



MetroWest+

Portishead Branch Line (MetroWest Phase 1)

Project

Scoping Report

June 2015

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Bath & North East Somerset, Bristol, North Somerset and South Gloucestershire
Councils working together to improve your local transport

SCOPING REPORT

Portishead Branch Line (MetroWest Phase 1) Project

Prepared for

North Somerset Council

June 2015



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Acronyms and Abbreviations

AADT	Annual average daily traffic
AAWT	Annual average weekly traffic
AONB	Area of Outstanding Natural Beauty
AQAP	Air quality action plan
AQMA	Air quality management area
AQS	Air quality strategy
B&NES	Bath & North East Somerset Council
BAP	Biodiversity Action Plan
BBAP	Bristol Biodiversity Action Plan
BCC	Bristol City Council
BCR	Benefit cost ratio
BPM	Best practical means
BRB	British Railway Board
BRERC	Bristol Regional Environmental Records Centre
BS	British Standard
CEMP	Construction environmental management plan
CIRIA	Construction Industry Research Information Association
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CoCC	Committee on Climate Change
CroW	Countryside and Rights of Way Act
cSAC	Candidate Special Area of Conservation
DCF	Discounted cash flow
DCLG	Department for Communities and Local Government
DCO	Development Consent Order
Defra	Department of Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EAST	Early Assessment and Sifting Tool
ECCU	External cost of car use
EIA	Environmental Impact Assessment
EH	English Heritage
EPS	European protected species
EPUK	Environment Protection UK
EqIA	Equality impact assessment

ACRONYMS AND ABBREVIATIONS

ES	Environmental Statement
FRA	Flood risk assessment
GBATS4	Greater Bristol area transport study four
GDP	Gross domestic product
GHG	Greenhouse gases
GLVIA	Guidelines for Landscape and Visual Assessment
GRIP	Governance for Railway Investment Projects
HA	Highways Agency
H&S	Health and safety
HDV	Heavy duty vehicles
HER	Historic Environment Records
HIA	Health impact assessment
HRA	Habitat Regulations Assessment
HS2	High Speed 2
HSI	Habitat Suitability Index
IAN	Interim Advice Note (of the Highways Agency)
IDB	Internal Drainage Board
IEEM	Institute of Ecology and Environmental Management
IEMA	Institute of Environmental Management and Assessment
IRIOPI	Imperative reasons of over-riding public interest
JLTP3	Joint Local Transport Plan 3
LEP	Local Enterprise Partnership
IPPC	Intergovernmental Panel on Climate Change
LI	andscape Institute
LVIA	Landscape and visual impact assessment
MAGIC	Multi-Agency Geographic Information for the Countryside
NCA	National Character Area
NDP	Neighbourhood Development Plan
NE	Natural England
NERC	Natural Environment and Rural Communities Act 2006
NMU	Non-motorised user (such as pedestrians, cyclists and equestrians)
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
NPPF	National planning policy framework
NPPG	National planning practice guide
NPS	National Policy Statement
NPS NN	National Policy Statement for National Networks
NR	Network Rail

NRTF	National Road Traffic Forecasts
NSBAP	North Somerset Biodiversity Action Plan
NSC	North Somerset Council
NSIP	Nationally significant infrastructure project
OHLE	Overhead line electrification
ORR	Office of Rail Regulation
PINS	The Planning Inspectorate
PM ₁₀	Particulate matter with a diameter less than 10microns
PPG	Pollution policy guidelines (published by the Environment Agency)
PRoW	Public rights of way
RDM	Rail demand model
RLP	Replacement Local Plan
RP&G	Registered Park and Garden
SAC	Special Area of Conservation
SCI	Sites of community importance
SEB	Statutory environmental bodies
SGC	South Gloucestershire Council
SM	Scheduled monument
SNCI	Sites of nature conservation interest
SoCC	Statement of Community Consultation
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SPZ	Source protection zone
SSSI	Site of Special Scientific Interest
SWMP	Site Waste Management Plan
TA	Transport assessment
TQEZ	Temple Quarter Enterprise Zone
TRO	Traffic Regulation Order
UK BAP	United Kingdom Biodiversity Action Plan
WCA	Wildlife and Countryside Act 1981
WebTAG	Web-based Transport Analysis Guidance published by the Department for Transport
WS	Wildlife site
ZTV	Zone of Theoretical Visibility

Units

mm	millimetre
m	metre
km	kilometre
kph	kilometres per hour
Kt	kilotonnes
t/annum	tonnes per year
tCO ₂ e	tonnes of carbon dioxide equivalent
tCO ₂ /year	tonnes of carbon dioxide per year
µg/m ³	micrograms (one millionth of a gram) per metre cubed (a concentration)

Executive Summary

Introduction

The four West of England authorities, North Somerset Council (“NSC”), Bristol City Council (“BCC”), Bath and North East Somerset Council (“B&NES”) and South Gloucestershire Council (“SGC”), are jointly promoting a programme of rail enhancement projects known as MetroWest. The MetroWest programme includes MetroWest Phase 1, MetroWest Phase 2 and smaller projects such as specific new/re-opened stations.

MetroWest Phase 1 is being led by NSC on behalf of the four councils as a third party rail project working with Network Rail. MetroWest Phase 1 involves providing a new train service between Portishead, Pill and Bristol Temple Meads, an upgraded train service for the Severn Beach line to Avonmouth, and local stations between Bristol and Bath.

At present there is a disused railway spur between Portishead and Pill, referred to in this report as the Portishead Branch Line. There is an existing operational railway from Royal Portbury Dock, referred to in this report as the Portbury Freight Line, which passes through the village of Pill, along the west bank of the River Avon, through the Avon gorge, joining the Bristol-Exeter main line at Parson Street Junction. To provide a new passenger service from Portishead it is necessary to reinstate the Portishead Branch Line, including a new station at Portishead and a refurbished platform in Pill. These works are referred to in this report as the Portishead Branch Line (MetroWest Phase 1) Project. Certain works will also be required along the Portbury Freight Line.

The Portishead Branch Line (MetroWest Phase 1) Project meets the definition of a nationally significant infrastructure project (“NSIP”) for the purposes of the Planning Act 2008. Under this Act, planning permission for the Project will be sought by NSC as the applicant through a Development Consent Order (“DCO”). Where appropriate, works required on the Portbury Freight Line will be undertaken by Network Rail exercising their permitted development rights under the Town and Country Planning (General Permitted Development)(England) Order 2015.

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) (“the EIA Regulations”) provide that where developments of a type listed in Annex 2 of the EIA Regulations is likely to give rise to significant environmental effects, the Secretary of State for Transport (“the SoS”) cannot lawfully grant development consent for the development of a type listed in Annex 2 of the EIA Regulations until they have taken into account the environmental information required by the EIA Regulations. This information is provided in the form of an environmental statement (“ES”).

This environmental scoping report comprises the request by NSC to the SoS for a scoping opinion on the information to be provided in the ES in respect of the Portishead Branch Line (MetroWest Phase 1) Project for which an application for a DCO will be made to the Planning Inspectorate (“the Inspectorate”).

The DCO application will cover the following works.

- Replacement of the existing 5km of dis-used railway track and signalling assets between Portishead and Pill with new railway track and signalling assets, rebuilding the disused Portishead to Pill line (5km).
- Closure of historic and permissive crossings and, where appropriate, provision of alternative access arrangements locations.
- Subject to consultation, a fully accessible pedestrian bridge near Trinity Primary School.
- New station at Portishead including station building, car park, pedestrian and cycle link to the town centre and highway alterations to Quays Avenue/Harbour Road/Phoenix Way.
- Re-opening of the former station at Pill and new fully accessible pedestrian bridge and car park.

- Double track works through installation of a new track parallel to the existing railway through Pill (including widening of the Avon Road bridge underpass).
- Improvements to access for emergency and maintenance purposes highway access to Pill Tunnel and other locations.

It may be necessary to undertake some minor scale works in the Avon Gorge Woodlands Special Area of Conservation (“SAC”). If as a result of the environmental assessment, Natural England considers that these works will not have a significant effect on the integrity of the Avon Gorge Woodlands SAC, these works will be undertaken under Network Rail’s permitted development rights. However, if Natural England considers that these works will have a significant effect on the SAC, then the preferred approach would be to draw this section into the project for which a DCO application will be made.

Other works are required along the Portbury Freight Line outwith the Avon Gorge Woodlands SAC to deliver the railway services between Portishead and Bristol. The main activity is the installation of a new section of track parallel to the existing railway from south of the Clifton No. 1 Tunnel to Ashton Gate where it will link in with the existing double track to Parson Street Junction. This section of double tracking is required to allow the freight and passenger services to pass each other. These works will be undertaken under Network Rail’s permitted development rights.

The other construction works required on the operational rail network to deliver MetroWest Phase 1 will also be undertaken by Network Rail under their permitted development rights and will not form part of the DCO application. These are all works of a relatively minor nature lying within Network Rail’s operational land and are routinely undertaken by Network Rail using their General Permitted Development rights. These works are:

- Bedminster Down Relief Line (MetroWest Phase 1): partial reinstatement of the down relief line at Bedminster to provide additional capacity for recessing freight trains on the Bristol to Taunton main line.
- Severn Beach / Avonmouth Signalling (MetroWest Phase 1): one or more additional signals near Avonmouth to allow for additional trains to reverse there. Two options for the number and location of signals are currently under consideration.
- Bathampton Turnback (MetroWest Phase 1): a facility to allow trains to turn around at Bath off the main line.

