



Portishead Branch Line (MetroWest Phase 1)

TR040011

Applicant: North Somerset District Council

6.2, Environmental Statement, Volume 1, Non-Technical Summary

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, regulation 5(2)(a)

Planning Act 2008

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The Environmental Statement

The Environmental Statement comprises:

Volume 1: Non-Technical Summary

Volume 2: Main Report in 18 chapters

Volume 3: Book of Figures

Volume 4: Technical Appendices

Document history

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CHAPTER 1

Introduction

1.1 MetroWest Programme

1.1.1 North Somerset District Council (NSDC) and the West of England Combined Authority (WECA) are working together on behalf of the West of England Councils¹ on proposals to upgrade the local rail network fit for a city region with a population of over 1.1 million. The aim of the MetroWest programme is to introduce fast and frequent metro rail services across the local area, by making better use of existing railway lines and re-opening viable disused lines. Figure 1 overleaf presents an overview of the MetroWest programme Phases 1 and 2.

1.2 MetroWest Phase 1

1.2.1 MetroWest Phase 1 aims to deliver:

- 30-minute services on the Severn Beach Line and hourly north of Avonmouth,
- 30-minute services for Keynsham and Oldfield Park between Bristol and Bath,
- a new hourly or hourly plus service to Portishead and Pill by re-opening the old railway, and

- increased services at Parson Street and Bedminster Stations.

1.2.2 The key objectives of the MetroWest Programme are to support economic growth, improve transport resilience, increase accessibility to the rail network, and improve the quality of life.

1.2.3 The supporting objectives for MetroWest Phase 1 are to reduce traffic congestion, enhance the local rail network capacity, and reduce the overall environmental impact of the transport network.

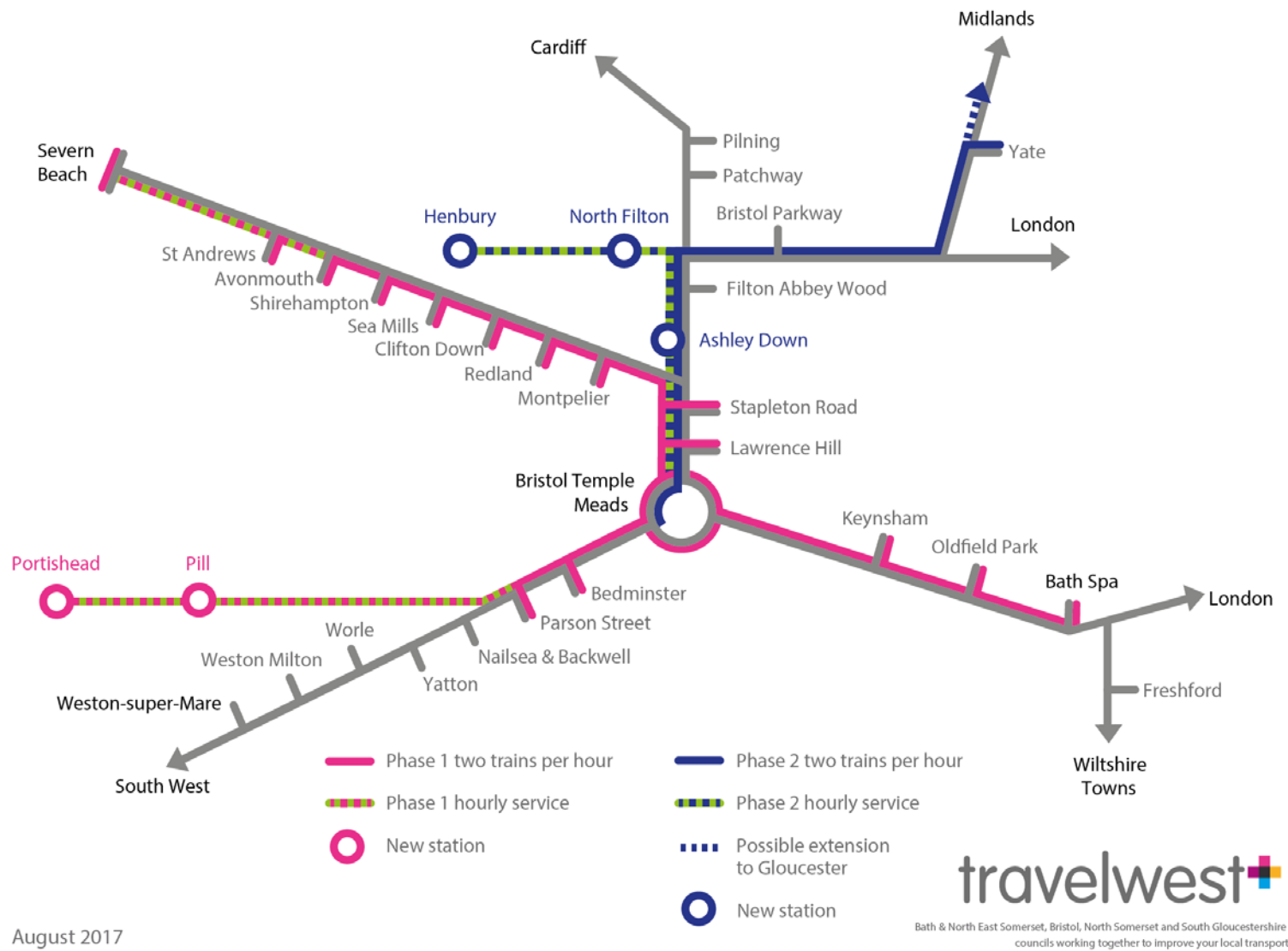
1.2.4 This document is concerned with the re-opening of the Portishead Branch Line.

1.3 The Portishead Branch Line

Historical Background

1.3.1 The Portishead Branch Line was built in the 1860s for passengers and freight. Passenger services continued between Portishead and Bristol until 1964, and freight services continued to 1981. With the cessation of services, the railway corridor fell into disuse, with many of the railway features left in place. Some of the station buildings were demolished, including Portishead station

¹ The West of England Authorities are NSDC, Bristol City Council, Bath and North East Somerset Council, and South Gloucestershire Council.



August 2017

Figure 1: MetroWest Phases 1 and 2

- 1.3.2 Following the opening of the Royal Portbury Dock in 1978, part of the former Portishead Branch Line was re-opened to service the port in 2002.
- 1.3.3 The owner of the Royal Portbury Dock, Bristol Port Company, has commercial rights to run up to 20 freight trains a day in each direction, but there are currently no scheduled passenger services on this line.

The Portishead Branch Line DCO Scheme

- 1.3.4 To re-open the Portishead Branch Line for passenger trains, it is necessary to remove the disused railway (Plate 1) and lay new track between Portishead and Pill. Highway improvements, a new station and car parks are required in Portishead. The former station in Pill would be rebuilt and a new car park provided. The operational freight line between Pill and Ashton Junction would be upgraded to meet the design standards for a passenger service.
- 1.3.5 Under the Planning Act 2008, the construction of the new railway along the disused part of the line is classified as a “nationally significant infrastructure project” (NSIP). Other works required for the scheme between Portishead and Ashton Junction such as the highway and station works are “associated development”. A Development Consent Order (DCO) is required to build the scheme, which would cover both the NSIP and the associated development. NSDC has submitted a DCO Application to The Planning Inspectorate to build these elements of the Portishead Branch Line DCO Scheme (see Figure 2).



Plate 1: The disused railway looking east from Sheepway bridge

- 1.3.6 Other works are required to the Bristol to Exeter main line before the new passenger services can start, including improvements to Parson Street Junction and Parson Street Station, and the reinstatement of a disused track at Bedminster to provide a holding point for freight trains prior to journeying to Royal Portbury Dock. These works will be undertaken by Network Rail under their permitted development rights and do not form part of the DCO Application.

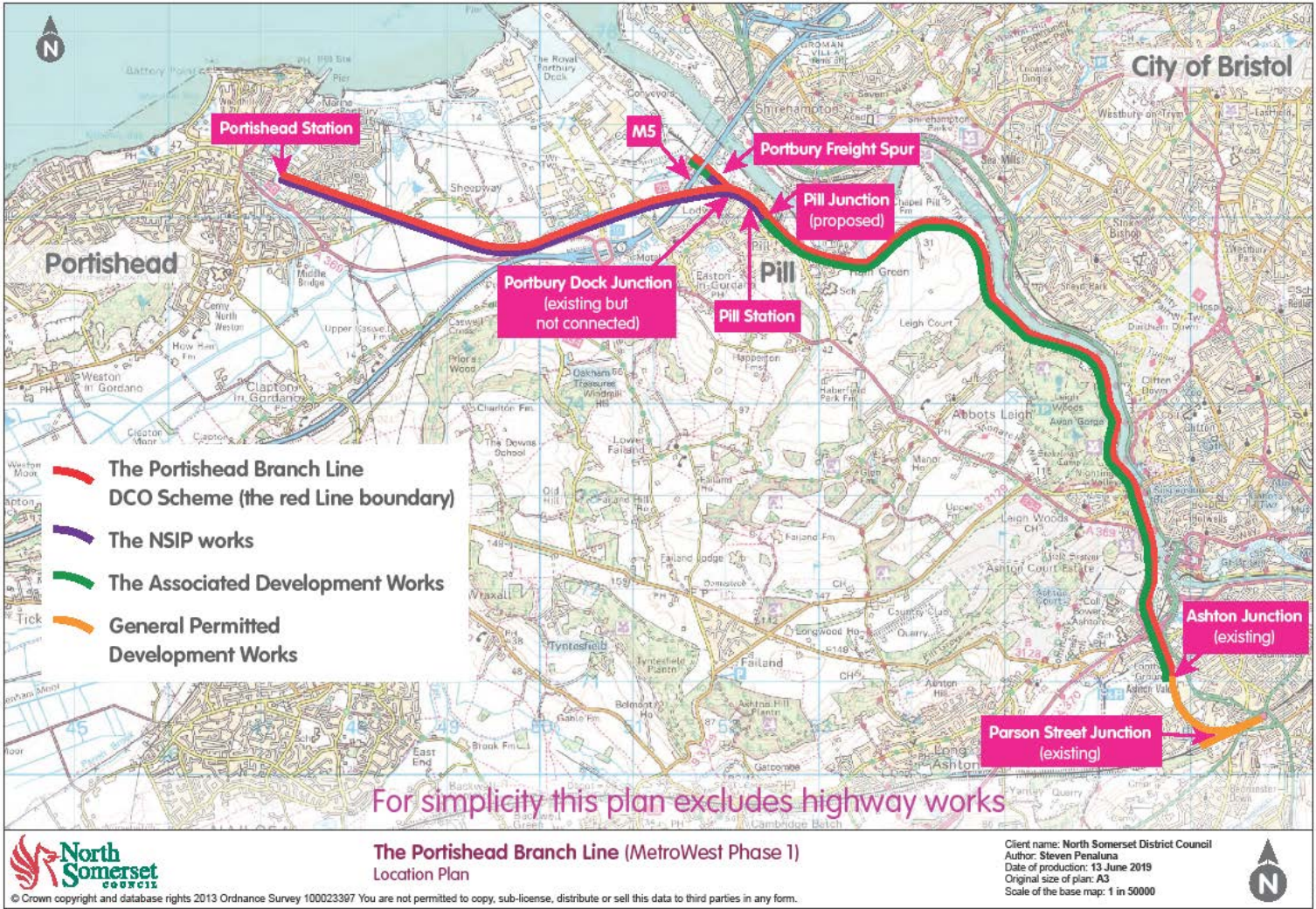


Figure 2: Reference Plan for the DCO Scheme

Key Benefits of the DCO Scheme

1.3.7 The key benefits of the DCO Scheme are:

- significantly reduced journey times which will not erode over time;
- increasing the number of people living within 30 minutes of key employment areas in Bristol and the sub-region's Enterprise Areas which would generate a series of wider economic benefits, such as helping to increase business confidence and assisting in job creation, and;
- enhancement of the accessibility of the rail network, connecting an additional 50,000+ people within the immediate catchment of the network with the new stations at Portishead and Pill.

