in **Table 2.3**.

Table 2.3: Summary of principle material quantities for the proposed rail extension route

| Material | Quantity | | | | | Transport Method |
|--|----------|-------|----------------|----------------|--------|------------------|
| | No. | m | m ² | m ³ | t | |
| Proposed rail extension route – 1.8km from the Saxmundham to Leiston branch line to the temporary level crossing at the B1122 (Abbey Road) | | | | | | |
| Rail | -- | 3,600 | -- | -- | 216 | Rail |
| Ballast and other aggregates | -- | -- | -- | -- | 17,010 | Rail |
| Sleepers | 3,000 | -- | -- | -- | 750 | Rail |
| Switches and crossing (delivered sections) | 2 | -- | -- | -- | -- | Road |

f) Description of operation

- 2.5.78 It is anticipated that the proposed rail extension route will be privately owned and operated by SZC Co., with its construction, operation and maintenance being SZC Co.'s responsibility.
- 2.5.79 The proposed rail extension route is intended to operate for the duration of the overarching Sizewell C Project construction programme (estimated to be 9–12 years), after which it will be removed and land reinstated to agricultural use, with the temporary level crossings reinstated to highway.

i. Proposed rail extension route

- 2.5.80 Once the proposed rail extension route is operational, it would enable up to three trains a day to make deliveries of aggregates and other materials to the Sizewell C main development site, each train replacing up to 50 HGVs, equivalent to 250 HGV trips per day in each direction that would otherwise need to use the strategic road network and nearby local roads.
- 2.5.81 The proposed rail extension route has been designed to minimise impacts on drivers, pedestrians and cyclists during its operation by minimising the interfaces with the existing road network, as well as providing some separation from Leiston.
- 2.5.82 Trains will be timed to avoid peak periods of traffic movements such as school start and end times. It is proposed there will be five movements to and from the Sizewell C main development site overnight (23.00–06.00) and one movement during the day outside of these hours.
- 2.5.83 Prior to the construction of the proposed rail extension route, this would mean trains passing through Leiston on the Saxmundham to Leiston branch line in the early years, and then passing along the proposed rail extension route once operational.
- 2.5.84 To limit disturbance to local receptors, all trains would run under normal power (i.e. not at full power) during the early years of construction. The track would be continuously welded rail in order to reduce noise at the source and the radius of curvature of the line would be such as to reduce the likelihood of wheel squeal.
- 2.5.85 The trains would consist of around 20 wagons, up to a maximum length of train of 393m and a maximum load of 1,800t. Depending on the wagon type used, the trains could be different in length and weight to the measurements quoted above. For example, cement delivery trains would consist of around 35 wagons to achieve the same 1,800t weight, yet be

only 314m long. All trains would operate at a maximum speed of 25mph with a maximum axle load of 25.5t.

ii. Level crossings

2.5.86 The B1122 (Abbey Road) and Buckleswood Road level crossings would be closed for up to six times per day (five times overnight and once during the day); each closure would last approximately two to three minutes.

2.5.87 Operational lighting would be limited to the level crossings on Buckleswood Road and the B1122 (Abbey Road). The lighting columns would be 10m in height and there would also be CCTV at a height of 9m. The lighting design would comply with the **Associated Development Design Principles** (Doc Ref. 8.3) and use light fittings chosen to limit light spill.

iii. Operational maintenance

2.5.88 Soft landscaping would be maintained for the lifetime of the proposed rail extension route before being removed when the agricultural use is reinstated.

2.5.89 The operational SuDS would be periodically inspected, and maintenance provided as required to ensure the continued efficacy of the on-site drainage during operation.

g) Removal and reinstatement

2.5.90 Once the proposed rail extension route is no longer required, it would be removed, including the track bed and level crossings, and the site reinstated to agricultural use, with the temporary level crossings reinstated to highway. The proposed removal and reinstatement plan for the proposed rail extension route is shown on **Figure 2.5**.