The Study Area

Portishead town has undergone considerable redevelopment and expansion over the last decade with several thousand new homes built at Portishead Vale, the Village Quarter and Port Marine (which is currently in its final phase of build). The whole area was formerly dominated by heavy industry, but this was all closed by the late 1980s. The development since has been typically high density with a modern urban design layout and appearance. The population of Portishead is now over 27,000 and is forecast to exceed 30,000 before the project opens in 2019. Portishead is a successful and vibrant town with an active high street. Portishead has strong socio-economic links with Bristol, which serves as the main centre of employment.

Pill is an historic village, with Easton-in-Gordano to the south west and Ham Green to the east. The three villages have little green space between them and therefore effectively form one urban settlement. The dis-used Pill station, which is to be re-opened, is located in the heart of the historic centre of the village. The population of Pill, Easton-in-Gordano and Ham Green is about 6,180 (Census, 2011).

Bristol is the largest city in the south west, with a population of about 428,100 (Census, 2011), which is projected to reach 500,000 by 2029. The city developed on the River Avon, with close links with the sea and international trade. Bristol is a major centre of economic growth and employment in the region, with strong and rapidly growing economy, characterised by high productivity, a skilled work-

force, diverse industrial base, and a strong sense of enterprise and academic excellence. Constraints to growth include infrastructure and poor connectivity. Improvements in public transport within Bristol itself, and between Bristol and the outer lying settlements, would help to unlock development potential in Bristol, encourage a modal shift in traffic from the roads to the railway, and relieve congestion on the local highway network.

The terrain between Portishead and Pill is generally low-lying coastal plain crossed by a number of land drains and small rivers and at risk from tidal flooding. The terrain around Portishead and Bristol is characterised by alternating ridges and broad valleys. The River Avon passes through a pronounced gorge, separating much of Bristol to the east from the wooded slopes and valleys to the west. Much of the countryside lies in the designated green belt. The agriculture on the coastal plains is based on pasture for livestock, with arable farmland above the scarps. There are also patches of woodland throughout the study area.

The area is important for its nature conservation value. The Severn Estuary SAC, Special Protection Area (“SPA”), Ramsar and Site of Special Scientific Interest (“SSSI”) lies along the north Somerset coast and the lower River Avon. There are three European sites within 30km of the Scheme which have bats as a qualifying feature, the North Somerset and Mendip Bats SAC 8 km to the south, the Bath and Bradford on Avon Bats SAC about 24 km to the east near Bath, and the Avon Gorge Woodlands SAC which is crossed by the Portbury Freight Line. The Avon Gorge Woodlands SAC is also designated for its forest and heath habitats and two species of bat, the Greater and Lesser Horseshoe bat *Rhinolophus ferrumequinum* and *R. Hipposideros*. The Avon Woods SSSI is co-incident in area with the SAC designation and also includes the Leigh Woods National Nature Reserve (“NNR”), both of which are designated for their nature conservation interest. The woods and gorge have an exceptional diversity of Whitebeams *Sorbus* sp., including two species which are unique to the gorge.

There are three other SSSIs designated for their nature conservation value within 2km of the project, namely Weston Big Wood SSSI, Horseshoe Bend at Shirehampton SSSI, and Ashton Court SSSI. There are no local nature reserves within 0.5km of the project, but there are a number of non-designated local wildlife sites, eight of which adjoin the project. There is also one SSSI designated for its geological interest, which comprises a railway cutting at Ham Green.

The area is long settled resulting in a rich variety of cultural heritage assets. There are three Scheduled Monuments (“SM”) within 0.5km of the project in the Avon Gorge and a fourth SM comprising a hill fort at Portbury about 550m south of the project. There are several Conservation Areas designated for their built architecture, which extend up to the project, Sneyd Park, the Downs, Clifton and City Docks in Bristol and Leigh Woods and Bower Ashton on the west side of the project. There are listed buildings within the Conservation Areas, particularly in Bristol, but only a few lie within 500m of the project. The most famous is the Clifton Suspension Bridge, a Grade I listed structure, which crosses the Avon Gorge at a location where the Portbury Freight Line lies in tunnel. The project passes through the Leigh Court Registered Park and Garden (“RP&G”) and close to Ashton Court RP&G. There are also numerous non-designated heritage features including components of railway heritage.

The main highway network in the area is dominated by the M5. Junctions 18a and 18 in Shirehampton connect to the A4 into Bristol along the north side of the River Avon and Junction 19 Gordano connects with the A369 between Portishead and the centre of Bristol along the south side of the River Avon. The B3128 and B3130 provide more circuitous routes into the Bristol via the A370 from Long Ashton and the Park and Ride to the south west of Bristol. There are several public rights of way (“PRoW”) along the railway corridor, including the Sustrans cyclepath Route 26, which uses part of the railway corridor between the M5 overbridge and Royal Portbury Dock Road overbridge, the tow path along the western shore of the River Avon close to the Portbury Freight Line, and several footpaths and bridleways.

Towards the southern end of the Portbury Freight Line, the railway passes through the urban areas of Ashton Gate and Ashton Vale, before joining the main line at Parson Street Junction.

Scope of the Environmental Impact Assessment

The environmental impact assessment will consider the direct, indirect and secondary effects of the construction and operation of the Portishead Branch Line on the following environmental topics:

- air quality and carbon;
- cultural heritage;
- ecology and biodiversity;
- geology, hydrogeology, ground conditions and contaminated land;
- landscape and visual impact assessment;
- materials and waste;
- noise and vibration;
- socio-economics and economic regeneration;
- soils and agriculture;
- transport, access and non-motorised users; and
- water resources, drainage and flood risk.

The environmental assessment will also cover the assessment of the cumulative effects of the Portishead Branch Line in combination with:

- other major committed developments in the vicinity of the Portishead Branch Line
- other construction works being undertaken for MetroWest Phase 1, comprising the works to be undertaken along the Portbury Freight Line, the Bedminster Down Relief Line, Avonmouth Singals and Bathampton, and
- the cumulative effects resulting from the modal shift from road to rail transport in the vicinity of Portishead and Pill.

Matters scoped out of the EIA are identified together with the justification.

Introduction

1.1 Project Outline

Purpose of the Environmental Scoping Report

- 1.1.1 The four West of England authorities, North Somerset Council ("NSC"), Bristol City Council ("BCC"), Bath and North East Somerset Council ("B&NES") and South Gloucestershire Council ("SGC"), are jointly promoting a programme of rail enhancement projects known as MetroWest. The MetroWest programme includes MetroWest Phase 1, MetroWest Phase 2 and smaller projects such as specific new/re-opened stations. MetroWest Phase 1 is being led by NSC on behalf of the four councils as a third party rail project working with Network Rail.
- 1.1.2 As part of the MetroWest Phase 1 proposals to enhance local rail services across Bristol, NSC is proposing to re-open passenger services between Portishead and Bristol. At present there is a disused railway from Portishead to Pill, which is referred to as the Portishead Branch Line in this document. The Portishead Branch Line joins a railway that is currently in use by freight services to and from Portbury Dock, which is referred to as the Portbury Freight Line, in the village of Pill.
- 1.1.3 The re-opening of the railway from Portishead to Pill, together with some associated works at Pill station, Pill Tunnel and to two level crossings at Ashton in Bristol on the Portbury Freight Line are referred to as the Portishead Branch Line (MetroWest Phase 1) Project ("the Project") in this document.
- 1.1.4 To re-open the railway from Portishead to Pill as proposed, NSC requires a Development Consent Order ("DCO") under the Planning Act 2008. NSC will be the applicant for the DCO. Works required on the Portbury Freight Line will be undertaken by Network Rail exercising permitted development rights under the Town and Country Planning (General Permitted Development)(England) Order 2015.
- 1.1.5 The development that is being promoted by NSC falls within the definition of a nationally significant infrastructure project ("NSIP") for the purposes of the Planning Act 2008. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) ("the EIA Regulations") provide that where development of a type listed in Annex 2 of the EIA Regulations is likely to give rise to significant environmental effects, the Secretary of State for Transport ("the SoS") cannot lawfully grant development consent for the development until they have taken into account the environmental information required by the EIA Regulations. Environmental information comprises the information required to be provided by the applicant in the form of an environmental statement ("ES"), including any further or other information, any representations made by specified consultees and any representations duly made by any other person about the environmental effects of the development.
- 1.1.6 In the letter addressed to the SoS that accompanies this request a scoping opinion, NSC has notified the SoS under Regulation 6(1)(b) of the EIA Regulations that they propose to provide an ES in respect of the proposed development, which is of a type listed in Annex 2 to the EIA Regulations. Therefore, in accordance with Regulation 4(2)(a) of the EIA Regulations, the proposed development will be determined to be EIA development. The EIA Regulations enable an applicant, before making an application for an order granting development consent, to ask the SoS to state in writing their formal opinion (a "scoping opinion") on the information to be provided in the ES.
- 1.1.7 This environmental scoping report comprises the request by NSC to the SoS for a scoping opinion on the information to be provided in the ES in respect of the Project for which NSC proposes to submit an application for development consent.

- 1.1.8 In accordance with Regulation 8(3) of the EIA Regulations this request for a scoping opinion includes:
- a) a plan sufficient to identify the land;
 - b) a brief description of the nature and purpose of the development and of its possible effects on the environment; and
 - c) such other information or representations as NSC wishes to provide or make.