Environmental Impact Assessment

1.3.8 An environmental impact assessment (EIA) has been undertaken of the DCO Scheme in accordance with The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). The objective of the EIA is to provide information on the potential impact of the scheme on people, affected communities, and the environment. These matters are then taken into consideration during the examination of the DCO application.

1.3.9 The results of the EIA are presented in the Environmental Statement (ES) which can be downloaded from the Planning Inspectorate's website at: <https://infrastructure.planninginspectorate.gov.uk>.

1.3.10 This document is the summary of the ES presented in non-technical language which provides:

- a description of the DCO Scheme;
- the likely significant environmental effects during construction and operation, environmental mitigation and the residual effects; and
- next steps.

CHAPTER 2

Description of the Scheme

2.1 Background

Evolution of the DCO Scheme

2.1.1 Table 1 summarises the evolution of the DCO Scheme.

Table 1 Evolution of the DCO Scheme

Year	Studies
1990s	Studies were undertaken to bring the old railway back into use as a new transport corridor.
2002	Re-opening the railway to Royal Portbury Dock for freight services provided renewed motivation to open a passenger service to Portishead. The Joint Replacement Structure Plan – West of England Partnership policies safeguarded the reinstatement of the passenger railway. The route was also safeguarded in the NSDC and Bristol City Council Local Plans.
2004	Housing and associated roads were built in Portishead adjacent to the old railway corridor. One of these access roads - Quays Avenue - was built across the safeguarded railway corridor with the understanding that a level crossing would be acceptable in the future.

Table 1 Evolution of the DCO Scheme

Year	Studies
	Changes in legislation meant the Office of Road and Rail would not support this on health and safety grounds. This sequence of events affected the site selection of Portishead Station and need for the realignment of Quays Avenue.
2008	NSDC purchased the track-bed from Portishead to Portbury to safeguard the transportation corridor.
2013 / 2014	Public consultation on options for the location of Portishead station occurred.
2015	First stage of the formal community consultation process, accompanied by informal consultation with statutory bodies
2016	Public consultation on Pill Station and car park layout.
2017	The original proposal to operate a half hourly passenger train service proved to be too expensive. The West of England Councils decided to take a staged approach to deliver the full scheme: <ul style="list-style-type: none"> The initial stage is to deliver infrastructure to operate an hourly service with an option for additional peak time services, referred to as an 'hourly plus' service.

Table 1 Evolution of the DCO Scheme

Year	Studies
	<ul style="list-style-type: none"> A second stage may be promoted separately in the future, to upgrade to a half hourly service. This second stage would require separate statutory processes, business case and funding package. There is currently no programme for the second stage.
2017	Second stage of the formal community consultation process, accompanied by formal consultation with statutory bodies.

Alternatives Considered

2.1.2 **No scheme.** If the DCO Scheme was not built (a 'Do-Nothing' scenario) traffic congestion would worsen on routes between Portishead and Bristol affecting road users, residents - particularly those living alongside busy roads - and businesses. None of the DCO Scheme's benefits would be realised.

2.1.3 **Alternative routes.** Alternative routes for the DCO Scheme have not been considered because:

- the railway corridor has been preserved for the reinstatement of a passenger rail service in the relevant planning policy documents;
- NSDC and Network Rail own the land forming the former railway corridor;
- all the main structures such as bridges and culverts required for the railway are already in place; and

- the railway is on a relatively straight, efficient alignment between Portishead and the connection to the existing rail network at Portbury Dock Junction.

2.1.4 **Location of Portishead Station.** Multiple options for the location of the station were assessed and shortlisted to six which were consulted on. All six options were located along the railway corridor in the vicinity of Quays Avenue. The Office of Road and Rail's refusal to allow a level crossing at Quays Avenue affected the station site and required modifications to Quays Avenue – stopping it up and diverting traffic, realignment, or leaving it in place and building the station to the east and close to residential properties. Through public consultation the station site which involved realigning Quays Avenue was chosen.

2.1.5 **Layout for Pill Station.** The design initially showed a pedestrian entrance off Monmouth Road and a footbridge over the railway to the station. As the design developed an opportunity to build a station forecourt with highway access was identified on the south side of the railway, requiring the demolition of No. 7 Station Road. Public consultation gave very strong support for this option. The property has been purchased by NSDC.

2.2 Summary of Proposals

The Proposed Route

2.2.1 The DCO Scheme is located along an existing railway corridor between Portishead and the outskirts of Bristol (Figure 3). The western end of the railway corridor lies in Portishead. The corridor crosses the low-lying coastal

plains between Portishead and the village of Pill and then follows the River Avon upstream, through the Avon Gorge on its western (left hand) flank towards the outskirts of Bristol, where it joins the main Bristol to Exeter railway line at Parson Street Junction near Parson Street Station.

2.2.2 The NSIP comprises a permanent new railway about 5.63 km long between Quays Avenue in Portishead and a new junction with the existing operational railway at Pill Junction located between Pill Viaduct and Pill Tunnel. The new section of railway through Pill will run alongside the operational freight line to Royal Portbury Dock.

2.2.3 The associated development works comprise:

- a new railway station at Portishead;
- car parks, pedestrian / cycle / highway infrastructure at Portishead including re-alignment of Quays Avenue and a new foot and cycle bridge near Trinity Primary School;
- re-opening the former Pill station (southern platform) including demolition of No. 7 Station Road for a new station forecourt, a separate main car park, pedestrian / cycle and highway infrastructure, and modifications to the bus stop on Heywood Road by the Pill Memorial Club;
- new permanent maintenance compounds at Sheepway, Pill, Ham Green and off Clanage Road;
- temporary construction compounds between Portishead and Ashton Junction;

- associated works to pedestrian, bridleway and cycle paths, including modifications to the National Cycle Network route 26 (NCN26);
- works to upgrade the existing Portbury Freight Line from Royal Portbury Dock to Ashton Junction to enable operation of both passenger train and freight train services including track works, geotechnical works on some cliffs in the Avon Gorge, minor repairs to bridges, retaining walls, and the tunnels, and partial rebuilding of Quarry Bridge No. 2;
- while the Ashton Vale Road level crossing will remain operational and no alterations will be undertaken to the level crossing itself, the following works are proposed to reduce the highway traffic impact from the increased use of the level crossing:
 - extension of the left turn lane on Winterstoke Road,
 - optimisation of the Ashton Vale Road signals (now that South Bristol Link is open), and
 - provision of the pedestrian and cycle ramp from Ashton Vale Road to Ashton Road;
- permanent closure of the Barons Close (Container Crossing) pedestrian level crossing; and
- other works such as earthworks on embankments and cuttings, drainage, communications, signalling and cabling, fencing and access.