2.5.91 This would generate some vehicle movements associated with the earthworks, though these would generally be along the line of the haul route rather than on public roads. These effects would be comparable in nature and duration to those during the construction of the proposed rail extension route. However, they would take place towards the end of the Sizewell C Project construction programme when large scale earthworks and movements of freight would be lower compared to the period when the proposed rail extension route would be constructed.

2.5.92 Following removal of the rail extension route, any highway that has been diverted or stopped up as a requirement of the proposed development

would be reinstated and the level crossings removed. The relocated junction of the B1122 and Lover's Lane would remain in place.

2.5.93

It is expected that removal and reinstatement would take place within the final 24 months of the Sizewell C Project construction programme, as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref 8.4), and would be undertaken as follows:

- Designate the railway as non-operational and work on or near the track will be under the Principal Contractor's construction railway rules.
- Re-establish security fencing as necessary.
- Remove lineside fencing, where possible unbolt transoms, burn-off posts and remove foundations with excavators, and transport to recycling centre by road.
- Re-establish temporary haul routes.
- Cut and unclip rails, and transport rails west using rail/road excavators.
- Excavate ballast and load onto tipper trucks and transport to a site transfer area adjacent to the Saxmundham to Leiston branch line rail access area for onward transfer to recycling centre by rail.
- Excavate crushed rock sub-base and load onto tipper trucks – transport to a site transfer area adjacent to the Saxmundham to Leiston branch line rail access area for onward transfer to recycling centre by rail.
- Remove any geotextiles and transport to a site transfer area for onward transfer to recycling centre by road.
- Fill cuttings/excavate embankments and grade for reinstatement.
- Reinstatement topsoil and landscape – reseeding and replanting in accordance with the **Outline Soil Management Plan** found at **Appendix 17C of Volume 2, Chapter 17** of the **ES**.

2.5.94 The railway line and Buckleswood Road and B1122 (Abbey Road) level crossings will be decommissioned and removed. For the level crossings this will involve:

- Construction compounds and access.
- Temporary realignment of the B1122 (Abbey Road)/Buckleswood Road, including necessary earthworks and paving, as proposed during construction. Traffic would then be diverted on the new temporary alignments. An indicative plan of the road realignments and temporary construction compounds can be found at **Figures 2.7** and **2.8**.
- Disconnecting all power and communications cables from the level crossing and associated signalling equipment.
- Removal of level crossing equipment, including panels, barriers, traffic signals, obstacle detection systems. Wherever possible, this equipment will be reused elsewhere on the rail network or recycled.
- Removal of the track (rail, sleepers, ballast and sub-grade).
- Reinstatement of the permanent highway surface and vegetation, and removal and reinstatement of temporary compounds to agricultural use.

2.5.95 Following completion of operations, all agricultural land taken temporarily would be reinstated to its former use. Topsoil would be restored in line with the **Outline Soil Management Plan** found at **Appendix 17C** of **Volume 2, Chapter 17** of the **ES**. Permanent surface water/agricultural drains would be reinstated. During the removal and reinstatement works, the construction mitigation measures concerning surface water would be applied as necessary in accordance with the **CoCP** (Doc Ref 8.11). There are not anticipated to be any flood risk related measures required for the removal and reinstatement.

2.5.96 The estimated waste arising during removal and reinstatement of the proposed rail extension route has been assumed to be the same as that arising for the construction waste. Refer to **Volume 2, Chapter 8** and **Appendix 8A** of the **ES** for further details.

2.6 Description of the Saxmundham to Leiston branch line upgrades

2.6.1 Trains bringing materials for the construction of the Sizewell C main development site would travel along the East Suffolk line as far as

Saxmundham and then crossover to the Saxmundham to Leiston branch line towards Leiston.

2.6.2 Following a review of the condition of the track on the Saxmundham to Leiston branch line undertaken by Network Rail, a need to upgrade the track has been identified in order to accommodate the number freight movements under the freight management strategy. The Sizewell Branch Track Condition report can be found **Appendix 1A** of **Chapter 1** of this volume.