Project Context

- 1.1.9 The passenger train service to Portishead ceased in 1964 under the Beeching cuts. Freight trains continued to operate to Portishead to serve heavy industry until the mid-1980s. In 2002 a major part of the line was re-opened between Parson Street Junction (which connects with the Bristol to Taunton line) and Pill to Royal Portbury Dock. West of Pill the 5km of railway to Portishead remains dis-used although much of the railway infrastructure (including the track) is still in place. Engineering feasibility work undertaken in 2014 (Network Rail GRIP stage 2, URS 2014) identified a need to replace the track and signalling assets and undertake associated enhancement works. The railway land is partly overgrown, although some minor vegetation clearance has been undertaken to enable topographical surveys and inspection of engineering structures.
- 1.1.10 The Bristol Port Company has commercial rights to run up to 20 freight trains per day in each direction on the Portbury Freight Line. There are currently no passenger services on this line. The Portbury Freight Line comprises predominantly a single track railway, with a viaduct at Pill and four tunnels along the section through the Avon Gorge. There is a section of double track west of Parson Street Junction to east of Ashton Gate level crossing. Network Rail has indicated that the line was originally built with extensive sections of double tracking except for those sections which pass through four tunnels in the Avon Gorge.
- 1.1.11 The railway corridor from Portishead to Portbury old station is owned by NSC and from Portbury old station to the junction with the Portbury Freight Line at Pill is owned by Network Rail. Some third party land is required for the project, in relation to Portishead and Pill station. The whole dis-used route, including the proposed location for a new station in Portishead and re-opening Pill station, is safeguarded in the NSC local plan.
- 1.1.12 This report sets out the proposed scope of the environmental impact assessment (“EIA”) and the content of the ES to be submitted with the application for the DCO. This report provides a description of the proposed project and the main alternatives considered, the key issues identified on the basis of the studies undertaken to date, the methods to be adopted to assess the environmental impacts and an outline of the ES which will be submitted to the Planning Inspectorate (“the Inspectorate”) with the DCO Application.

MetroWest Concept

Overview

- 1.1.13 The Project forms part of the West of England Local Enterprise Partnership's (LEP) wider MetroWest programme, which will invest up to £100 million in a series of complimentary local rail projects. The Project teams are working with Network Rail, First Great Western and the freight train operators to deliver the MetroWest programme, which will be carried out in two phases.
- 1.1.14 The aim of the MetroWest programme is to improve transport network resilience, through targeted investment to increase both the capacity and accessibility of the local rail network. The MetroWest concept entails delivering an enhanced local rail offer for the sub-region comprising:

- existing and disused rail corridors feeding into Bristol
- broadly half hourly service frequency (but some variations)
- cross Bristol service patterns, for example Bath to Severn Beach, and
- providing a Metro-type service appropriate for a City Region of 1 million population.

1.1.15 The principal objectives of MetroWest Phase 1 are as follows.

- To support economic growth, through enhancing the transport links of the Temple Quarter Enterprise Zone (“TQEZ”)¹ and into and across and into and across Bristol City Centre, from the Portishead, Bath and Avonmouth / Severn Beach arterial corridors.
- To deliver a more resilient transport offer, providing more attractive and guaranteed (future proofed) journey times for commuters, business and residents into and across Bristol, through better utilisation of strategic heavy rail corridors from Portishead, Bath and Avonmouth / Severn Beach.
- To improve accessibility to the rail network with new and re-opened rail stations and reduce the cost of travel for commuters, business and residents.
- To make a positive contribution to social well-being, life opportunities and improving quality of life, across the three arterial corridors, Portishead, Bath and Avonmouth / Severn Beach.

1.1.16 In addition, MetroWest Phase 1 has the following supporting objectives.

- To contribute to reducing traffic congestion on the Portishead, Bath and Avonmouth / Severn Beach arterial corridors.
- To contribute to enhancing the capacity of the local rail network, in terms of seats per hour in the morning and afternoon peaks.
- To contribute to reducing the overall environmental impact of the transport network.

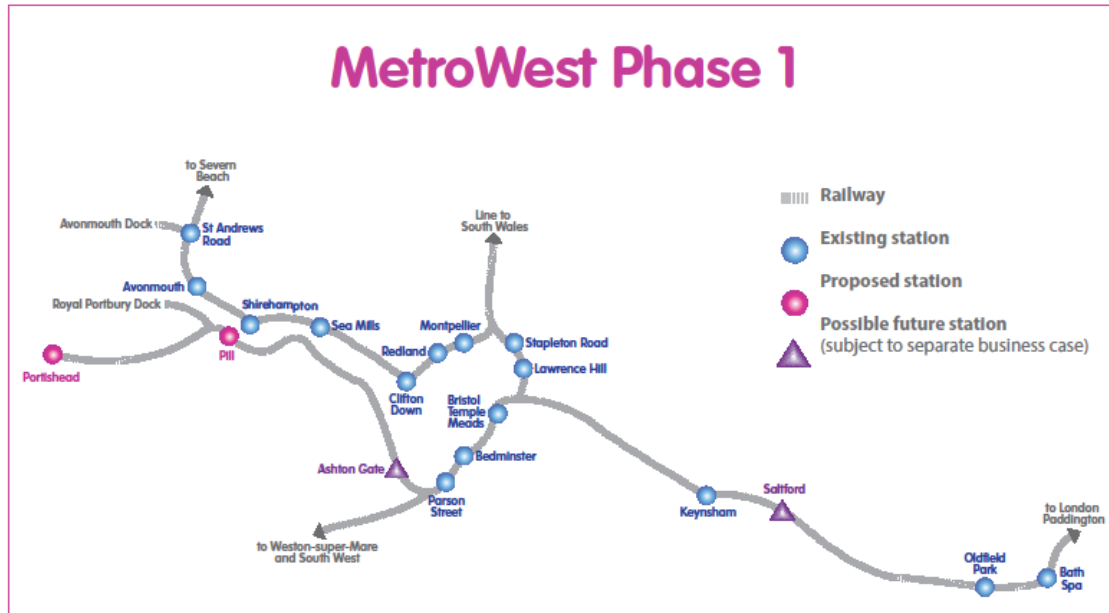
1.1.17 MetroWest Phase 1 comprises:

- Portishead Branch Line, which will require,
 - replacement of the existing 5km of dis-used railway track and signalling assets between Portishead and Pill,
 - works to the existing Portbury Freight Line, and
 - works associated with Pill and Portishead railway stations.
- Other minor construction works comprising,
 - partial reinstatement of the down relief line at Bedminster to provide additional capacity for recessing freight trains on the Bristol to Taunton main line.
 - one or more additional signals near Severn Beach/Avonmouth to allow for additional trains to reverse there. Two options are currently under consideration.
 - Bathampton Turnback to allow trains to turn around at Bath off the main line.

1.1.18 A schematic layout of MetroWest Phase 1 is provided in Figure 1.1 and the location plan is shown in Figure 1.2 at the end of this report.

¹ The Bristol Temple Quarter Enterprise Zone is one of the largest urban regeneration projects in the UK. It is located on a 70 hectare site in the centre of Bristol with Bristol Temple Meads railway station at its core. The development was officially opened for business in April 2012, with the aim of creating 4000 jobs in the first five years and 17,000 jobs over the 25 year lifespan of the project.

Figure 1.1. MetroWest Phase 1



1.1.19 MetroWest Phase 2 concerns the proposed re-opening to passenger services of the current freight only line through Henbury, north of Bristol. Any consents required for MetroWest Phase 2 will be applied for separately.

1.2 The Consenting Regime

Consenting Procedures

Development Consent Order

1.2.1 The Planning Act 2008 introduced the DCO regime as the means of seeking planning permission for developments categorised as NSIPs. These include railway schemes, where the railway when constructed [or altered] will be wholly within England, is part of a network operated by an approved operator, and where the construction is not permitted development².

1.2.2 The Highway and Railway (Nationally Significant Infrastructure Project) Order 2013 amended Section 25 of the Planning Act 2008 on railways to include within the definition of an NSIP a stretch of track with "a continuous length of more than 2 kilometres" that "is not on land that was operational land of a railway undertaker immediately before the construction work began or is on land that was acquired at an earlier date for the purpose of constructing the railway".

1.2.3 The proposed works for the new railway between Portishead and Portbury on NSC land is considered to be a NSIP for the following reasons.

1. The scheme when built will be wholly in England.
2. The scheme will form part of a network operated by an approved operator.

² Section 14(1)(k) of the Planning Act 2008 defines a NSIP as the construction or alteration of a railway and Section 25(1) and (2) further defines an NSIP including the construction and alteration projects.

3. The proposed new section of railway exceeds the threshold length of 2km.

1.2.4 In addition to the railway, which is the principal development for which development consent is required under the Planning Act 2008, other development is required as part of MetroWest Phase 1. Permission for this could be sought under other consenting and planning regimes. However, section 115 of the Planning Act 2008 provides that, in addition to the principal development, consent may also be granted in a DCO for 'associated development'. In considering whether other works that form part of MetroWest Phase 1 are 'associated development' and can be included within the DCO application for the principal development, regard has been had to the Department for Communities and Local Government's ("DCLG") advice in Planning Act 2008: Guidance on Associated Development Applications for Major Infrastructure Projects (DCLG, 2013). This notes that it is for the SoS to decide whether development should be treated as associated development based on the following principles.