2.2.4 The key environmental constraints along the route are illustrated in Figure 4.

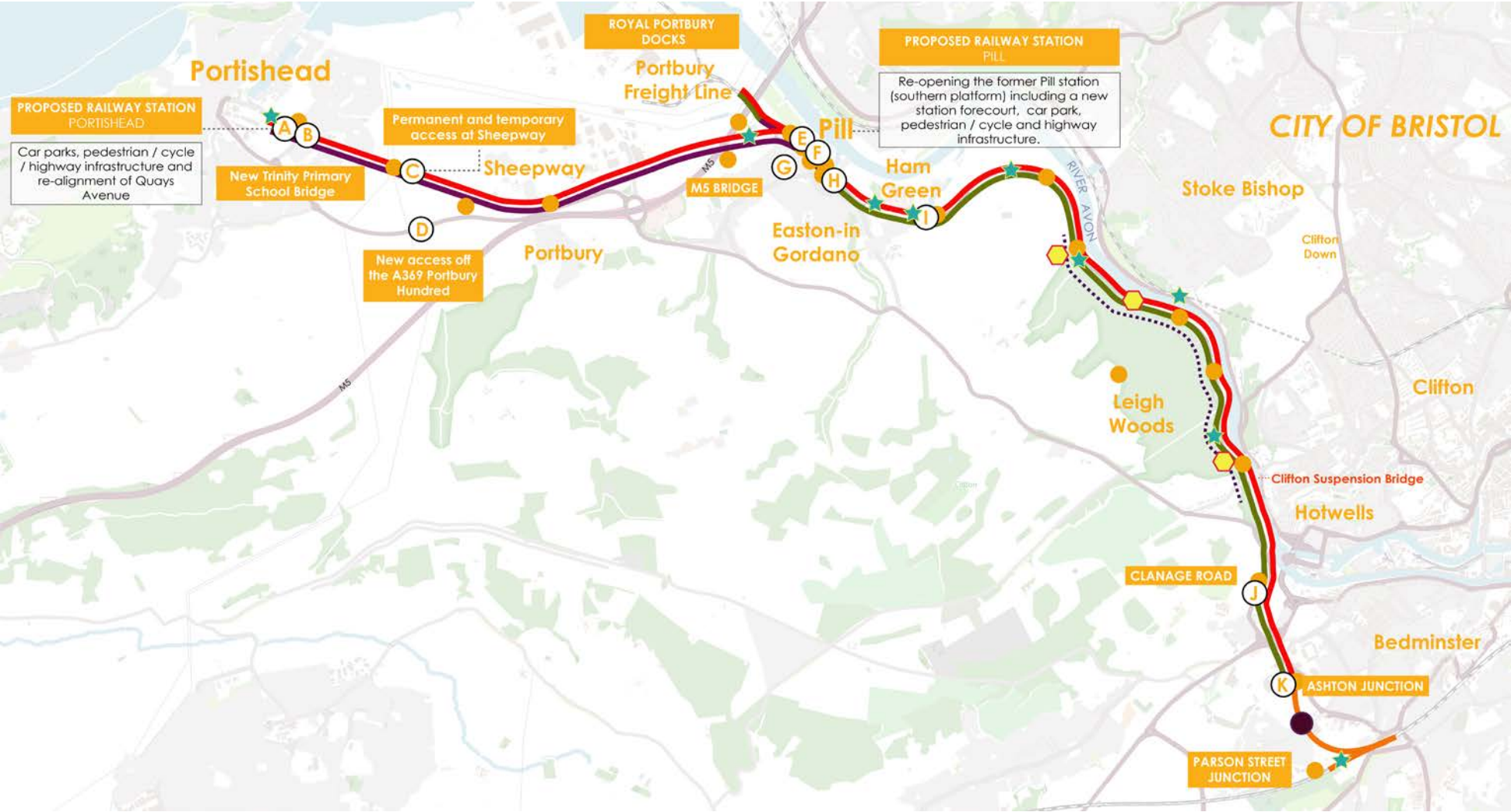























Figure 3: Overview of the DCO Scheme Features (accompanying key on following page)

KEY**The Line**

-  The Portishead Branch Line DCO Scheme (the indicative red line boundary)
-  The Nationally Significant Infrastructure Project (NSIP) works
-  The Associated Development works
-  General Permitted Development works

Main Works along the Route

-  New railway station at Portishead
-  Trinity Primary School bridge (new combined pedestrian and cycle overbridge)
-  New permanent and temporary access off Sheepway
-  New temporary construction access off the A369 Portbury Hundred
-  New car park at Pill
-  New railway station at Pill
-  Proposed bus stop works near the Pill Memorial Club
-  Pill Viaduct
-  Pill Tunnel Eastern Portal (new permanent vehicular access)
-  New permanent and temporary construction access off Clanage Road
-  Highway and pedestrian improvements to the Ashton Vale Road level crossing junction area with the A370
-  Temporary construction compounds between Portishead and Ashton Junction
-  Geotechnical works on slopes within Network Rail land (see Appendix 4.4 of the Portishead Branch Line DCO Scheme Environmental Statement)
-  Geotechnical works on slopes on third party land (see Appendix 4.4 of the Portishead Branch Line DCO Scheme Environmental Statement)
-  Location of GSM-R communications masts
-  New permanent stepped access points from the Avon Gorge Tow Path to the railway line to facilitate maintenance
-  Level crossing
-  Indicative location of geotechnical works in the Avon Gorge

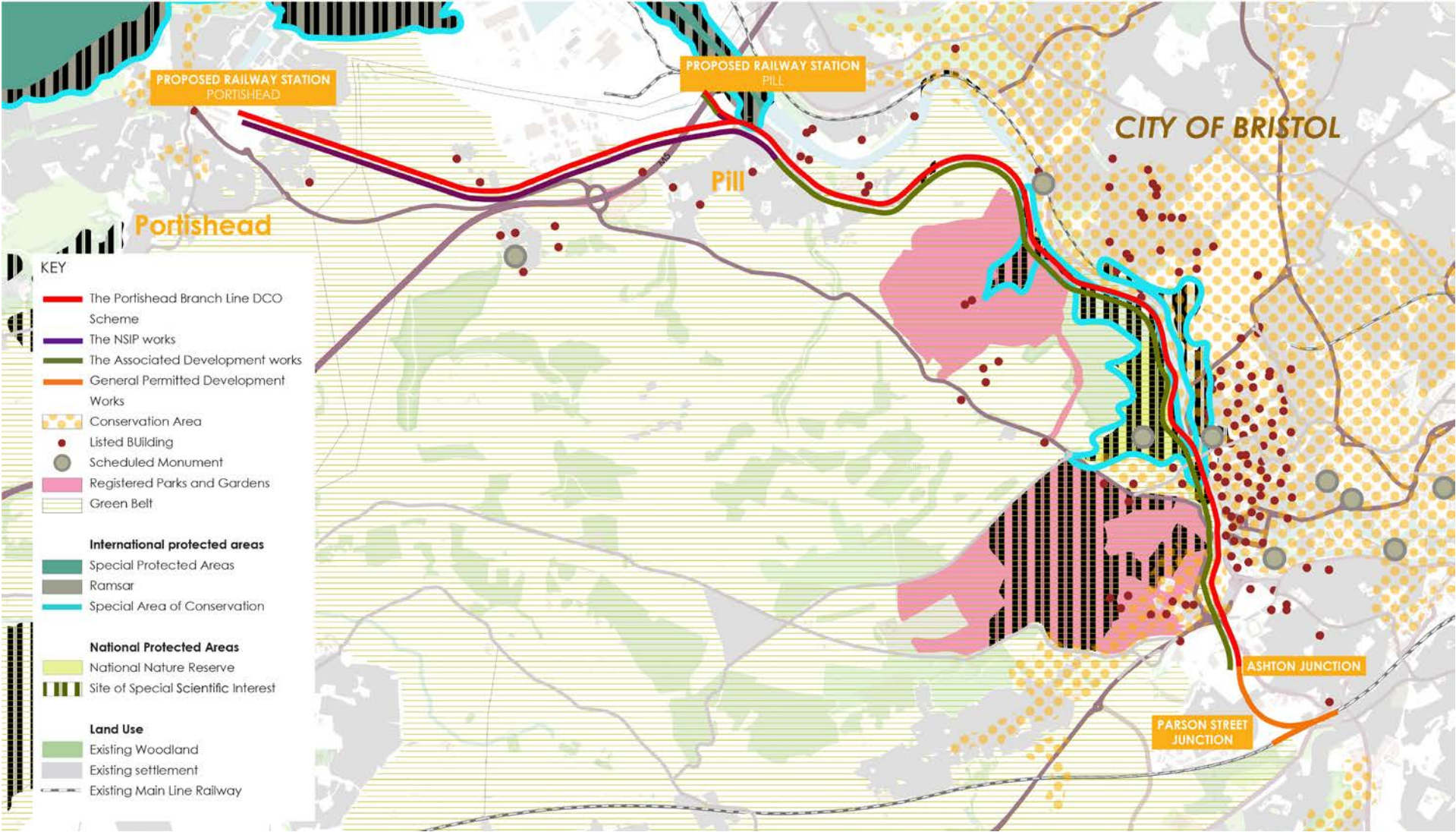


Figure 4 Key environmental constraints

Portishead Station and Surrounds

2.2.5 The proposals (Figure 5 and Figure 6) include:

- Re-alignment of Quays Avenue and a new roundabout between Quays Avenue, Harbour Road and Phoenix Way.
- A single platform partly covered by a canopy with lighting, passenger information departure displays and a public announcement system.
- A new railway station building (A on Figure 3) with a ticket office, waiting area, toilets and space for a retail concession and a roof-mounted communications GSM-R mast.
- A station forecourt with seating, cycle parking, taxi rank, 13 disabled parking spaces, bus stop, lighting and a car park with 54 parking spaces.
- A larger car park west of the station accessed from Harbour Road for 206 spaces including 6 disabled spaces with lighting, a pedestrian / cycle crossing on Quays Avenue and controlled pedestrian crossings on each arm of the new roundabout.
- A 300 metre pedestrian / cycle boulevard with lighting, linking towards Old Mill Lane, the town centre, and the marina.
- On-street bus stops with lighting, immediately in front of the station on Quays Avenue.
- Landscaping, acoustic and security fencing and environmental mitigation works.

- A new bridge linking to existing paths and Trinity Primary School (B on Figure 3) and temporary lay down area opposite Tansy Lane during construction.

2.2.6 Environmental constraints:

- The proposed station and car parks are close to residential, retail, industrial and medical land uses.
- Historic land uses from Portishead's industrial past indicated potential for contaminated land, although there has been extensive remediation in recent years.
- There are many utilities in the highways which will need to be protected or diverted during construction.
- There are no ecologically designated sites in the Portishead area, but protected species such as great crested newts are found along the disused railway corridor.



Figure 5: Visualisation of Portishead Station



Figure 6 Proposed layout of Portishead station and surrounds

Portishead to Royal Portbury Dock Road

2.2.7 The proposals include:

- Removal of the existing railway ballast, rails and sleepers and construction of a new railway.
- Temporary construction compounds at Sheepway and off the A369 Portbury Hundred and temporary haul routes along the south side of the railway and within the railway corridor (C on Figure 3).
- New permanent access off the A369 Portbury Hundred into the construction compound (D).
- Minor repairs to existing bridges and restoration of existing drainage alongside the railway and culverts under the railway embankments.
- New track and lineside equipment.
- New fencing along both sides of the railway.
- Restoration of temporary construction sites.
- A new permanent compound at Sheepway and road rail access point to access the railway for future maintenance (C on Figure 3).
- Environmental mitigation including replacement planting along the railway, three new ponds for great crested newts, bird and bat boxes and reptile hibernacula.

2.2.8 Environmental constraints

- Agricultural interests on both sides of the railway corridor.

- The operation of Royal Portbury Dock including the freight service to and from the Dock.
- A small number of rural properties close to the construction sites and compounds.
- Protected species along the railway corridor, at the Portbury Wharf Nature Reserve and Eco Park and associated with adjoining farmland, including great crested newts, bats and reptiles.
- An historic landfill at Priory Farm alongside the railway corridor.
- Footpaths, cycle paths and bridleways.
- Many drainage ditches and marshy areas.
- Cumulative impact with the construction of works associated with Hinkley C Connection Point.

Royal Portbury Dock Road to the M5 (Pill side)

2.2.9 The proposals include:

- Removal of the existing railway ballast, rails, sleepers and construction of a new railway.
- Temporary construction compounds at Lodway Farm and under the M5 Avonmouth Viaduct.
- A temporary HGV haul route along the north side of the railway following the NCN 26 from Marsh Lane to the M5 and to the Lodway Farm construction compounds.
- Improvements to the layout and safety of the NCN26 by increasing the width and provide security fencing

under Royal Portbury Dock Road, Marsh Lane and the M5 Bridge.