2.6.3 The proposed rail improvement works comprise:

- track replacement on the Saxmundham to Leiston branch line; and
- upgrade works to up to eight level crossings on the Saxmundham to Leiston branch line.

2.6.4 The site for the proposed rail improvement works includes the full extent of the branch line and all relevant land required to undertake the works, including any highway land and land required for temporary satellite construction compounds where necessary. The area of the site is approximately 11.1 ha (see **Figure 2.11**). The majority of the land is within the existing railway or highway boundary.

2.6.5 All of the proposed rail improvement works would be retained following completion of the construction of the Sizewell C Project. There would be no new or additional lighting of the Saxmundham to Leiston branch line as a result of the proposed rail improvement works, and there would be no change to the existing track drainage.

a) **Track replacement on the Saxmundham to Leiston branch line**

2.6.6 The proposed track replacement on the Saxmundham to Leiston branch line comprises the renewal of the entire length of track from Saxmundham junction up to the Sizewell level crossing, using new ballast and flat bottom continuously welded rail on concrete sleepers. The proposed upgrades would ensure that the existing track would meet Network Rail standards for freight transport.

2.6.7 Further investigation is required to determine whether the entire length of track from Saxmundham junction up to the Sizewell level crossing requires upgrading. However, as part of the DCO application, the replacement of the entirety of this length of track is proposed so that the full replacement work can be carried out should it prove necessary. As such, the **ES** has

assumed the replacement of the entire track up to the Sizewell level crossing to ensure that it assesses a ‘worst case’ scenario.

2.6.8 Where the Saxmundham to Leiston branch line meets the East Suffolk line, junction improvements are proposed to allow for a faster, quieter and more reliable transfer of trains between the lines (as requested by Network Rail). This would require upgrading the existing junction and provision of an additional crossover on existing Network Rail land, providing a legacy benefit to passenger and freight travel at the junction.

b) Upgrade works to level crossings

2.6.9 There are nine operational level crossings on the Saxmundham to Leiston branch line between the Saxmundham junction and Sizewell Halt. Working with Network Rail, options for interventions which would mitigate the risk to users of the crossings have been developed. However, further risk assessment and engagement with the Office of Rail and Road (ORR) could enable less substantial upgrades to be deployed at the crossings. For example, it may not be necessary to upgrade some crossings with road traffic signals. In order to ensure that a robust assessment has been undertaken in respect of the proposed rail improvement works, upgrades at eight operational level crossings are assessed in the **ES**.

2.6.10 Sizewell Halt will not be used for the delivery of freight by rail, with delivery of freight in the early years being to a temporary rail terminal at the LEEIE, as detailed in **Volume 2** of this **ES**. Therefore, no upgrades will be required to the Sizewell level crossing at King George’s Avenue.

2.6.11 The locations of the eight level crossings to be upgraded are listed below, with those identified for upgrades more substantial than miniature stop light crossings (and thus requiring additional land for the works) shown on **Figure 2.11**:

- Bratts Black House;
- Knodishall;
- West House;
- Snowdens;
- Saxmundham Road;
- Buckles Wood;

- Summerhill; and
- Leiston.

2.6.12 Upgrades are expected to be required on each of these crossings to enable safe use of the Saxmundham to Leiston branch line for freight deliveries as part of the construction of the Sizewell C main development site. The level crossing at Saxmundham, north of the junction where the branch line turns out from the East Suffolk line (Footpath E-460/001/0), will not be affected by the proposed development and therefore does not require an upgrade.

[Overview of proposed works to level crossings](#)

2.6.13 **Table 2.4** provides an overview of the types of level crossing that may be used in the proposed rail improvement works to the Saxmundham to Leiston branch line.