"(i) The definition of associated development...requires a direct relationship between associated development and the principal development. Associated development should therefore either support the construction of operation of the principal development, or help address its impacts.

(ii) Associated development should not be an aim in itself but should be subordinate to the principal development.

(iii) Development should not be treated as associated development if it is only necessary as a source of additional revenue for the applicant, in order to cross-subsidise the cost of the principal development...

(iv) Associated development should be proportionate to the nature and scale of the principal development."

1.2.5 Annex B to the guidance identifies typical associated developments for railway schemes to include new stations and alterations and extensions to existing platforms. Some third party land is required for Pill station.

1.2.6 A key principle of the DCO regime is to bring together separate consenting processes for NSIPs through a 'one stop shop' approach. NSC's working assumption is that a DCO will be needed to consent the works for the 5km section of dis-used line, the upgrade works to the Portbury Freight Line and associated development (such as Pill and Portishead stations). This major element is known as "Portishead Branch Line (MetroWest Phase 1)".

1.2.7 The application for DCO will be prepared in accordance with section 37 of the Planning Act 2008 and secondary legislation including the EIA Regulations. The request for the Scoping Opinion forms part of the pre-application stage, which is the first of six stages in the development consent regime. In preparing the application for the DCO the Applicant will have regard to the series of advice notes published by the Planning Inspectorate that provide useful information about the Planning Act 2008 process (as amended by the Localism Act 2011). These include Advice note 3 *The Planning Inspectorate and Nationally Significant Infrastructure Projects* and Advice note 7 *Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping*.

Other Applicable Consenting Regimes

1.2.8 Schedule 2 Part 18 of the GPDO sets out permitted development allowed under a local or private Act or Order "which designates specifically the nature of the development authorised and the land upon which it may be carried out" subject to certain prior approval conditions. Schedule 2 Part 8 Class A allows permitted development for "development by railway undertakers on their operational land, required in connection

with the movement of traffic by rail" but this does not permit the construction of a railway, railway station or bridge.

- 1.2.9 Article 3(1) of the Town and Country Planning (General Permitted Development) England Order 2015 ("GPDO") grants deemed planning permission for the classes of development in Schedule 2, subject to the provisions of the GPDO and Regulations 73 to 75 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations"). Article 3(10) provides that development is not permitted where it is Schedule 1 or 2 development under the EIA Regulations unless it has been screened out of EIA. However, Article 3(12)(b) provides that Article 3(10) does not apply to development for which permission is granted by Class A of Part 18 of Schedule 2, which is development under local or private Acts or Order.
- 1.2.10 The original railway to Portishead and Portbury was permitted under the Bristol and Portishead Pier and Railway Acts 1863, which is a private Act of Parliament. The development proposed to be undertaken by Network Rail within its operational land as part of MetroWest Phase 1 is within the scope of the development authorised by the 1863 Act. As such, Network Rail proposes to undertake the works using permitted development rights.
- 1.2.11 However, development permitted by virtue of the GPDO is still subject to the Habitats Regulations and, specifically, Regulations 73 to 76. The Portbury Freight Line runs through a European designated site, the Avon Gorge Woodlands Special Area of Conservation ("SAC"). The design of the Project is not yet in its finalised form. Consultations will continue with Natural England in respect of the Project to determine whether or not the provisions of Regulation 73 require that an assessment of likely significant effects on the SAC or an appropriate assessment the effects on the integrity of the SAC require to be undertaken. The outcome of these will determine the process by which certain works are consented. Regard will be had to the Planning Inspectorate's Advice note ten: *Habitats Regulations Assessment relevant to nationally significant infrastructure projects* in this respect.

Proposed Consenting Strategy

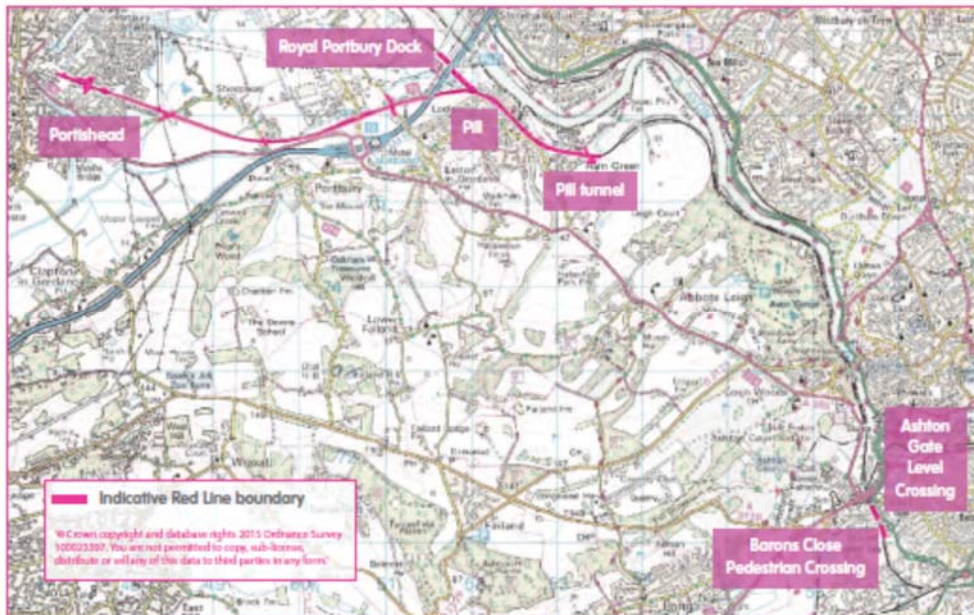
Portishead Branch Line (MetroWest Phase 1) Project

- 1.2.12 It is proposed that all the works required for the Portishead Branch Line (MetroWest Phase 1) Project are brought together under a DCO using a single consenting regime, under the Planning Act 2008. On that basis, the DCO application will cover the following works.
- Replacement of the existing 5km of dis-used railway track and signalling assets between Portishead and Pill with new railway track and signalling assets, rebuilding the disused Portishead to Pill line (5km).
 - Closure of historic and permissive crossings and, where appropriate, provision of alternative access arrangements locations.
 - Subject to consultation, a fully accessible pedestrian bridge near Trinity Primary School.
 - New station at Portishead including station building, car park, pedestrian and cycle link to the town centre and highway alterations to Quays Avenue/Harbour Road/Phoenix Way.
 - Re-opening of the former station at Pill and new fully accessible pedestrian bridge and car park.
 - Double track works through installation of a new track parallel to the existing railway through Pill (including widening of the Avon Road bridge underpass).

- Improvements to access for emergency and maintenance purposes highway access to Pill Tunnel and other locations.

1.2.13 Figure 1.3 below shows the DCO indicative red line boundary at approximately 1:100,000. A more detailed version of the indicative red line boundary at 1:2,500 (A3) is shown in Figure 2.1.

Figure 1.3. Indicative Red Line Boundary 1:100,000



Works in the Avon Gorge Woodlands SAC

1.2.14 It may be necessary to undertake some minor scale works in the Avon Gorge Woodlands SAC, such as lifting of the existing Portbury Freight Line track by a few centimetres on the approach to bends, through bends and on the exit of bends. Lifting the track on one side enables the track to be slightly banked to enable passenger trains to operate at higher speeds than the existing freight trains, and achieve acceptable ride quality for passengers. Other minor works include improvements to access for maintenance purposes such as new access gates to assist maintenance personnel and a new intermediate signal to enable both freight and passenger service operate on the single track line, in the same direction. If as a result of the environmental assessment, Natural England considers that these works will not have a significant effect on the integrity of the Avon Gorge Woodlands SAC, these works will be undertaken under Network Rail's permitted development rights. However, if Natural England considers that these works will have a significant effect on the SAC, then the preferred approach would be to draw this section into the project for which a DCO application will be made.

Other Works Required for MetroWest Phase 1

1.2.15 The other works required on the operational rail network to deliver MetroWest Phase 1 are to be implemented by Network Rail under their permitted development rights. These are all works of a relatively minor nature lying within Network Rail's operational boundary. These types of works are routinely undertaken by Network Rail using their General Permitted Development rights and will not form part of the DCO Application.

1.2.16 These works will include the following works on the Portbury Freight Line:

- Installation of a new section of track parallel to the existing railway from Ashton Bower to Ashton Gate to link in with the existing double track to Parson Street

Junction. This section of double tracking is required to allow the freight and passenger services to pass each other.