- Minor improvements to the bridleway crossing on Royal Portbury Dock Road and an extension of a bridleway under the M5 Avonmouth Viaduct providing an alternative route for equestrians, avoiding the M5 Bridge alongside the railway.
- Signalling and lineside equipment for the spur line leading to Royal Portbury Dock.

2.2.10 Environmental constraints

- Agricultural interests along the railway.
- Operation of Royal Portbury Dock, including the freight train services.
- Residential housing on the western side of Pill.
- Proximity to the Severn Estuary Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar site, and Site of Special Scientific Interest (SSSI) and numerous non-statutory designated sites close to the railway.
- Presence of protected species, including great crested newts, barn owls, bats, reptiles, and otters.
- Heritage interests including archaeological assets and listed buildings.

Pill to Ham Green

2.2.11 The proposals (Figure 8) include:

- Demolish and rebuild the Avon Road Bridge and widen and strengthen the embankments on the west side of the bridge to carry two sets of tracks.
- Temporary access to Avon Road Bridge via gardens off Lodway Close and through the streets on the north side of Pill. Demolish 12 garages to accommodate a crane to lift in the new bridge.
- Shift the existing railway north and lay a new single line railway alongside through Pill, over Pill Viaduct to a new junction west of Pill Tunnel where the existing and new tracks will merge to a single line.
- Demolish No. 7 Station Road to create the new station forecourt (F on Figure 3) including three disabled parking spaces.
- At Pill station, cut back and strengthen Hardwick cutting and construct the new access ramp, station platform, and emergency refuge area (Figure 7).
- Use the former goods yards as a construction compound and redevelop as the station car park (E on Figure 3) with 58 spaces and new maintenance and access point.
- Widen, steepen and strengthen Mount Pleasant embankment to carry two sets of tracks between Pill Viaduct (H on Figure 3) and Pill Junction.
- Repair Pill Viaduct, replace track drainage and install other track and lineside equipment.
- Improve the bus stop on Heywood Road in front of the Pill Memorial Club (G on Figure 3).

- Locate small temporary construction compounds off Avon Road, at Pill Station, under Pill Viaduct near Pill Library and in the Pill Memorial Club car park.
- Parking restrictions on selected local roads.

2.2.12 Environmental constraints:

- Houses and gardens alongside the railway through Pill (Plate 2).
- Narrow, steep and winding road network in Pill.
- Village green in the centre of Pill and open space around Watchhouse Hill.
- Heritage assets, including listed buildings, historic railway features and archaeological sites.
- Protected species, especially bats and reptiles along the railway line.



Plate 2: View of Pill westwards from Pill Viaduct



Figure 7 Visualisation of Pill Station

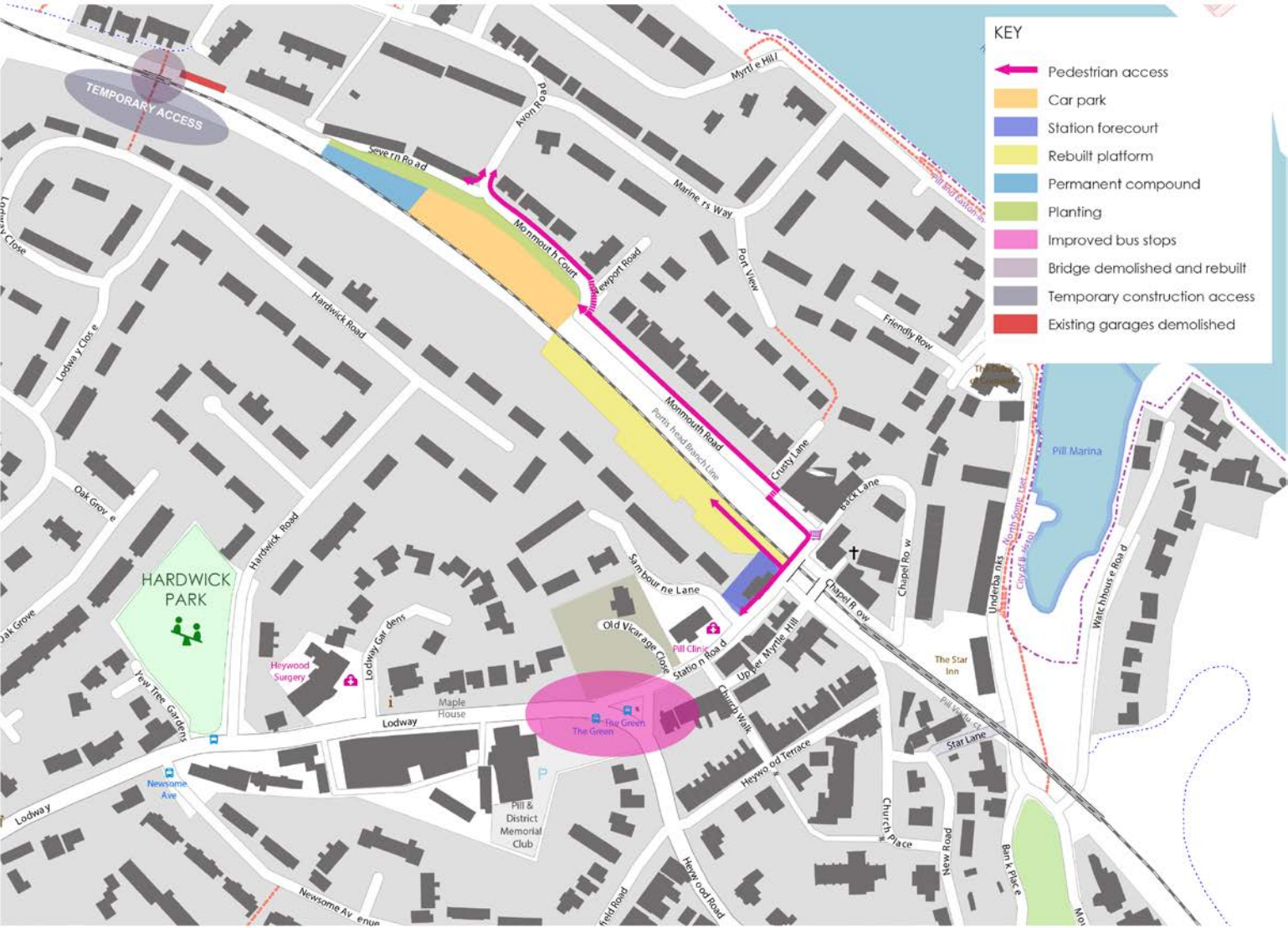


Figure 8 Proposals in Pill

Ham Green and Surrounds

2.2.13 The proposals include:

- A new access off Chapel Pill Lane to hard standing, turning circle and road rail access point for maintenance and emergency vehicles close to Pill Tunnel Eastern Portal (I on Figure 3).
- Improvements in the local highway network through Ham Green to allow maintenance and emergency vehicle access to Chapel Pill Lane.
- Temporary construction compound at Ham Green.
- New GSM-R masts on the west and east portals of Pill Tunnel and provision of emergency lighting within Pill Tunnel.
- Replacement of the ballast, track and sleepers.
- Minor repairs to culverts, bridges, retaining walls.
- A new signal near Ham Green SSSI.

2.2.14 Environmental constraints:

- Ham Green non-registered Park and Garden.
- Recreational fishing at Ham Green lakes.
- Ham Green SSSI geological site in the railway cutting.
- Leigh Court Grade II Registered Park and Garden.
- Presence of protected species nearby such as dormice and otters.

Avon Gorge

2.2.15 The proposals include:

- Replacement of sections of track, sleepers and ballast along the route including through the tunnels.
- Several catch fences to the foot of the cliffs and geotechnical works to stabilise some of the upper slopes including vegetation clearance, removal of loose stones, and rock bolting.
- Partial reconstruction of Quarry Bridge No. 2.
- Minor repairs to culverts, bridges, and retaining walls.
- Minor works to tunnels.
- Installation of lineside equipment.
- GSM-R masts at selected tunnels.
- Temporary welfare compounds next to the railway for construction staff.
- Temporary closure of sections of the Avon Gorge Tow Path during the construction phase.
- Replacement fencing along both sides of the railway.

2.2.16 Environmental constraints:

- The internationally designated Avon Gorge Woodlands SAC, and the nationally designated Avon Gorge SSSI and Leigh Wood National Nature Reserve (NNR).
- Protected species of plants and animals.
- Forestry Commission operations in the Avon Gorge.
- Conservation areas in Bristol which extend across the River Avon towards the railway.
- Many listed buildings within 500 m of the railway, including the Grade I Clifton Suspension Bridge which passes over the DCO Scheme, and houses, maritime structures and industrial buildings that reflect Bristol's mercantile history.
- Three scheduled monuments along the Avon Gorge.
- The River Avon Tow Path and public access to Leigh Woods owned by the National Trust.

Bower Ashton to Ashton Vale

2.2.17 The proposals include:

- Replacement of sections of track, sleepers and ballast.
- A temporary construction compound, and smaller permanent maintenance compound, at Clanage Road, Bower Ashton to access the Avon Gorge from the south (J on Figure 3 and Figure 9).

- Ashton Vale Road level crossing will remain operational. To reduce the highway impacts the left-hand land on Winterstoke Road will be extended and traffic signals optimised.
- Permanent closure of Barons Close Pedestrian Crossing.
- A new pedestrian and cycle ramp parallel to the railway linking Ashton Vale Road and Ashton Road (K on Figure 3).
- Minor works to culverts and bridges.
- Installation of lineside equipment.
- Replacement fencing along both sides of the railway.

2.2.18 Environmental constraints:

- The Clanage Road compound is located in the Bower Ashton Conservation Area and lies close to the Ashton Court Registered Park and Garden and listed buildings in Bower Ashton.
- The Clanage Road compound is located on the Bower Ashton playing fields Bristol Wildlife Corridor Site (BWCS).
- The Clifton and Hotwells and City Docks Conservation Areas lie on the opposite side of the River Avon in Bristol.
- The Clanage Road compound lies close to recreational grounds, a pre-school nursery and allotments.

- Ashton Vale is a busy mixed commercial, industrial, recreational and residential area.



Figure 9 Clanage Road Permanent Compound

2.3 Construction Phase

- 2.3.1 The current programme shows construction from Spring 2022 until Winter 2023/24, with the DCO Scheme opening in Winter 2023/24.
- 2.3.2 The highway works in Portishead may start early to release land for the construction of Portishead Station.
- 2.3.3 Access and welfare points for the construction workforce will be located at Portishead Station and the construction compounds. There will also be walk-in access and several small welfare units along the Avon Gorge Tow Path.
- 2.3.4 Careful consideration will be given to planning railway possessions along the operational railway between Pill and Ashton Junction so that construction works can be

undertaken when there are no freight trains running along the line. The use of possessions needs to balance disruption to Royal Portbury Dock, timetabling of construction works, and disturbance to lineside neighbours.