Table 2.4: Types of level crossing

| Type of Crossing | Description |
|--|--|
| Automatic barrier crossing locally monitored (ABCL). | Automatic barrier crossing with wig-wags and half barriers locally monitored by train crew or other staff to check if it is working, that is activated by approaching trains. |
| MCB-OD. | Manually controlled crossing with full barriers and wig-wags operated from a signalling centre via an obstacle detection system. Light detection and ranging and radar scan the crossing and check it is clear. |
| Miniature stop light (MSL). | A red/green light is located on both sides of the track and operated by approaching trains. The light indicates if it is safe for a pedestrian to cross the railway. |
| Power operated gate opener. | A power operated gate opener would automatically open the level crossing gates when operated by a user. The system reduces the number of times a user needs to cross the railway to open and close the gates. These could be combined with MSL. |
| Train crew operated crossing (TOG). | The crossing is operated by a member of train crew with the train required to stop short of the crossing to allow the person to close the gates to road traffic. The train may then only proceed over the crossing when the train driver receives the authority from the person operating the gates. |
| Train crew operated barrier with assistance (TOB). | The train is required to stop short of the crossing and the train crew operate it from a local control unit or plunger. Correct operation of the crossing and permission to pass over it is indicated to the driver by a flashing signal. |
| User worked crossing (UWC). | Manually controlled crossing where the user opens and shuts a gate to the crossing. The user must check that there is no train coming and the exit is clear before crossing. |

- 2.6.14** The type of crossing at each location will be determined depending on the outcome of further risk assessment and consultation with the ORR. Pending this further work with the ORR, an indicative crossing type has been identified for each location for the purposes of assessment. The information provided about the type of upgrade proposed to each level crossing has been chosen on the basis of the existing crossing type and technical feasibility of the solution at the location. **Table 2.5** provides details of the level crossings that would be upgraded and an indicative crossing type for that location.
- 2.6.15** Where possible, level crossing upgrades have been proposed which minimise the need for level crossing barriers to be closed and reopened manually, since this method of control necessitates longer road closures than when automatic methods of control are in operation. Automatic level crossings in particular are able to reopen to traffic soon after a train has safely passed.
- 2.6.16** All of the proposed upgrade works will ensure that the level crossings remain in use, there are no proposals to close or divert any public rights of way whilst the branch line is in operation. Where required for the safe design, management or operation of the level crossings upgraded as part of the proposed rail improvement works, the undertaker may erect, replace and maintain traffic signs on any highway, private road or other land, whether within or outside the site boundary.

Table 2.5: Level crossing proposed upgrades along the branch line

| Crossing ID | Crossing Name | Existing Crossing Type | Indicative Proposed Change |
|-------------|--------------------|------------------------|----------------------------|
| SWC48 | Bratts Black House | UWC | Upgrade to MSL |
| SWC49 | Knodishall | TOG | Upgrade to ABCL |
| SWC50 | West House | TOG | Upgrade to ABCL |
| SWC51 | Snowdens | UWC | Upgrade to MSL |
| SWC52 | Saxmundham Road | TOG | Upgrade to ABCL |
| SWC53 | Buckle's Wood | Footpath | Upgrade to MSL |
| SWC54 | Summerhill | Footpath | Upgrade to MSL |
| SWC55 | Leiston | TOG | Upgrade to TOB |

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2.6.17 For each of the proposed upgrades to MSL level crossings, the miniature stoplights would be installed at a suitable location on approach to the railway and, where required for safety and following consultation with the ORR, other minor crossing improvements, such as to the crossing surface, would be made.

i. **Bratts Black House**

Existing

2.6.18 Bratts Black House level crossing (ID SWC48) is a UWC on private land accessed via field gates located along an access road off Clayhills Road.

Proposed change

2.6.19 It is proposed to convert this crossing to an MSL crossing.

ii. **Knodishall**

Existing

2.6.20 Knodishall level crossing (ID SWC49) is currently a TOG located on a narrow lane called The Green between the villages of Knodishall Green and East Green.

Proposed change

2.6.21 It is proposed to convert this crossing to an ABCL. This would be both a risk mitigation measure and would enable freight trains to operate more efficiently on the branch line as they would only need to stop by exception if there was a problem with the crossing.

iii. **West House**

Existing

2.6.22 West House level crossing (ID SWC50) is a TOG crossing located on a narrow access lane to West House Farm off Abbey Lane.