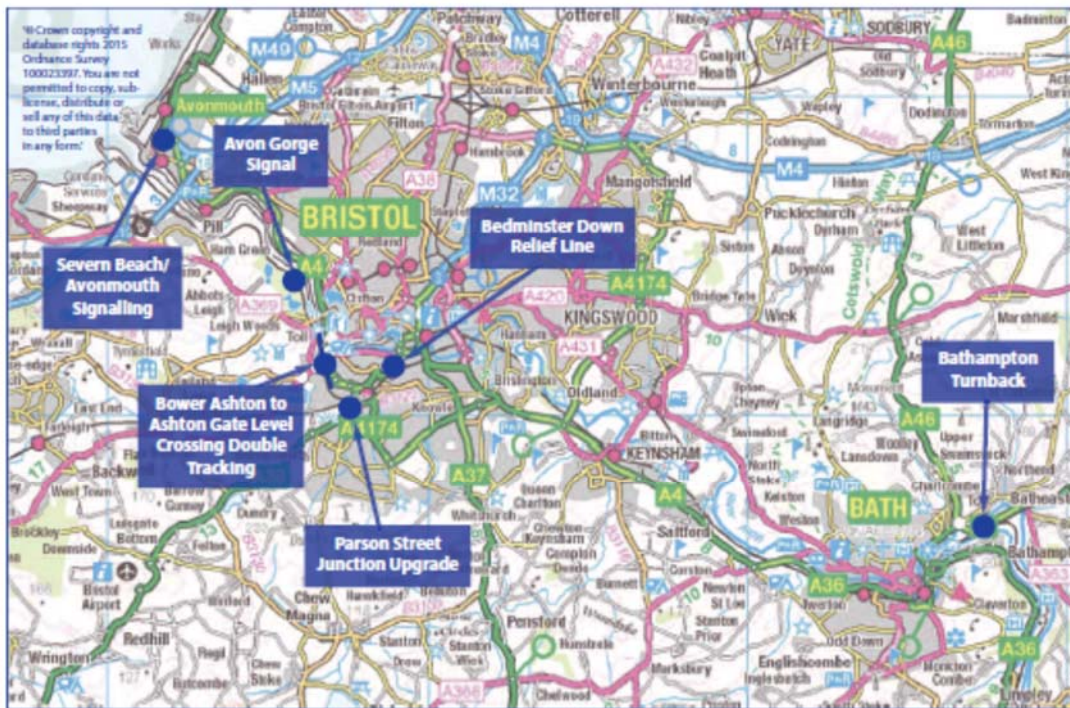
- Upgrade works to Parson Street Junction to provide a double track connection with the Bristol to Taunton main line. This double tracking is required to provide sufficient capacity for both freight and passenger services.

1.2.17 Small scale construction works are also required at three other locations to facilitate MetroWest Phase 1, as follows.

- Bedminster Down Relief Line (MetroWest Phase 1): partial reinstatement of the down relief line at Bedminster to provide additional capacity for recessing freight trains on the Bristol to Taunton main line.
- Severn Beach / Avonmouth Signalling (MetroWest Phase 1): one or more additional signals near Avonmouth to allow for additional trains to reverse there. Two options are currently under consideration.
- Bathampton Turnback (MetroWest Phase 1): a facility to allow trains to turn around at Bath off the main line.

1.2.18 The location of the works to be undertaken using Network Rail's permitted development rights is shown in Figure 1.4 below.

Figure 1.4: Location of Permitted Development Works



1.2.19 Any works that could give rise to likely significant cumulative environmental effects with the development for which the DCO will be sought will be considered in the ES.

1.2.20 Network Rail will be responsible for the design of the new works. The management and control process used by Network Rail for delivering projects that enhance or renew the operational railway is called Governance for Railway Investment Projects (GRIP). The GRIP process provides assurance that a project can successfully progress to the next stage. The GRIP process stages comprise output definition, feasibility, options, selection of

development, detailed design, construction test and commission, scheme hand back and project close out. The GRIP stages also include environmental appraisal and the identification of environmental management and mitigation measures to address potentially adverse impacts. MetroWest Phase 1 is subject to the GRIP process.

Environmental Legislation

Environmental Impact Assessment

- 1.2.21 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) (“the EIA Regulations”) set out the process of EIA for an NSIP. This includes the procedures for determining whether an EIA is required (screening), the scoping of the ES required to be provided by an applicant to provide information on the likely significant environmental effects of the proposed development, publicity for the ES, procedures for consultation with statutory consultation bodies and third parties including the making of representations by them about the environmental effects of the development, the process of requiring further and additional information, and the prohibition on the grant of development consent by the SoS without taking into account the environmental information submitted.
- 1.2.22 The Portishead Branch Line (MetroWest Phase 1) is considered to be a Schedule 2 development, for which an EIA will be required as there are likely to be significant environmental effects arising from the construction and operation of the project.
- 1.2.23 NSC will prepare the ES to provide information on likely significant environmental effects of the Portishead Branch Line (MetroWest Phase 1). This will focus on the direct and indirect impacts associated with the construction and operation of the Project. The ES will be submitted as part of the DCO application.
- 1.2.24 Under the cumulative impacts section, the ES for the Portishead Branch Line (MetroWest Phase 1) will also consider other works and operational activities to be implemented through other consenting and permitting regimes as part of MetroWest Phase 1. Consequently, it is proposed that the cumulative impacts assessment will cover:
- Type I cumulative effects where there are multiple effects arising from the Portishead Branch Line (MetroWest Phase 1) on specific receptors located along the project.
 - Type II cumulative effects resulting from the combined effects of the project with other developments, comprising:
 - the construction and operation of other (non-railway) committed development along the project;
 - impacts arising from the modal shift from vehicle traffic on the highway network to the project, and
 - other construction works and additional services to be implemented under MetroWest Phase 1, namely the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback.
- 1.2.25 The geographic scope of the ES will focus on the existing disused railway corridor between Portishead and Pill and the Portbury Freight Line for the direct and Type I cumulative effects. The width of the corridor assessed will vary according to the type of environmental or social receptor under consideration. The geographic scope of the ES for the Type II cumulated effects will cover the wider highway network where modelling indicates a significant modal shift from road to rail, the approaches around Portishead railway station, and sections of the operational railway affected by MetroWest Phase 1 where there are likely to be significant adverse effects.

- 1.2.26 The environmental issues to be considered in the ES are listed in Schedule 4 to the EIA Regulations. For this study, the scope of issues to be addressed is covered by the following topic headings: air quality and carbon; cultural heritage including archaeology and built heritage; ecology and biodiversity; geology, hydrogeology, ground conditions and contaminated land; landscape and views; materials and waste; noise and vibration; socio-economics and economic regeneration (including equality and health); soils and agriculture; transport, access and non-motorised users (including pedestrians, cyclists and equestrians); and water resources, drainage and flood risk.

The Habitats Regulations

- 1.2.27 European sites (Natura 2000) are protected under the *Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC)* ("the Habitats Directive") which is transposed into English Law under the Conservation of Habitats and Species Regulations 2010 (as amended) ("the Habitats Regulations"). The Habitats Regulations set out a stage by stage process, known as the Habitat Regulations Assessment ("HRA") to determine whether a project is likely to have a significant effect on a European site. The first stage of the process involves screening to determine whether a project is likely to have a significant effect on the interest features of a European site alone or in combination with other plans and projects. If likely significant effects are identified then the decision-maker is required to go onto Stage 2 and to undertake an appropriate assessment to determine whether the project will have implications on the conservation objectives of the European site. If it will, then consent for the development can be granted at this stage only if it can be ascertained that the project will not adversely affect the integrity of the European site. Stages 3 and 4 become relevant if it cannot be ascertained that there will be no adverse effects on the integrity of the European site. This involves the consideration of alternative solutions and, if there are no alternatives, the process of determining whether imperative reasons of over-riding public importance and the provision of compensatory measures justify the grant of consent.
- 1.2.28 A search for European sites (including proposed sites) within 5km of the Portishead Branch Line (MetroWest Phase 1) Project and European sites (including proposed sites) with bats as a qualifying feature within 30km of the project was undertaken. The search highlighted the following sites.
- The Severn Estuary SAC, Special Protection Area ("SPA") and Ramsar site lies along the North Somerset coast and at its nearest location comes within 80m of the project on the River Avon near Pill.
 - Part of the Portbury Freight Line runs through the Avon Gorge Woodlands SAC.
 - Three Natura 2000 sites with bats as a qualifying feature lie within 30 km of the project, the North Somerset & Mendip Bats SAC, Avon Gorge Woodlands SAC, and the Bath and Bradford-on-Avon Bats SAC.
- 1.2.29 A draft HRA screening report was prepared and submitted to NE. A copy of the report is presented in Appendix A together with the consultation response from NE³. Further discussion of the HRA and the scope of the ecological studies is presented in Section 7 Ecology and Nature Conservation.

³ The HRA Screening Report assumed that there will be no physical construction works within the Avon Gorge Woodlands SAC. This assumption needs to be confirmed during the GRIP 3 and 4 design phase programmed for April 2015 and February 2016.

1.3 Approach to the Environmental Statement

General Approach

1.3.1 The general approach to preparation of the ES is based on the following steps:

- Data review to draw together readily available information about the study area and the project;
- Scoping to identify the issues to be addressed in the ES;
- Baseline data collection and specially commissioned surveys to characterise the existing conditions;
- Consultation with the statutory environmental bodies ("SEB"), namely the Environment Agency ("EA"), NE and English Heritage ("EH"), other consultee bodies and the general public, to request data, inform third parties of the proposals, and seek feedback on the Project;
- Identification and assessment of predicted impacts to evaluate the magnitude of the impacts of the Project on people, communities and the environment; evaluate alternatives; develop mitigation proposals; consider the potential for cumulative effects; assess the significance of the residual effects of the mitigated project; and conclude whether there are likely significant effects for the purposes of the EIA Regulations; and
- Presenting this information in the ES.