- 2.3.5 The works along the operational railway between Pill and Ashton Junction would require day and night-time working in shifts, with 24 to 100 hour possessions during the week and at weekends, and longer possessions of four to six weeks to complete specific tasks. This could disturb lineside neighbours, especially in Pill where residential property lies close to the railway.
- 2.3.6 As possessions are not required along the disused railway, the construction is likely to be undertaken during the day, with some occasional night-time works.
- 2.3.7 Highway works are typically undertaken on weekdays and Saturday mornings.
- 2.3.8 A Code of Construction Practice (CoCP) and Master Construction Environmental Management Plan (CEMP) have been prepared which set out good practice measures to control the environmental effects of construction. The contractors will be required to comply with these documents.

2.4 Operations Phase

- 2.4.1 The new service would operate hourly likely between 0600 to 2400 hours subject to further development of the business case and contractual arrangements. The service between Portishead and Bristol Temple Meads would take 23 minutes and stop at Pill, Parson Street, and Bedminster.
- 2.4.2 The alternative 'hourly plus' service involves passenger trains operating every 45 minutes during peak periods.

Days of the Week	Hourly Service	Hourly plus Service
Monday to Saturday	18 passenger trains in each direction per day	20 passenger trains in each direction per day
Sunday	10 passenger trains in each direction per day	10 passenger trains in each direction per day

- 2.4.3 Freight trains will continue to operate to and from Royal Portbury Dock. Where necessary freight trains will wait on the Portbury Dock spur line or at Bedminster for clearance.
- 2.4.4 There will be parking restrictions around Portishead and Pill stations to encourage car drivers to use the car parks provided.
- 2.4.5 Network Rail will be responsible for maintaining the railway assets while the train operating company will be responsible for running the service and the stations.

CHAPTER 3

Approach to the EIA

- 3.1.1 The EIA process for the DCO Scheme and the contents and structure of the ES have been prepared in accordance with The Infrastructure Planning (EIA) Regulations 2017 (the EIA Regulations). The purpose of the ES is to inform the decision as to whether the DCO Scheme should go ahead.
- 3.1.2 A Scoping Report was submitted to the Secretary of State for Transport in June 2015 together with a request for a “Scoping Opinion” on the information to be included in the ES. The Planning Inspectorate issued the Scoping Opinion in August 2015. The ES has been prepared in accordance with the Scoping Opinion.
- 3.1.3 The study area for the EIA varies with each environmental topic and is based on the distances over which the impacts are likely to occur. The minimum study area comprises the Order limits, which define the area of the application for consent and include temporary land occupation during construction and permanent land-take.
- 3.1.4 The baseline conditions describe what the environment is like now and how this may change in the future without the DCO Scheme. The baseline conditions were identified from existing sources of data, specially commissioned environmental surveys, and consultation with the regulatory and planning authorities, landowners, and affected communities.
- 3.1.5 Values were placed on environmental features reflecting their conservation importance or potential sensitivity to change during construction and operation.
- 3.1.6 The EIA then considered the magnitude of the effects on those features taking account of measures embedded into the scheme design, the implementation of the CEMP, and compliance with other regulatory regimes.
- 3.1.7 The significance of the effect on the environment was based on a combination of the value or sensitivity of a feature and the magnitude of the impact. Moderate and large effects are considered to be ‘significant’ and of material consideration in determining the DCO application. Effects are assumed to be adverse, except where stated otherwise.
- 3.1.8 The EIA considered the following scenarios:
- the construction period (Spring 2022 to Winter 2023/24);
 - scheme opening Winter 2023/24; and
 - where appropriate the design year, typically 15 years from project opening.
- 3.1.9 Where likely significant effects are predicted to occur, mitigation measures were identified to reduce the effects where possible. The residual effects are those that remain after mitigation has been applied.
- 3.1.10 There is a requirement under the EIA Regulations to consider transboundary effects, i.e. effects on other countries. No transboundary effects have been identified for the DCO Scheme.

CHAPTER 4

Environmental Effects

4.1 Air Quality

Baseline

- 4.1.1 The air quality along the majority of the DCO Scheme is within the air quality objective levels. The Bristol Air Quality Management Area (AQMA) has been declared due to exceedances of nitrogen dioxide. The DCO Scheme would pass through a small section of the Bristol AQMA near Brunel Way in Ashton Gate. Future services would pass through the Bristol AQMA between Parson Street Station and Bristol Temple Meads.

Construction

- 4.1.2 During construction, air quality may deteriorate due to dust and the effects would be localised and intermittent. Emissions from vehicles and plant would be too low to affect local air quality. The CEMP sets out measures to control dust and emissions from construction sites.

Operation

- 4.1.3 The DCO Scheme would result in negligible increases in nitrogen dioxide along the route which will not lead to new exceedances of the air quality objectives. No environmental mitigation is considered necessary.

Summary

- 4.1.4 No likely significant effects are predicted on air quality during construction and operation.

4.2 Cultural Heritage

Baseline

- 4.2.1 There are three scheduled monuments, eight conservation areas, numerous listed buildings (including Clifton Suspension Bridge, Grade I), Leigh Court and Ashton Court Registered Parks and Gardens and many non-designated heritage features within 500 m of the DCO Scheme. The only remaining features within the railway corridor are those associated with the historical railway, such as Pill Viaduct, the four tunnels, and the remains of some of the railway stations.

Construction

- 4.2.2 The DCO Scheme would contribute towards repairing and maintaining historical railway structures.
- 4.2.3 An Historic Building Record has been undertaken for No. 7 Station Road at Pill, which will be demolished, and historic features along the railway. No further mitigation is required.
- 4.2.4 An archaeological watching brief will be undertaken at construction compounds on green field sites and any finds recorded and archived as agreed with the local planning authority's archaeological officer.
- 4.2.5 Between Portishead and Pill there is no inter-visibility between heritage assets and the railway, so there will be

no effect on the setting of these assets. Through the Avon Gorge and into Bristol, the removal of vegetation, especially to replace the fencing, would make the railway more prominent in the landscape.

Operation

- 4.2.6 The lack of inter-visibility between heritage assets and the railway between Portishead and Pill would not affect the permanent setting of these assets.
- 4.2.7 The more open views of the railway and the increased train passes would be visible from some locations on the edge of the Avon Gorge in Bristol and from lower lying areas in Clifton, Hotwells and the city docks.
- 4.2.8 The views from Clifton Suspension Bridge (Plate 3) north and south would be similar to present with some localised vegetation removal along the railway corridor due to the track works, replacement fencing and geotechnical slope stabilisation works. There are no views of the Clanage Road construction and maintenance compound from the bridge.
- 4.2.9 Views towards the railway will soften as plants grow back along the fence lines and on the cliffs.
- 4.2.10 Despite the more open aspect along the railway, the setting of heritage assets and views from them will not materially change. No further mitigation is proposed.

Summary

- 4.2.11 No likely significant effects are predicted during construction, subject to the discovery of archaeological finds during earthworks and agreement with the local

planning authority's archaeological officer on appropriate mitigation.

- 4.2.12 No likely significant effects are predicted on heritage assets during operation.



Plate 3: View from Clifton Down Camp south towards the Clifton Suspension Bridge

4.3 Ecology and Biodiversity

Baseline

- 4.3.1 The Severn Estuary is internationally designated as a SAC, a SPA, and a Ramsar site important for supporting wetland birds, and a national designated site as a SSSI.

- 4.3.2 There are six European sites within 30 km of the DCO Scheme which have bats as a qualifying feature. The most relevant site is the North Somerset and Mendip Bats SAC which lies about 8 km to the south of the DCO Scheme.
- 4.3.3 The DCO Scheme passes through the Avon Gorge Woodlands SAC. The Avon Gorge SSSI covers the same area and includes the Leigh Woods NNR. These sites are designated to protect ancient woodland and calcareous grassland habitats and many species of plants including rare whitebeam trees.
- 4.3.4 There are many non-designated local wildlife sites within 500 m. The most important of these is the Portbury Wharf Nature Reserve and Wildlife Site which lies on the east side of Portishead between the disused railway and the Severn Estuary SPA, SAC and Ramsar site.
- 4.3.5 Protected species of animals found along and adjoining the railway corridor include reptiles, badger, otter, water vole, dormice, nesting birds, barn owls, peregrine falcons, and bats. Works affecting protected species will require a Natural England protected species licence.
- 4.3.6 The invasive plant Japanese knotweed has been found and treated in isolated patches along the railway corridor. The biodiversity of the Avon Gorge Woodlands is also affected by invasive plant species such as holm oak, Turkey oak, rhododendron, buddleia, cherry laurel, and sweet chestnut. Ash die-back, caused by a fungus, is affecting ash trees in the Avon Gorge.

Construction

- 4.3.7 The CEMP includes good practices and species-specific mitigation measures to reduce the impact of construction on plants and animals. This includes avoidance of vegetation clearance during the bird nesting season where possible, appropriate measures for the removal of vegetation to avoid harming amphibians and reptiles, protection of vegetation to be retained and measures to control noise, dust, lighting and general disturbance. Natural England protected species licences will be obtained in advance for works likely to affect badgers, bats, and great crested newts.
- 4.3.8 The DCO Scheme will require the removal of trees, shrubs and herbaceous plants within the Avon Gorge Woodlands SAC / Avon Gorge SSSI / Leigh Woods NNR. The extent of de-vegetation is estimated to be 0.79 ha. The loss of habitats and rare plant species will be mitigated through the implementation of the Avon Gorge Vegetation Management Plan, which includes planting of rare whitebeam trees raised from seed to replace any individuals removed during construction and removal of invasive species to improve grassland and woodland habitats.
- 4.3.9 The effect on bats commuting and foraging along the disused railway will be mitigated by retaining as much vegetation as possible and through replacement planting to maintain a green corridor along the railway. Mature trees will be retained where possible. Mitigation for bat roosts in two of the bridges and another structure affected by the scheme will be done under licence.

- 4.3.10 In the Avon Gorge, measures to reduce impacts on bats include excluding bats from the tunnels during works, protection measures at a known cave used by bats to reduce human interference, and erecting five bat boxes to provide hibernation habitat. Exclusion zones may be required around occupied roosts or moving individual bats in exposed roost locations.
- 4.3.11 To mitigate the loss of foraging habitat for great crested newts, new ponds will be constructed and replacement planting along the disused corridor will include a mosaic of habitats suitable for great crested newts as well as other amphibian species and reptiles.
- 4.3.12 Badger setts within the construction sites will be closed under licence.
- 4.3.13 At the western end of the DCO Scheme, a small area of the Portbury Wharf Nature Reserve is required for a construction compound which would be reinstated after construction.