Proposed change

2.6.23 It is proposed to convert this crossing to an ABCL. This would be both a risk mitigation measure and would enable freight trains to operate more efficiently on the branch line as they would only need to stop by exception if there was a problem with the crossing.

iv. Snowdens

Existing

- 2.6.24 Snowdens level crossing (ID SWC51) is a UWC accessed from an unnamed road branching from Saxmundham Road. It is located on private land accessed via field gates.

Proposed change

- 2.6.25 It is proposed to convert this crossing to an MSL.

v. Saxmundham Road

Existing

- 2.6.26 Saxmundham Road level crossing (ID SWC52) is currently a TOG crossing located on a short unnamed lane between Saxmundham Road and Abbey Lane.

Proposed change

- 2.6.27 It is proposed to convert this crossing to an ABCL. This would be both a risk mitigation measure and would enable freight trains to operate more efficiently on the branch line as they would only need to stop by exception if there was a problem with the crossing.

vi. Buckles Wood

Existing

- 2.6.28 Buckles Wood level crossing (ID SWC53) is a footpath crossing located on Footpath E-363/003/0, accessed via stiles leading over uneven ground onto the track.

Proposed change

- 2.6.29 It is proposed to convert this crossing to an MSL.

vii. Summerhill

Existing

- 2.6.30 Summerhill level crossing (ID SWC54) is a footpath crossing on Westward Ho and Buckleswood Road, accessed along Footpath E-363/005/0. The railway is fenced from the footpath by wooden fencing and wicket gates.

Proposed change

- 2.6.31 It is proposed to convert this crossing to an MSL.

viii. Leiston

Existing

- 2.6.32 Leiston level crossing (ID SWC55) is currently a TOG crossing located on Station Road/Abbey Road.

Proposed change

- 2.6.33 It is proposed to convert this crossing to a TOB crossing. Visually this crossing would look similar to an ABCL but the method of operation would be controlled by staff, rather than automatically.

c) Construction

- 2.6.34 At the level crossings, the scope and extent of construction would generally comprise limited works confined to the existing railway and highways boundaries wherever possible. On the four level crossings where the upgrades are more substantial than an MSL crossing, additional land would be required temporarily to form satellite compounds to undertake the works. The satellite compounds are detailed further below.
- 2.6.35 On the Saxmundham to Leiston branch line, some maintenance works to existing culverts may be required. This is likely to include bracing but would not require works to the watercourse itself. These works would form part of Network Rail's standard asset management procedures to ensure operational maintenance of the existing branch line. Therefore, this work does not form part of the Draft DCO proposals.
- 2.6.36 Generally working hours for the branch line replacement and level crossing upgrades, daytime work would take place during Monday to Saturday 07:00 to 19:00. However, some activities may require working outside of these hours and ESC would be notified in advance. There would also be a need for short-term possessions of the East Suffolk line, where the Saxmundham to Leiston branch line turns out, to facilitate the upgrades to the track. Work during possessions can be during night and day and is most likely to be during the weekends. Weekend possession work is anticipated to start at 23:00 on a Friday evening and finish at the latest by 05:00 on Monday morning. Night-time working mid-week would be from 23:00 to 06:00.

2.6.37 At the locations closest to the track access points, over a period of several months HGVs may occasionally need to park or manoeuvre in order to unload materials.

i. **Construction sequence and programme**

2.6.38 The indicative construction programme for the proposed rail improvement works is provided in **Plate 2.1**.

2.6.39 Construction work for the proposed rail improvement works is envisaged to take circa 9 months and is expected to be operational within the first year of the Sizewell C Project construction programme as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref 8.4). The upgrades to the level crossings would occur within this time period, however, the duration of construction would be dependent on the type of crossing proposed.