Approach to the Impact Assessment

1.3.2 The approach to the impact assessment will be largely based on the Highways Agency's Design Manual for Roads and Bridges ("DMRB") Volume 11 Environmental Assessment and Volume 10 Environmental Design and Management. Although the Agency's DMRB is for highways schemes, it provides a useful basis for the environmental assessment of other linear transport schemes such as railways⁴. The DMRB will be supplemented by advice in the HA's Interim Advice Notes ("IAN"), as well as other widely accepted methodologies published by British Standards ("BS") and professional organisations such as the Institute of Environmental Management and Assessment ("IEMA"), the Construction Industry Research Information Association ("CIRIA"), the Landscape Institute ("LI"), and the Institute of Ecology and Environmental Management ("IEEM"). The specific methodologies to be used are referenced in the topic assessment chapters.

1.3.3 DMRB Volume 11, Section 2, Part 1, *General Principles and Guidance on Environmental Impact Assessment* identifies a phased, consequential approach to assessment - scoping, simple assessment and detailed assessment. The assessment only passes from one stage to the next if sufficient risk for significant effects is identified. Otherwise the topic is scoped out or completed at the simple stage.

1.3.4 The ES will also accord with the requirements of NR's GRIP procedures.

Baseline Data Collection

1.3.5 Existing baseline data have been collected from various sources including NSC and other local authorities, NR, the SEBs, the Historic Environment Records ("HER"), the Bristol

⁴ The DfT's TAG Unit A3 *Environmental Impact Appraisal* paragraph 1.2.3 confirms that much of the guidance in DMRB is suitable for other transport modes and should be used unless more appropriate alternatives are available.

Regional Environmental Records Centre ("BRERC"), and other organisations with an interest in the study area, as identified in the relevant topic chapters.

- 1.3.6 Specially commissioned surveys were undertaken to identify land use, farm management, habitats and species of flora and fauna, landscape, views of the potential scheme, and noise levels.
- 1.3.7 The results of the baseline data collection undertaken to date are presented in the Baseline Report which has been prepared in parallel to support this Scoping Report.

Assessment of Effects

- 1.3.8 The assessment of effects is concerned with evaluating the impact of the Project (Do Something scenario) on the environment compared to the conditions without the Project (Do Nothing scenario). The assessments will be undertaken during the construction period (currently programmed to be 2017 to 2019), on the year of opening (2019), and in the design year, typically 15 years from project opening, (2034).
- 1.3.9 The impacts of decommissioning the project will not be included in the ES. The project is likely to stay in operation for as long as there is a business case and the proposed infrastructure will have a long term design life. If the service is no longer viable, the services will cease and the existing infrastructure will remain in place. Vegetation will slowly re-colonise the railway alignment between Portishead and Pill, much as at present, and the structures would gradually fall into disrepair. It is unlikely that there would be any proactive decommissioning of the assets. Consequently, further consideration of decommissioning is not considered to be meaningful.
- 1.3.10 Where suitable, the assessment of the significance of effects will follow the approach in DMRB. This is a three step process, which requires setting a value or sensitivity on the environmental receptor, evaluating the magnitude of the change on the environment brought about by the project, and then assessing the significance of the effect based on a combination of the value of the resource and the magnitude of the impact. Tables 1.1 to 1.3 provide generic descriptions of the value of the receptor, the magnitude of impact, and the significance of the effect. In the ES, these definitions will be refined to reflect the assessment topics.

Table 1.1. Value of Environmental Receptors

Value (Sensitivity)	Typical Descriptors
Very high	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	High or medium importance and rarity, regional scale, limited potential for substitution.
Low (or lower)	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

Table 1.2. Magnitude of the Impact

Magnitude	Typical Descriptors
Major	<ul style="list-style-type: none"> Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate	<ul style="list-style-type: none"> Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor	<ul style="list-style-type: none"> Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	<ul style="list-style-type: none"> Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No Change	<ul style="list-style-type: none"> No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Table 1.3. Significance of Effects

Magnitude of Change	Value/Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
Major	Very Large	Large / Very Large	Moderate / Large	Moderate	Slight
Moderate	Large / Very Large	Moderate / Large	Moderate	Slight	Neutral
Minor	Moderate / Large	Moderate	Slight	Neutral	Neutral
Negligible	Slight	Slight	Neutral	Neutral	Neutral
No Change	Neutral	Neutral	Neutral	Neutral	Neutral

- 1.3.11 DMRB also provides definitions for the significance criteria which are provided in Table 1.4 below.

Table 1.4. Definition of the Significance Categories

Significance Category	Typical Descriptors of Effect
Very large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

- 1.3.12 A significant effect, under the meaning of the EIA Regulations, is taken to mean an adverse or beneficial effect of moderate, large, or very large significance of effect.

- 1.3.13 Not all environmental topics follows this three staged process and further details of the proposed assessment approach are presented in the topic assessment chapters.

Development of Mitigation

- 1.3.14 As the likely significant environmental impacts are identified, options for mitigation will be developed and agreed with NSC and NR, and the residual effects of the mitigated project will be evaluated. The proposals for mitigation will follow the mitigation hierarchy of avoid, reduce, remedy, compensate and offset. Consideration will be given to the potential for enhancements where possible.

Consultation

- 1.3.15 To date, NSC has conducted informal consultation with the public in relation to the location for Portishead railway station. NSC has commenced engagement on the wider scheme with local stakeholders, the rail industry, statutory bodies and affected parties.

- 1.3.16 For the scoping study, approaches have been made by NSC and NR to various organisations to request environmental data on the study area, including officers at NSC, the EA, the Internal Drainage Board ("IDB"), NE, Sustrans, and the utility companies.
- 1.3.17 NSC has started discussions with the occupants of Sheepway Gate Farm who currently have at grade livestock crossings across the disused railway, and with the occupants of the old Portbury Station which has been converted to a private residence.
- 1.3.18 Following submission of the draft ecology chapters from the Baseline Report and Scoping Report, and the draft HRA screening report to NE, a meeting was held with them on 30 September 2014, followed by a pre-application consultation request to the discretionary advice service ("DAS") in January 2015. A copy of the consultation response from NE is presented in Appendix A.
- 1.3.19 Initial consultation has been held with the EA, NSC and NR on 2 May 2014, and with NSC, NR and the North Somerset IDB on 8 May 2014 regarding the disused section of the line between Portishead and Pill. A follow on meeting was held on 10 December 2014 with the EA, NSC, and NR regarding the Portbury Freight Line. Consultation responses from the EA are presented in Appendix B. NSC plans to undertake formal consultation as required under the Planning Act 2008 under Section 42 ("s42") with statutory consultees, local authorities, landowners and significantly affected persons, and s47 with local communities, and in accordance with the Planning Inspectorate's Advice Note Nos. 14 *Consultation report* and 16 *The developer's pre-application consultation, publicity and notification duties*. NSC will prepare a Statement of Community Consultation ("SoCC") setting out how they propose to consult with local communities, which will be incorporated into the Consultation Report to be submitted to the Inspectorate as part of the DCO application. The issues coming out of the consultation relating to the people, communities and the environment will be considered and the findings will be presented in the ES setting out the key issues, how they were assessed, and the outcome of the assessment.

The Study Area

- 1.3.20 The main focus of the study area extends from the centre of Portishead to Parson Street Junction in the outer suburbs of Bristol. The main environmental and planning constraints along this alignment are summarised below. Further information is provided in the following topic chapters and in the Baseline Report which is issued separately.
- 1.3.21 Portishead town has undergone considerable redevelopment and expansion over the last decade with several thousand new homes built at Portishead Vale, the Village Quarter and Port Marine (which is currently in its final phase of build). The whole area was formerly dominated by heavy industry, but this was all closed by the late 1980s. The development since has been typically high density with a modern urban design layout and appearance. The population of Portishead is now over 27,000 and is forecast to exceed 30,000 before the project opens in 2019. Portishead is a successful and vibrant town with an active high street. Portishead has strong socio-economic links with Bristol, which serves as the main centre of employment.
- 1.3.22 Pill is an historic village, with Easton-in-Gordano to the south west and Ham Green to the east. The three villages have little green space between them and therefore effectively form one urban settlement. The dis-used Pill station, which is to be re-opened, is located in the heart of the historic centre of the village. The population of Pill, Easton-in-Gordano and Ham Green is about 6,180 (Census, 2011).
- 1.3.23 Bristol is the largest city in the south west, with a population of about 428,100 (Census, 2011), which is projected to reach 500,000 by 2029. The city developed on the River Avon, with close links with the sea and international trade. Bristol is a major centre of economic growth and employment in the region, with strong and rapidly growing economy,

characterised by high productivity, a skilled work-force, diverse industrial base, and a strong sense of enterprise and academic excellence. Constraints to growth include infrastructure and poor connectivity. Improvements in public transport within Bristol itself, and between Bristol and the outer lying settlements, would help to unlock development potential in Bristol, encourage a modal shift in traffic from the roads to the railway, and relieve congestion on the local highway network.