Operation

- 4.3.14 The operation of the DCO Scheme is not predicted to affect any non-statutory designated sites adjoining the railway.
- 4.3.15 Network Rail will control vegetation within 3 m of the running rails along the whole route and around the tunnel portals for the safe running of the passenger trains. Through the Avon Gorge Woodlands SAC and Avon Gorge SSSI, Network Rail will implement their Site Management Statement, which has been agreed with Natural England, to protect the ecological interests of the

designated sites. Where vegetation needs to be cleared from protected habitats of the SAC and SSSI, consent from Natural England will be sought, except in emergency situations.

- 4.3.16 The DCO Scheme has the potential to affect how the bats use the railway as a navigation route. Vegetation will be retained where possible and new areas planted post construction to maintain a dark corridor and shelter flight paths along this navigation route used by bats.
- 4.3.17 The displacement of bats from roosts by more frequent trains within the tunnels will be mitigated by provision of alternative roosts. There is also an abundance of alternative natural roosting features within the Avon Gorge.
- 4.3.18 Lighting of the southern platform at Pill Station, the new car park and the upgrade of highway lighting could result in horseshoe bats abandoning a small roost and affect bats flying through Pill Station. The roost will be modified by partially blocking up to reduce light and disturbance. The highway and Pill Station car park lighting will be modified to reduce light spill through Pill Station and a permanent screen will be installed on the disused platform to shield bat flight lines from the new station lighting.

Summary

- 4.3.19 No likely significant effects are predicted on ecology and biodiversity during construction and operation.

4.4 Ground Conditions

Baseline

- 4.4.1 The groundwater in the area may be sufficient to support local water supplies and base flow, but there are no groundwater source protection zones or groundwater abstraction licences for drinking water supply and other purposes within 250 m of the DCO Scheme. Groundwater quality is generally good.
- 4.4.2 The existing railway passes through two SSSIs designated for their geology – Ham Green SSSI located in a railway cutting exposing an interesting sequence of rocks and the Avon Gorge.
- 4.4.3 There are no mineral safeguarding areas near the DCO Scheme. Past mining included quarrying in the Avon Gorge and coal mining in the Ashton Gate area.
- 4.4.4 Historic industrial land uses in Portishead resulted in land contamination, much of which has been cleaned up as brownfield sites have been redeveloped. There are historical landfill sites at Priory Farm near Portbury and in the Ashton Vale area of Bristol. In Pill, the proposed station car park may be contaminated due to the past use of the site as railway sidings.
- 4.4.5 The DCO Scheme route follows an established railway corridor and track bed investigations have confirmed the existence of contaminated ballast.

Construction

- 4.4.6 The old ballast will be removed in accordance with Network Rail's procedures and treated at one of Network Rail's National Delivery Centres and will not pose an environmental hazard. Works near known landfill sites will follow industry standard procedures to manage health and safety and contamination risks.
- 4.4.7 Ham Green SSSI is unlikely to be affected as the existing rail corridor is wide enough to accommodate the planned services and no excavations of the existing cutting are currently envisaged. There will be no change to the geological interest of the Avon Gorge SSSI.
- 4.4.8 Cliff instability is a known problem in the Avon Gorge. Network Rail periodically undertakes stone picking and rock bolting to reduce the potential for rock fall and has erected catch fences to protect the railway. Similar solutions have been identified for rock faces through the Avon Gorge for the DCO Scheme.
- 4.4.9 The proposed works near the Ashton Vale Road level crossing are located within the defined coalfield. The works required in this area are minor highway modifications and the design of these features takes account of the known ground conditions.

Operation

- 4.4.10 There will be no changes in the underlying soils and geology. There would be negligible emissions from the trains discharging onto the track. The cliff faces will be inspected periodically during the operation phase as they are now and remedial works undertaken when required.

Summary

- 4.4.11 No likely significant effects are predicted on ground conditions during construction and operation.

4.5 Landscape and Visual Impact

Baseline

- 4.5.1 The topography in North Somerset and Bristol comprises the low-lying coastal plain backed by alternating ridges and broad river valleys. Portishead itself is built on an area of higher land, surrounded by the coastal plains. The River Avon has cut a valley through a ridge of high land, creating the Avon Gorge.
- 4.5.2 The railway corridor crosses two natural character areas defined by Natural England, the Severn and Avon Vales Natural Area and Bristol, Avon Valleys and Ridges Natural Area. There are no national or local landscape designations in the study area.
- 4.5.3 The urban land uses include residential, commercial and industrial uses in Portishead, Pill and the outskirts of Bristol, and the Royal Portbury Dock. There are extensive areas of open countryside between Portishead and Pill, much of which is designated Green Belt.
- 4.5.4 The disused railway line between Portishead and Pill and the operational freight line from Royal Portbury Dock to the Bristol to Exeter main line are existing features in the landscape. Freight trains are a common sight along the operational railway.

- 4.5.5 In Portishead, there are views towards the railway corridor from residential development to the north and south. Views towards the railway in the countryside between Portishead and Pill are restricted by the low-lying topography and intervening hedgerows and trees. The railway cuts through the centre of Pill and due to the complex terrain, is partly in cutting or elevated on Pill Viaduct and embankments. This results in a variety of short to long distance views of the railway. Through Ham Green the railway is screened in tunnel and cutting. Views down into the Avon Gorge are possible only at specific locations. There are long distance views up and down the gorge, for example from Black Rocks and the Clifton Suspension Bridge. As the gorge opens out toward Bristol, there are long distance views towards the railway from Clifton, Hotwells (Plate 4), and the docks area. Views are again restricted by industrial, commercial and residential development as the railway passes through Ashton Vale.

Construction

- 4.5.6 The landscape effects will change as the works progress and vary in character along the DCO Scheme.
- Portishead: The works would be screened from the wider landscape by existing buildings but would be visible to nearby residents.
 - Sheepway: The construction compound and the movement of construction traffic on the haul roads would be visible in the wider landscape.

- Royal Portbury Dock: Some vegetation would be removed along the railway corridor and around the bridges. Construction vehicles would be prominent on Royal Portbury Dock Road accessing Lodway construction compound.
 - Pill: The works through Pill would be visible to residents, especially where access is required through or to the bottom of gardens. Views from some residential properties may have temporary views of the construction works.
 - Ham Green: The works would largely be screened by the topography, sections of railway in cutting, and hedgerows and woodland.
 - The Avon Gorge: The removal of vegetation along the railway corridor and on some of the cliff faces above and the night-time working along this normally dark section of the Avon Gorge will affect the landscape character. Through the Avon Gorge there are relatively few visual receptors.
 - Bower Ashton: The Clanage Road construction compound lies in a relatively open area north of the cricket ground and is exposed in the local landscape.
 - Ashton Vale: The freight line is mostly enclosed by buildings of the Ashton Vale Road industrial estate and developments along Winterstoke Road, so the construction works would be mostly screened from the surrounding landscape.
- 4.5.7 The CEMP sets out measures to manage the effects of construction on landscape and views, including the

management of compounds, protection of vegetation to be retained, and the use of temporary night-time lighting.

- 4.5.8 Between Pill and Ashton Junction the works will be largely within the existing railway corridor. The main landscape and visual effects will arise from the removal of vegetation.

- 4.5.9 There will be no change to views from the Clifton Suspension Bridge and Ashton Court. There are no views of the DCO Scheme from the Leigh Woods Conservation Area.



Plate 4: View towards the railway from Hotwells

Operation

- 4.5.10 The railway is an existing feature in the landscape. Some new elements will be introduced into the landscape, such as the stations and upstanding features such as new signals and GSM-R masts. The removal of vegetation during construction would make the DCO Scheme most

visible in the early years of operation although this effect would soften as replacement planting and natural vegetation regrowth occurs.

- 4.5.11 A mosaic of habitats will be replanted along the railway between Portishead and Pill following Network Rail's guidelines for suitable species near railway lines. The operational railway will be maintained free of vegetation along the running track and 3 m on both sides for safety.
- 4.5.12 The DCO Scheme will add new elements to the landscape, particularly in Portishead and Pill.
- 4.5.13 In Portishead, the sympathetic design of the station, car parks and urban realm would complement the ongoing

development of the commercial centre around the new Portishead station, although the sense of urbanisation would increase.

- 4.5.14 The new pedestrian and cycle bridge in Portishead would be a prominent feature in the residential area near Tansy Lane and Trinity Primary School (see Photomontage 1)
- 4.5.15 In Pill, the new station and car park, and the removal of vegetation on Avon Road and Mount Pleasant embankments would contribute to changes in landscape and views.



Photomontage 1 – Trinity Primary School bridge before (above) and after (below)

- 4.5.16 The passenger service will result in more movement in the landscape. The railway itself is difficult to see in the open landscape of field boundaries between Portishead and Pill and is obscured by sections in cutting and through tunnels. The railway would be more pronounced through the Avon Gorge due primarily to the removal of vegetation for fencing and geotechnical works.
- 4.5.17 The Avon Gorge is an existing transport corridor, with an operational railway on both sides of the River Avon and the heavily trafficked A4 Portway. The number of train movements will increase along west bank and train passes during dark winter mornings and evenings would introduce a new source of lighting.

Summary

- 4.5.18 During construction, a temporary significant likely effect is predicted for residents in Portishead, at Sheepway, through Pill and along the Avon Gorge.
- 4.5.19 During operation, a significant likely effect is predicted on the landscape around Pill Station and car park.
- 4.5.20 The DCO Scheme would re-invigorate an existing railway line with a new passenger service, creating a beneficial effect on the commercial landscape around the new Portishead station.

4.6 Materials and Waste

Baseline

- 4.6.1 The south west region has adequate reserves of sand, gravel and crushed rock and adequate waste

management capacity for most wastes likely to arise from the construction, except for hazardous waste streams. Network Rail has procedures for procurement of materials and facilities for the treatment and recycling of waste, including contaminated ballast.