2.6.40 Upgrade works to convert an existing footpath or UWC level crossing to an MSL crossing (as proposed at Bratts Black House, Snowdens, Buckle's Wood and Summerhill) would take between four to six weeks. The MSL upgrade works would include:

- hand digging for the bases;
- installation of posts using concrete mixers or pre-cast base; and
- testing and commissioning.

2.6.41 At the other level crossing sites, construction works would be up to six months in duration and could be undertaken in parallel.

2.6.42 The upgrade works would include:

- installation of level crossing equipment (foundations, power cables, barriers, traffic signals);
- installation of associated signalling equipment; and
- fitting suitable panels to the level crossing deck.

ii. **Construction compounds**

2.6.43 To facilitate the delivery of the proposed rail improvement works, the temporary western construction compound located off Buckleswood Road,

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which forms part of the proposed rail extension route, would be used as the main compound for the works. The western compound would include:

- office and welfare facilities for staff and operatives;
- parking for staff and operatives;
- secure storage of construction plant;
- laydown and storage of materials and components prior to installation and use;
- secure storage containers for weather-sensitive and high-value materials (e.g. signalling equipment); and
- safe turning space for vehicles and plant.

2.6.44 Whilst the temporary western compound would be the main base for the construction of the proposed rail improvement works, four satellite compounds on the Saxmundham to Leiston branch line would be used as bases to manage specific works on a particular level crossing site, with only minimal facilities required. These satellite compounds would be managed from the western compound.

2.6.45 The four satellite construction compounds would be located at the following level crossing upgrade sites (see **Figure 2.11**):

- **Knodishall** – The Knodishall level crossing satellite compound would be located to the south-west of the crossing on agricultural land with road access to it. It would be located approximately 2.7 miles from the temporary western compound.
- **West House** – The West House level crossing satellite compound would be located to the south-east of the crossing on agricultural land with road access to it. It would be located approximately 1.6 miles from the temporary western compound.
- **Saxmundham Road** – The Saxmundham Road level crossing satellite compound would be located to the north-east of the crossing on the edge of agricultural land with road access to it. It would be located approximately 0.8 miles from the temporary western compound.

- Leiston – The Leiston level crossing satellite compound would be located to the south west of the track on Network Rail land with road access to it. It would be located approximately 0.6 miles from the temporary western compound.

2.6.46 The satellite compounds on the Saxmundham to Leiston branch line, depending on the nature and extent of the works, could include:

- a parking space for construction vehicles; and
- a comfort facility for on-site staff, most likely a welfare van with toilet and mess facility.

2.6.47 Materials and components for the proposed rail improvement works to the existing level crossings would be stored trackside. The parking space and comfort facility would be stored on geotextile matting without the need to removal topsoil from the satellite compounds. The western compound would provide a more substantial welfare facility for staff to use on extended breaks.

2.6.48 The satellite compound sites would be fenced off to prevent unauthorised access/trespass. Any deliveries would be co-ordinated so as not to cause any congestion and blocking of level crossings. All temporary satellite compounds associated with the construction of the proposed rail improvement works would be removed and the land reinstated to its former use.

MSL upgrades

2.6.49 For the MSL upgrades, material would be kept at the temporary western compound and welfare vans would be used for comfort facilities. The MSLs would be installed within the Network Rail land boundary where existing arrangements are in place to allow access to the relevant paths/land for access (Network Rail Property would liaise with these landowners directly). It is also possible to access these sites via the track itself.

iii. Road or public rights of way realignments, diversions or closures

2.6.50 Level crossing upgrades would necessitate short term temporary traffic measures or PRow closures while barriers, signage and other lineside equipment are installed, such as lane or temporary road closures. This may require diversion along nearby alternative routes.

2.6.51 The upgrade to the track of the Saxmundham to Leiston branch line would take place without disruption to passenger services on the East Suffolk line,

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with the possible exception of when the proposed works to the East Suffolk line/Saxmundham to Leiston branch line junction would take place, where weekend possessions may be required.