- 1.3.24 The terrain between Portishead and Pill is generally low-lying coastal plain criss-crossed by a number of land drains and small rivers. Much of the area lies within flood risk zones 3a and is at risk from tidal flooding. Groundwater levels are near the ground surface. The terrain around Portishead and Bristol is characterised by alternating ridges and broad valleys. The River Avon passes through a pronounced gorge, separating much of Bristol to the east from the wooded slopes and valleys to the west.
- 1.3.25 Much of the countryside lies in the designated green belt. The agriculture on the coastal plains is based on pasture for livestock, with arable farmland above the scarps. There are also patches of woodland throughout the study area.
- 1.3.26 The Severn Estuary SAC, SPA, Ramsar and Site of Special Scientific interest ("SSSI") lies along the north Somerset coast within 1 km north of the project and comes within 80m of the project in the vicinity of Pill. There are also three European sites within 30km of the Scheme which have bats as a qualifying feature. The North Somerset and Mendip Bats SAC lies about 8 km to the south and the Bath and Bradford on Avon Bats SAC about 24 km to the east near Bath. The third site is the Avon Gorge Woodlands SAC which is traversed by the Portbury Freight Line. The Avon Gorge Woodlands SAC is also designated for its Tilio-Acerion forests of slopes, screes and ravines and semi-natural dry grasslands and scrubland facies on calcareous substrate Festuco-Brometalia and two species of bat, the Greater and Lesser Horseshoe bat *Rhinolophus ferrumequinum* and *R. Hipposideros*. The Avon Woods SSSI is co-incident in area with the SAC designation and also includes the Leigh Woods National Nature Reserve ("NNR"), both of which are designated for their nature conservation interest. The woods and gorge have an exceptional diversity of Whitebeams *Sorbus sp.*, including two species which are unique to the gorge.
- 1.3.27 There are three other SSSIs designated for their nature conservation value within 2km of the project, namely Weston Big Wood SSSI, Horseshoe Bend at Shirehampton SSSI, and Ashton Court SSSI. There are no local nature reserves within 0.5km of the project, but there are a number of non-designated local wildlife sites, eight of which adjoin the project. There is also one SSSI designated for its geological interest, which comprises a railway cutting at Ham Green.
- 1.3.28 The area is long settled resulting in a rich variety of cultural heritage assets. There are three Scheduled Monuments ("SM") within 0.5km of the project in the Avon Gorge and a fourth SM comprising a hill fort at Portbury about 550m south of the project. There are several Conservation Areas designated for their built architecture, which extend up to the project, Sneyd Park, the Downs, Clifton and City Docks in Bristol and Leigh Woods and Bower Ashton on the west side of the project. There are listed buildings within the Conservation Areas, particularly in Bristol, but only a few lie within 500m of the project. The most famous is the Clifton Suspension Bridge, a Grade I listed structure, which crosses the Avon Gorge at a location where the Portbury Freight Line lies in tunnel. The project passes through the Leigh Court Registered Park and Garden ("RP&G") and close to Ashton Court RP&G. There are also numerous non-designated heritage features including components of railway heritage.
- 1.3.29 The main highway network in the area is dominated by the M5. Junctions 18a and 18 in Shirehampton connect to the A4 into Bristol along the north side of the River Avon and Junction 19 Gordano connects with the A369 between Portishead and the centre of Bristol along the south side of the River Avon. The B3128 and B3130 provide more circuitous

routes into the Bristol via the A370 from Long Ashton and the Park and Ride to the south west of Bristol. There are several public rights of way ("PRoW") along the railway corridor, including the Sustrans cyclepath Route 26, which uses part of the railway corridor between the M5 overbridge and Royal Portbury Dock Road overbridge, the tow path along the western shore of the River Avon close to the Portbury Freight Line, and several footpaths and bridleways.

- 1.3.30 Towards the southern end of the Portbury Freight Line, the railway passes through the urban areas of Ashton Gate and Ashton Vale, before joining the main line at Parson Street Junction.

Structure of this Report

- 1.3.31 This report has been drafted in accordance with Planning Inspectorate Advice Note seven: *Environmental Impact Assessment: Screening, Scoping and Preliminary Environmental Information*. The first three chapters cover the introduction to the project, the description of the project and the main alternatives considered. Chapters 4 to 16 describe the approach to the assessment on a topic by topic basis.
- 1.3.32 The topics covered in this ESR are: air quality and carbon; cultural heritage; ecology and biodiversity; geology, hydrogeology, ground conditions and contaminated land; landscape and visual impact assessment; materials and waste; noise and vibration; socio-economics and economic regeneration; soils, agriculture, and land use; transport, access and non-motorised users; and water resources, drainage and flood risk. Matters scoped out of the EIA are identified together with the justification.
- 1.3.33 Each of the topic chapters is subdivided along the lines of: introduction; baseline conditions; an outline of the potential impacts, mitigation and residual impacts for the project; the cumulative effects including other works associated with MetroWest Phase 1; and the approach to the impact assessment.
- 1.3.34 The last chapter presents an overview of the proposed structure for the Environmental Statement.
- 1.3.35 A separate environmental Baseline Report has been prepared and contains more detailed background information about the study area.

2 Project Description

2.1 Introduction

2.1.1 The Environmental Statement ("ES") will include a clear description of all aspects of the Portishead Branch Line (MetroWest Phase 1) Project at the construction and operation stages. Since the operational stage of the Project is very long term and has no foreseeable end-date there are no proposals to decommission the Project in the future. Although the ES will not consider the potential for environmental impacts in the event of some decommissioning activities at an undeterminable period in the future, the ES will explain what account has been taken of carbon implications and sustainability of materials proposed for use in the construction of the Project. The description of the Project to be provided in the ES will include:

- Land use requirements;
- Site preparation;
- Construction processes, methods and machinery;
- Access routes, including transport routes and access points;
- Operational requirements including the main characteristics of the operational phase of the Project;
- Maintenance activities including any potential environmental impacts;
- Emissions to water, air, soil pollution, noise, vibration, light, heat and radiation.

2.1.2 The ES will identify and describe control processes and mitigation procedures for storing and transporting waste offsite and will quantify and classify waste types.

2.1.3 At the time of submission of the application for the Development Consent Order ("DCO") it is expected that it will be possible to finalise the description of the elements of the Project. In the event that any proposed Project parameters cannot be fully detailed at the time of application then they will be defined in the draft DCO and considered in the ES. In the event that any flexibility is sought in the DCO then regard will be had to the Planning Inspectorate's Advice note nine Using the '*Rochdale Envelope*'.

2.1.4 The description of the Project, its location and the other works that are proposed to be undertaken by Network Rail in exercise of its permitted development rights as a statutory undertaker are described below on the basis of scheme design at the date of a request for the Scoping Opinion. It should be noted that consultation has already been undertaken and is continuing with the relevant consultees in respect of the detail of the design of the Project and the preparation of the ES. This will continue and the consultations will further inform the iterative final design of the Project and the consenting strategy.

2.1.5 In respect of the study areas proposed in respect of assessment topics, these are based on recognised professional guidance where such guidance is available and agreement has either already been sought or is being sought with the relevant consultees.

2.1.6 It is proposed to "scope out" of the ES the following matters:

- **Cultural Heritage:** The cumulative effects of the construction of the Bedminster Down Relief Line, Avnonmouth Signal, and Bathampton Turnback on the cultural heritage resource, as these schemes are small scale, occur within railway land that has already been disturbed from previous construction phases.

- **Cultural Heritage:** The effect of increased services on the Bristol to Bath and Bristol to Severn Beach lines on the setting of cultural heritage features, as the increase in services is not considered to materially change the setting of cultural heritage assets.
- **Ecology and Biodiversity:** The cumulative effects of construction for the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback as the works are within operational railway land, are small scale and will not result in significant effects on biodiversity.
- **Ecology and Biodiversity:** The operational effects of additional services on the existing railway network on flora and fauna along the railway corridors.
- **Geology, Hydrogeology, Ground conditions and Contaminated Land:** Assessment of the Ham Green SSSI, as no construction works are proposed in this section and operation will not impact on the geology for which the site is designated.
- **Geology, Hydrogeology, Ground Conditions and Contaminated Land:** The impact of new and additional services on the railway lines on geology, as following construction, there will be no further significant impacts on the underlying ground conditions.
- **Geology, Hydrogeology, Ground Conditions, and Contaminated Land:** The cumulative effects of the construction of the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, as these works are small scale, wholly located within railway land and will not affect the underlying ground conditions.
- **Landscape and Visual:** The cumulative effects of Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, as these works are small scale, within operational railway land and will not materially affect landscape character or views.
- **Landscape and Visual:** The landscape and visual impacts of additional train services on the operational railway as a result of MetroWest Phase 1. These railway lines are already carrying train services, and additional services will not materially affect the landscape/townscape or views.
- **Materials and Waste:** The use of materials and disposal of waste for the operations phase of the Portishead Branch Line. The volumes involved will be relatively small, and they will be handled in accordance with Network Rail's procedures, in the same way for all existing operational railways.
- **Materials and Waste:** The cumulative effects of construction of the project with Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback, as these schemes are small scale, will require very small volumes of materials and generate small volumes of waste compared with Network Rail's routine construction and maintenance works.
- **Noise and Vibration:** The cumulative effects of construction noise of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, as these other works are small scale, geographically distant, and there will be no cumulative effect on ambient noise levels.
- **Soils, Agriculture, Land Use and Assets:** The impact of the Portishead Branch Line on severance of farms along the disused railway between Portishead and Pill, provided that NSC comes to an agreement with the affected parties on mitigation.
- **Soils, Agriculture, Land Use and Assets:** The risk of livestock straying onto the railway line. This risk will be mitigated through livestock fencing.
- **Soils, Agriculture, Land Use and Assets:** Operational effects on farmland quality and use, as the project will not change the quality and use of agricultural land.