Construction

- 4.6.2 Construction will require the use of material which will result in the depletion of natural resources and emission of embodied carbon associated with extraction, manufacturing and any pre-distribution transportation. The use of primary aggregates during construction would be relatively small, given the relative size of the DCO Scheme, scope for recycling ballast and the adequate reserves in the south west. The DCO Scheme does not affect any existing mineral reserves. The carbon emissions will depend on the final design and procurement decisions around the selection of construction materials, products and concrete additives; and will be minimised, where possible, in accordance with Network Rail's requirements.
- 4.6.3 The construction phases will result in surplus materials and the generation of construction, demolition and excavation waste. All wastes generated during the construction will be managed in accordance with Network Rail's procedures and standard practices, including the removal and treatment of old ballast at one of Network Rail's National Delivery Service centres prior to reuse, recycling or recovery. The Contractors will be required to prepare and implement Site Waste Management Plans setting out the details for the safe

management of wastes in compliance with Network Rail's procedures.

Operation

- 4.6.4 The use of material resources and the generation of waste is predicted to be negligible during operations.

Summary

- 4.6.5 No likely significant effects are predicted on materials and waste during construction and operation.

4.7 Noise and Vibration

Baseline

- 4.7.1 The existing ambient noise levels vary across the study area, tending to be higher in urban than rural areas, and higher during the day than at night.
- 4.7.2 At Portishead and Sheepway multiple noise sources include the distant M5 traffic, local traffic, bird song, high aircraft, and a school. At Pill the multiple noise sources include distant M5 traffic, local traffic, and bird song. Along the Avon Gorge the noise climate was dominated by traffic noise from the A4 Portway on the eastern bank of the river. In Ashton the main noise sources are local traffic.

Construction

- 4.7.3 Construction noise and vibration will be managed through the CEMP to ensure there are no significant effects. The appointed contractors will be required to prepare a noise and vibration control plan to mitigate

through best practicable means. They may also seek a noise consent from the local authority to agree maximum permitted construction noise levels with the local authorities.

- 4.7.4 The level of construction noise will vary along the route depending on the construction activity, construction method, any shielding of the noise source, and distance to receptors. Certain noisy activities, such as piling, soil nailing and earthworks, are limited to particular areas. Night-time working will be required, mainly along the existing railway during possessions when there are no trains to and from Royal Portbury Dock.

- 4.7.5 Ground-borne vibration may be perceptible in properties close to the works, for example along Sambourne Lane and Hardwick Road in Pill during the slope stabilisation works for Hardwick cutting at Pill station. The level of vibration predicted is below the level likely to affect the building fabric and will be of short duration.

Operation

- 4.7.6 Noise modelling predicted significant noise effects for the closest properties on the south side of Portishead Station and at old Portbury Station House. Acoustic barriers are proposed at these locations to mitigate noise levels.
- 4.7.7 Current vibration levels from freight trains in Pill are just above the level perceptible to residents and below the threshold for building damage. Vibration from passenger trains are below the level that might be perceptible to residents. The addition of a passenger train service is not predicted to change existing ground borne vibration and no further mitigation is proposed.

Summary

- 4.7.8 No likely significant effects are predicted for day time construction works. Night-time construction works could result in likely significant effects for householders close to the railway. Local communities will be kept informed of the programme for night-time construction works.
- 4.7.9 With the proposed noise barriers in place at Portishead station and old Portbury Station House, no likely significant effects are predicted for the operations phase. Similarly, no likely significant effects are predicted for ground-borne vibration.

4.8 Socio-economics and Regeneration, Equality and Health

Baseline

- 4.8.1 Portishead, Pill and West of England socio-economic profiles point to relatively prosperous areas with high levels of employment in high-value industries. People travel to work elsewhere within the region and evidence suggests an over-reliance on private cars and lack of alternative transport.
- 4.8.2 Several vulnerable groups live in the area, including slightly above average percentages of under 25s in Portishead, and slightly higher percentages of unemployed, people affected by mobility and the elderly in Pill.

Construction

- 4.8.3 The DCO Scheme would create employment in the construction sector and provide indirect benefits through increased economic activity in the construction supply chain.
- 4.8.4 The adverse effects of construction activities on local communities including vulnerable groups of people would be managed through the CEMP for example by:
- safeguarding ambulance access particularly at Harbour Road;
 - providing temporary footpath diversions at Quays Avenue, around the site of Portishead Station, the informal crossing over the railway near Trinity Primary School during construction of the new bridge, and in and around Pill;
 - temporary cycle path and bridleway diversions along the disused railway and the River Avon Tow Path; and
 - mitigating construction noise, vibration, night-time lighting and dust near sensitive locations to avoid affecting the well-being of nearby residents.

Operation

- 4.8.5 The DCO Scheme is predicted to provide:
- employment generation through additional train drivers, train managers, station and facilities managers and infrastructure maintenance;
 - reduced journey times and congestion; and

- wider regeneration benefits throughout Portishead, Pill and the West of England.
- 4.8.6 Measures incorporated into the design to promote well-being and improved access for vulnerable groups include:
- ensuring that the new stations are accessible by all modes of transport and facilitates walking, cycling and other public transport trips to and from the stations;
 - design of the public realm in and around Portishead station to minimise conflict between travellers in private cars, public transport by bus and taxi, cyclists and pedestrians;
 - facilitate easy access by designing step free access between Portishead station and the car park, providing adequate parking in Portishead which can be used to visit other services nearby such as the Marina Health Centre, disabled parking spaces at Portishead and Pill stations, designing ramped access with gentle gradients, and improved accessibility to the bus stop in Pill;
 - improving the quality of transport infrastructure along the DCO Scheme to enhance the local environment, quality of life and social well-being; and
 - ensuring that any affect localised transport impacts are minimised through supporting measures.

Summary

- 4.8.7 During construction, a beneficial likely significant effect is predicted through the creation of employment in the construction sector and construction supply chain.
- 4.8.8 During operation, beneficial likely significant effects are predicted through reduced journey times and wider regeneration benefits throughout Portishead, Pill and the West of England.

4.9 Soils, Agriculture, Land Use and Assets

Baseline

- 4.9.1 Agricultural land lies alongside the railway corridor and in the vicinity of Ham Green. Several farm holdings are located in the area.
- 4.9.2 The greater part of the woodlands on the west side of the Avon Gorge are managed by the Forestry Commission and the National Trust. There are private fishing lakes at Ham Green.
- 4.9.3 Much of the countryside between Portishead, Pill and the outskirts of Bristol lies in the Green Belt.
- 4.9.4 Many utilities pass alongside and cross the proposed route.
- 4.9.5 There are community assets around Portishead station and Pill. There are a number of tourist attractions through the Avon Gorge. The railway passes through

mixed commercial, industrial, sports and residential areas in Ashton Vale.

Construction

- 4.9.6 Construction work will largely be confined to the railway corridors, except for the temporary construction compounds and haul routes. Construction management is set out in the CEMP.
- 4.9.7 The two main construction compounds on agricultural land are The Portbury Hundred near Portbury and Lodway Farm near Pill (see Plate 5). Construction works at these sites will follow Defra's guidance *Code of Practice for the Sustainable Use of Soils on Construction Sites* and the site will be restored to agricultural use on the completion of the works.



Plate 5: View from Lodway Close across the proposed construction compound

- 4.9.8 Three informal farm crossings over the disused railway for two holdings between Sheepway and The Portbury Hundred will be closed permanently. A new permanent access off the A369 Portbury Hundred will be left in place for the landowner and the existing farm access off Sheepway will be improved.
- 4.9.9 No. 7 Station Road will be demolished to make a new forecourt to Pill Station (see Photomontage 2) and this property has now been purchased by North Somerset Council. It will be necessary to demolish a section of garden wall and 12 garages to manoeuvre a large crane into position to construct Avon Road Bridge. The garden wall will be rebuilt, and the owners of the garages will be compensated through compulsory purchase.
- 4.9.10 Permanent land-take of the yards off Monmouth Road will be required to construct the station car park in Pill. Part of the site has been purchased by NSDC and the remaining part of the site will be dealt with during the compulsory purchase process.
- 4.9.11 Temporary access will be required from the Lodway construction compound to the Avon Road Bridge and embankments, across several gardens off Lodway Close. It will also be necessary to impose short term restrictions on access to the rear of gardens off Mount Pleasant during the embankment stabilisation for safety reasons.
- 4.9.12 Access through private property will be agreed with the affected parties and the gardens will be reinstated after completion of the works.

- 4.9.13 Temporary and permanent land-take will be required from:
- land used by the local community on the north and south approaches to build the new Trinity Primary School Bridge; and
 - land off Clanage Road for the temporary and permanent compounds.
- 4.9.14 Utilities will be diverted or left in place as agreed with the utility companies.

Operation

- 4.9.15 There will be no further effects on soils, agricultural land farm units, land use, development land and utilities during the operational phase. The DCO Scheme is not predicted to affect the objectives of the Green Belt.

Summary

- 4.9.16 No likely significant effects are predicted on soils, agriculture, land use and assets during the construction and operation of the DCO Scheme.

4.10 Transport, Access and Non-Motorised Users

Baseline

- 4.10.1 Bristol lies on the main railway line between London and South Wales and on a north south route between the Midlands and the south west. The local railway network includes the Severn Beach Line on the east side of the

River Avon and the existing branch line to Royal Portbury Dock. There is one level crossing over the railway on Ashton Vale Road which connects the A3029 Winterstoke Road and the Ashton Vale Industrial Estate.

- 4.10.2 The strategic road network in the area is provided by the M5 between the Midlands and the south west and to the M4 between London and Wales. The M5 Junction 18 and 18a, connects to the M49 to Wales and the A4 to Bristol via the Portway on the east side of the River Avon. The M5 Junction 19 connects with the A369 into Portishead and Bristol, into Royal Portbury Dock and to the nearby villages of Pill and Portbury. There are noticeable morning and evening congestion and queuing at Junction 19. The journey time from Portishead to Bristol along the A369 is unreliable.

- 4.10.3 Both Portishead and Pill are served by a weekday 15-minute bus service to the centre of Bristol. There are additional services in Portishead linking Clevedon and Weston-super-Mare and North Bristol. There are half hourly or hourly evening and weekend services.

- 4.10.4 There are several public rights of way, including permissive paths, cycle paths and bridleways alongside and close to the railway corridor. The NCN26 follows the railway corridor between the M5 and Royal Portbury Dock Road while NCN41 follows the M5 Avonmouth Viaduct and turns eastward through Pill and joins the River Avon Tow Path.

Construction

- 4.10.5 Alongside the disused section of the railway line, old ballast is likely to be moved by lorry to a holding point

prior to loading onto a train for transport to one of Network Rail's National Delivery Service centres. Materials will also be brought in by lorry to Portishead station along the A369 Portbury Hundred.