2.6.52 The track renewal along the Saxmundham to Leiston branch would generate construction traffic as it would involve transporting sections of rail and other heavy plant and equipment. However, where feasible, engineering trains would be used to transport the materials required for upgrade work (for example, rails or other heavy plant and equipment) so as to minimise construction road traffic. Where material cannot be transported on engineering trains, it would be transported by road.

iv. Anticipated construction plant and equipment

2.6.53 Anticipated plant and equipment are set out in **Table 2.6**.

Table 2.6: Summary of indicative plant and equipment

| Activity | Plant/Equipment | Expected Maximum Number of Plant on Site at Any One Time |
|---------------------------|---|--|
| For level crossings: | | |
| Earthworks | CAT D400 dumper | 2 |
| | CAT D8 bulldozer | 1 |
| | CAT 350 excavator | 2 |
| | Dropping sub-base material | 1 |
| Paving | Rigid tipper lorry (delivering) | Varies |
| | CAT AP355F Asphalt paver | 1 |
| | CAT CB34B Tandem Vibratory Roller | 1 |
| | Compaction – Wacker Neuson DPU 110 (or similar) | 1 |
| Track (at level crossing) | Flat-bed lorry (with HIAB crane fitted) | 1 |
| | Telehandler | 1 |
| | Dropping ballast | 1 |
| | Compaction – Wacker Neuson DPU 110 (or similar) coupled | 3 |
| | Tamping – 2-stroke breaker (or similar) | 1 |
| | Rail Mounted Impact Wrench – Geismar TB2 (or similar) | 1 |

2.6.54 An estimate of some principle material quantities is summarised in **Table 2.7**.

Table 2.7: Summary of principle material quantities for the proposed rail improvement works

| Material | Quantity | | | | | Transport Method |
|--|----------|--------|----------------|----------------|--------|------------------|
| | No. | m | m ² | m ³ | t | |
| Proposed rail improvement works – 7.2 km of the existing Saxmundham to Leiston branch line, including up to eight level crossings. | | | | | | |
| Rail | | 14,400 | | | 864 | Rail |
| Ballast and other aggregates | | | | | 33,300 | Rail |
| Sleepers | 12,000 | | | | 3,000 | Rail |
| Switches and crossing (delivered sections) | 5 | | | | | Road |

d) Operation

i. Operation of the Saxmundham to Leiston branch line

2.6.55 Whilst the proposed rail extension route is under construction during the early years of the construction of the Sizewell C main development site, SZC Co. proposes to run two trains (four movements) per day along the East Suffolk line and Saxmundham to Leiston branch line to the LEEIE.

2.6.56 During the early years of construction there would be two trains in and two trains out (four movements) at night on the East Suffolk line between 23:00 to 06:00. Freight trains would be held on the branch line, off of the East Suffolk line, between 06:00 to 07:00 due to the passenger service commencing on the main East Suffolk line.

2.6.57 Once the proposed rail extension route is operational, three trains (six movements) per day will travel along the Saxmundham to Leiston branch line to the new terminal within the main development site.

2.6.58 Trains would move at a low speed of no more than 25mph.

2.6.59 All of the proposed rail improvement works would be retained following completion of the construction of Sizewell C main development site as permanent upgrades to the existing rail infrastructure. As such, there would

be no removal and reinstatement of the Saxmundham to Leiston branch line.

2.6.60 In order to minimise disturbance, the replacement track would consist of continuously welded rail in order to reduce noise at source.

ii. [Operation of the level crossings](#)

2.6.61 The level crossings along the Saxmundham to Leiston branch line would be closed to vehicles up to six additional times per day. Closures would last between two and three minutes with five closures overnight between 23:00 and 06:00 and one closure during the day.

e) [Removal and reinstatement](#)

2.6.62 The proposed rail improvement works would be permanent.

References

- 2.1 Planning Inspectorate Advice Note Nine: Rochdale Envelope, July 2018. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf>
- 2.2 Network Rail NR/L2/CIV/005/01 Issue 1 – Drainage Systems Manual: Drainage Asset Management, June 2018. Network Rail document, not publicly available.