- 4.10.6 The busiest routes are likely to be along the A369 Portbury Hundred into Portishead, around the M5 Junction 19, along the Royal Portbury Dock Road, Marsh Lane and through Pill.
- 4.10.7 Traffic management will reduce the impact of construction compounds on the surrounding area. This may include partial or full highway closures which will be phased so that alternative routes are available.
- 4.10.8 Along the existing operational railway, much of the transportation of waste and materials will be done by train, given the constraints on vehicle access to the Avon Gorge.

Operation

- 4.10.9 The DCO Scheme represents a major enhancement to the local public transport network.
- 4.10.10 While there will be new trips to Portishead and Pill stations, the local highway network will be operating within capacity at most locations. The proposed station parking would meet demand at both Portishead and Pill. The station layouts are designed to promote access by sustainable methods such as walking and cycling.
- 4.10.11 The DCO Scheme will provide enhancements to footpaths, bridleways and the cycle path between Portishead and Pill.

- 4.10.12 The Ashton Vale Road level crossing barriers would operate more frequently but the highway and traffic management improvements would keep vehicle waiting times on Winterstoke Road and Ashton Vale Road to within acceptable limits.
- 4.10.13 The DCO Scheme is predicted to lead to 25% to 40% of bus passengers on existing bus services between Portishead and Bristol transferring to rail.
- 4.10.14 A strategic assessment suggests that there will be reductions in highway demand which correspond with an increase in rail demand, promoting modal shift away from vehicle use to trains.

Summary

- 4.10.15 During construction, no likely significant effects are predicted on the strategic road network from lorry movements and traffic management. There may be likely significant effects on the local road network. To mitigate this impact, the contractor will prepare a Construction Traffic Management Plan prior to the start of construction which will be approved by the local planning authorities.
- 4.10.16 During operation, the DCO Scheme will provide a beneficial effect to the local transport network and promote modal shift away from vehicle use to a more sustainable mode of transport.



Photomontage 2 - Pill Station forecourt before (above) and after (below)

4.11 Water Resources

Baseline

- 4.11.1 The DCO Scheme extends along the coastal plain of North Somerset and the west bank of the River Avon. The coastal plains are drained by an extensive network of small field ditches, many of them heavily overgrown. Two of them, the Portbury Ditch and The Cut, flow through Portishead. The disused railway crosses the Drove Rhyne and the Easton-in-Gordano stream. The DCO Scheme crosses three rivers which are culverted under the railway and discharge to the River Avon, Markham Brook, Longmoor Brook and Colliter's Stream.
- 4.11.2 The River Avon is tidal throughout the study area. There are extensive intertidal areas along both banks which are exposed at low tide. The river is heavily modified due to flood protection works, navigation and the quay line. Much of the existing operational railway line through the Avon Gorge lies well above the River Avon floodplain.
- 4.11.3 Most of the DCO Scheme lies within areas of low probability of flooding. Tidal flooding from the River Avon affects a small area of the DCO Scheme near Bower Ashton, where there is a medium to high probability of flooding.

Construction

- 4.11.4 Drainage from the construction compounds and haul roads will be controlled based on the temporary drainage designs in the Surface Water Drainage Strategy for Portishead and Pill Stations, Haul Roads and

Compounds. The CEMP will set out further measures to control site runoff and prevent pollution of watercourses and groundwater.

- 4.11.5 Consents will be obtained in advance as applicable from the Environment Agency, Internal Drainage Board, and the local planning authority for works in or near watercourses and for discharges to watercourses and the highway drainage system.
- 4.11.6 Water required for construction purposes will likely be sourced from Bristol Water. It is not proposed to abstract ground water or surface water for construction.
- 4.11.7 Most of the works areas and compounds are located in areas of low probability of flooding, except for the Clange Road construction compound, Bower Ashton. Here the flood risk will be managed through the implementation of a Flood Plan which will set out the conditions on the use of the site and flood preparedness measures as agreed with the Environment Agency.

Operation

- 4.11.8 The drainage along the railway line will continue as at present and will be based on passive drainage through the ballast and discharge to restored drainage ditches and outfalls.
- 4.11.9 Where the highway has been modified, surface water will be collected and discharged to the highway drainage system. Sustainable Urban Drainage (SuDs) will be provided through underground storage tanks or oversized pipes. New silt and oil traps will provide pollution control prior to discharge to surface waters.

- 4.11.10 At Portishead, increased drainage from Quays Avenue, the station and car park A will be collected and discharged with the highway drainage to The Cut. The drainage from car park B will be discharged to the Portbury Ditch.
- 4.11.11 At Pill, drainage from the car park and the station will be stored in underground tanks and discharged to the highway network.
- 4.11.12 To compensate for the loss of floodplain, localised ground lowering will be required close to the Easton-in-Gordano stream and at the permanent maintenance compound at Clanage Road. To avoid potential impacts on flood risk elsewhere the new railway through Bower Ashton will be constructed at the same level as existing.
- 4.11.13 In the longer term, climate change would result in more frequent tidal flooding due to sea level rise, affecting the Bower Ashton area. In the event of a flood, the services would be halted temporally, and the line inspected prior to re-starting services to safeguard passengers following Network Rail's Extreme Weather Plan.

Summary

- 4.11.14 No likely significant effects are predicted on water resources, drainage and flood risk during the construction and operation of the DCO Scheme.

4.12 In-combination and Cumulative Effects

- 4.12.1 In-combination effects occur when a receptor (such as a residential property) experiences multiple different types of environmental effects.
- 4.12.2 Cumulative effects occur when the effects of the DCO Scheme interact with the effects of other developments in the area.

In-combination Effects

- 4.12.3 During construction, the in-combination effects may include noise, lighting, dust, and visual impacts due to loss of vegetation during land preparation works. During operation, the in-combination effects include the visual impact of the new stations and other features, operational noise, night-time lighting, and activity at the stations due to traffic and travellers. The receptors most likely to be affected by multiple effects are properties next to the railway or located close to the proposed construction sites, construction compounds and haulage routes.

Cumulative Effects

- 4.12.4 Five developments may lead to cumulative effects with the DCO Scheme.
- The National Grid Hinkley Point C Connection DCO Scheme. The National Grid transmission lines cross the DCO Scheme between Portishead and Sheepway. The construction phases for both

schemes are likely to coincide. NSDC is working with National Grid to optimise the phasing of construction works in the Sheepway area, to avoid interference between the two schemes. The proposed construction compounds for the DCO Scheme have been chosen to avoid the sites preferred by National Grid and the potential impact of the construction of the National Grid project will be taken into account when developing the off-site mitigation in the Portbury Wharf Nature Reserve. No likely significant cumulative effects are predicted from the National Grid project with the DCO Scheme.

- Ashton Gate Stadium site. Plans have been announced to develop a new sports and convention centre with a 4,000-capacity arena. Both schemes will introduce new urban features into the landscape, which will affect views and the character of the area. Following mitigation, no likely significant cumulative effects are predicted.
- Court House Farm. The Bristol Port Company has built a cargo storage area to the south of the disused railway and west of Court House Farm. The Port will construct a bridge over the railway line to access the cargo storage area prior to the start of services on the DCO Scheme. No likely significant cumulative effects are predicted between the two schemes.
- Bristol City Council's Site Allocations and Development Management Policies - Alderman Moore's Allotments. A planning proposal has been approved for 133 dwellings with associated access,

landscaping, and services. Following mitigation, no likely significant cumulative effects are predicted.

- The West of England Joint Spatial Plan and Joint Transport Study Draft Strategy: Several proposals may result in cumulative effects when combined with the DCO Scheme. Once all schemes are in operation, including housing development that could increase traffic volumes in the area, a beneficial cumulative effect on traffic and transport and socio-economics and economic regeneration is predicted due to capacity for higher traffic volumes and increased connectivity between residential and employment areas.

4.12.5 The other works required for MetroWest Phase 1, namely the Parson Street Junction, Parson Street Station, the Bedminster Down Relief Line, the Avonmouth/Severn Beach Signalling and Bathampton Turnback works, combined with the increased number of services using the railway, are predicted to have no likely significant cumulative effects on the environment. They will have a likely significant beneficial effect on traffic and transport, as together with the DCO Scheme they will complement other transport schemes in the Bristol area.

CHAPTER 5

Summary of Significant Effects

5.1.1 The following likely significant adverse effects are predicted to occur after mitigation from the DCO Scheme.

- During construction, landscape and visual effects in the Avon Gorge and for residents in Portishead, Sheepway, and Pill.
- During construction, the impact of construction traffic on the local road network.
- During operation, landscape around Pill Station and car park.

5.1.2 The following beneficial effects arise from the DCO Scheme.

- During construction, there is a socio-economic benefit through the creation of employment in the construction sector and construction supply chain.
- The DCO Scheme would re-invigorate an existing railway line with a new passenger service, creating a beneficial effect on the commercial landscape around the new Portishead Station.

- During operation, socio-economic and regeneration benefits would occur through employment generation, reduced journey times and congestion, wider regeneration benefits throughout Portishead, Pill and the West of England.
- During operation, as a public transport scheme, the DCO Scheme would improve accessibility to the local transport network and promote modal shift away from vehicle use to a more sustainable mode of transport.
- The cumulative effect of the West of England Joint Spatial Plan and Joint Transport Study would benefit traffic and transport and socio-economics and economic regeneration due to capacity for higher traffic volumes and increased connectivity between residential and employment areas.
- The other works required for MetroWest Phase 1 would benefit traffic and transport, as together with the DCO Scheme they will complement other transport schemes in the Bristol area.

SECTION 6

Next Steps

6.1.1 NSDC has submitted the DCO application to the Planning Inspectorate. It takes about 18 months to complete the remaining stages culminating in a decision by the Secretary of State. Granting the DCO would give NSDC the legal power to proceed with the construction and operation of the DCO Scheme.

Summer 2015	Autumn 2017	Autumn 2019	Spring 2020 to Winter 2020/2021	Spring 2021	Autumn 2021	Winter 2021/2022	Spring 2022	Winter 2023/24
Stage 1 Consultation	Stage 2 Consultation	Submit DCO Application	Examination Process	Decision by Secretary of State	Full & Final Business Case Approval	Discharge planning	Start construction	Scheme opening

Figure 10 DCO Scheme development timeline

SECTION 7

Abbreviations

AQMA	Air Quality Management Area
BCC	Bristol City Council
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice
DCO	Development Consent Order
EIA	Environmental impact assessment
ES	Environmental Statement
IEMA	Institute of Environmental Management and Assessment
NNR	National Nature Reserve
NSDC	North Somerset District Council
NSIP	Nationally significant infrastructure project
NTS	Non-Technical Summary
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

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