- **Soils, Agriculture, Land Use and Assets:** Cumulative effects resulting from construction of the Portbury Freight Line, Bedminster Down Relief Line, Avonmouth Signfal, and Bathampton Turnback on agriculture and soils, as these schemes lie within the railway corridor and works will not affect agriculture or soils.
- **Transport, Access and Non-Motorised Users:** The impact of construction and operation of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback on the local road network. These works are small scale within railway land and would not create hgiwhay transport impacts.
- **Water Resources:** Impacts on the water quality of the River Avon as a consequence of the scheme, both during construction and operation. Changes in discharge and water quality of tributaries to the Avon are neglible and will not significantly impact upon the River Avon
- **Water Resources:** The cumulative effects of the construction of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback with the Portishead Branch Line on water resources.
- **Water Resources:** The cumulative effect of additional operating services under MetroWest Phase 1 on water resources.

2.1.7 An explanation for the Applicant's opinion that these matters should be scoped out is provided in the relevant sections of this Scoping Report. Where topics have been scoped out prior to submission of the DCO application the ES will explain the reasoning and justify the approach taken.

2.2 Location of the MetroWest Phase 1 Scheme

2.2.1 MetroWest Phase 1 will allow the local train operating company to:

- run half hourly passenger train service from Bristol Temple Meads to Portishead via Pill;
- run half hourly passenger train services to Avonmouth on the Severn Beach line, with one train an hour continuing to St. Andrews Road and Severn Beach stations; and
- provide a half hourly train service for local stations between Bristol Temple Meads and Bath Spa.

2.2.2 MetroWest Phase 1 entails infrastructure required to re-open the Portishead line which is referred to as "Portishead Branch Line (MetroWest Phase 1) Project" to be consented via a DCO and other works to deliver the rest of the Project, to be taken forward using General Permitted Development rights. The Portishead Branch Line (MetroWest Phase 1) Project, which includes sections on the Portbury Freight Line in Ashton Gate, is located to the west of Bristol, close to the Severn Estuary and south of the River Avon. The Portbury Freight Line extends from Portbury Dock and south of the River Avon, passing through the Avon Gorge to join the main line to the South West of England between Ashton Gate and Parson Street Junction to the south of Bristol.

2.2.3 Elements of MetroWest Phase 1 which are proposed but do not form parts of the proposed application for a DCO are:

- Works on the Portbury Freight Line
 - Installation of a new section of track parallel to the existing railway from Bower Ashton to Ashton Gate to link in with the existing double track to Parson Street Junction. This section of double tracking is required to allow the freight and passenger services to pass each other.

- Upgrade works to Parson Street Junction to provide a double track connection with the Bristol to Taunton main line. This double tracking is required to provide sufficient capacity for both freight and passenger services.
- Installation of an intermediate signal in the Avon Gorge, minor track and access improvements for maintenance purposes.
- the partial reinstatement of the "down relief line" at Bedminster;
- an additional signal near Severn Beach / Avonmouth station to allow for additional trains to reverse there; and
- a track crossover and signalling at Bathampton to allow trains to turn around at Bath off the main line

2.2.4 The Bedminster Down Relief Line is located south of Bristol on the Bristol to Taunton line. The Severn Beach / Avonmouth Signalling has two location options (for option 5B the additional signal is located north of Avonmouth station for option 6B two additional signals are proposed between Avonmouth station and the M5 bridge over the railway line). The Bathampton Turnback is located to the east of Bath on the main line between Bristol and London.

2.3 Portishead Branch Line (MetroWest Phase 1) Project

Main Features

- 2.3.1 A red line drawing showing the proposed extent of works, the main engineering features, permanent and temporary land-take, associated works, and key environmental receptors within 100m of the project is presented in Figure 2.1 (sheets 1 to 23). At present, temporary land-take needs for construction purposes have not been identified, but these will be considered for the DCO Application.
- 2.3.2 A new railway station is to be built on the eastern side of Portishead town centre. The station is likely to comprise a canopy structure sheltering the station building and a section of the single platform. The platform is to be approximately 100 metres which is sufficient to accommodate a four car train. The highway will be modified to re-align the northern part of Quays Avenue to the west, undertake alterations to Phoenix Way and relocate the existing roundabout between Quays Avenue, Phoenix Way and Harbour Road approximately 100 metres to the west. Car parking for up to 200 cars will be provided on two sites. The main car park will be located directly next to the station building and forecourt and an additional car park will be located to the west on the opposite side of Quays Avenue. A combined pedestrian and cycle link (non-motorised users "NMU") to the town centre is to be provided using the rest of the dis-used rail alignment.
- 2.3.3 A new pedestrian overbridge is proposed to link residential areas on the south and north sides of the railway and Trinity Primary School on the north side of the railway. The pedestrian overbridge is to be fully accessible and likely to comprise a zig-zag ramp arrangement on both sides of the railway, with parapets on both sides of the walkway over the railway line. The whole structure is likely to be made of steel painted in a neutral colour. The height of the structure may be about 6.2m. The design of the proposed pedestrian overbridge is subject to public consultation which is planned for summer 2015.
- 2.3.4 A lane known as Moor Lane used to extend from Sheepway on the south side of the railway corridor to a waste disposal facility in north Portishead. Both the waste disposal facility and Moor Lane have long since been closed. Records indicate there was a level crossing on Moor Lane over the railway, however barely anything remains today of Moor Lane and the land to the south and north side of the railway corridor has been redeveloped for housing. What was Moor Lane is best described as a dog walking track, which requires walkers to traverse a ditch on the southern side. It may be used for

- informal recreation, but it is not identified as a public right of way ("PRoW") on the NSC planning portal.
- 2.3.5 The railway line between Portishead and Pill will be re-built more-or-less along the existing horizontal and vertical alignment of the dis-used track. The width of the alignment boundary from fence to fence is generally 17 to 20 metres and widens further at locations such as at bridges. The horizontal alignment of the track will be shifted by up to about 3 metres in order to improve the curvature of the alignment and to allow sufficient separation between the railway and the Sustrans cyclepath No. 26 under the M5, Portbury Royal Dock Road, and Marsh Lane overbridges.
- 2.3.6 While the Project does not include overhead line electrification ("OHLE"), allowance will be included in the design to allow future electrification. For example, there will be some minor, localised lowering of the existing vertical alignment of about 300 mm under existing bridges to provide sufficient headroom for future OHLE. The new structures, namely the footbridge and farm accommodation bridge will also include headroom for future proofing for OHLE.
- 2.3.7 At the old Portbury station house, the horizontal alignment will be moved west by about 3 metres to align better under the arch of the Sheepway overbridge. This will also move the railway away from the old Portbury station house which is now a private residential property. Further consideration will be given to the boundary fence between the property and the railway for health and safety and acoustic screening reasons.
- 2.3.8 Where the dis-used line approaches the Portbury Freight Line, the track from Portishead will extend in parallel with the existing freight line (southern side) through Pill and connect with the freight line at a new junction to be called Pill Junction. The location of Pill Junction lies between Pill station and the western side of Pill Viaduct.
- 2.3.9 To the west of Pill station the existing rail bridge over the Avon Road / Lodway Close pedestrian and cycle underpass will be widened. The works involve construction of retaining walls adjacent to gardens of the residential property in Lodway Close. These works are within the existing railway operational boundary.
- 2.3.10 The existing westbound platform at the disused Pill railway station will be refurbished and opened for passengers to embark and alight from the new passenger train service. The works will include a new pedestrian bridge across the railway line from Monmouth Road to the westbound platform next to the existing road bridge and a shelter. The former goods yard to the north and west of the station is to be used for the station car park, providing around 50 spaces. The land is currently in third party ownership. The pedestrian access from the car park to the railway station will be upgraded and signposted.
- 2.3.11 The Portbury Freight Line comprises a predominately single track railway along the southern and western bank of the River Avon. To maintain the vertical alignment, the railway line passes through four tunnels on its route through the Avon Gorge, from west to east, Pill Tunnel (630m long), Sandstone Tunnel (80m long), Clifton Tunnel No. 2 (210m long) and Clifton Tunnel No. 1 (60m long). There are no plans to enlarge the tunnels.
- 2.3.12 According to Network Rail, the tunnels are generally in good condition but require some minor works such as re-pointing. Such works are considered to form part of the on-going maintenance regime for the operational railway and will not form part of the application for the DCO for the Project.
- 2.3.13 New accesses for emergency vehicles with hard standing will be required to the Pill Tunnel eastern portal. Other new access points may be required for health and safety purposes.
- 2.3.14 To provide sufficient passing places to accommodate the additional passenger services on this line and enable passenger and freight trains to pass each other, it will be necessary to extend the existing doubling tracking between Parson Street Junction and Ashton Gate by

1.6 km towards Clifton Tunnel No. 1, stopping to the south of the Avon Gorge Woodlands SAC, Avon Gorge SSSI and Leigh Woods NNR.

- 2.3.15 The Ashton Gate Container's pedestrian Level Crossing is to be removed by the Ashton Vale MetroBus Project in 2016. Pedestrians will be re-routed to the existing Ashton Vale Road Junction Level Crossing, 200m to the north.

Temporary and Permanent Land-take

- 2.3.16 At this stage it is too early to identify temporary land required for construction purposes. While much of the construction footprint will be along the existing railway corridor, additional land may be needed for offices and storage of materials.
- 2.3.17 Most of the project will be constructed on land already owned by NSC and NR. NSC intends to pass over ownership of the land and railway assets to NR on completion of the project.

Construction Phase

- 2.3.18 The current programme assumes that construction would commence in early 2018 with the Project opening in May 2019. The key construction activities are summarised below.
- 2.3.19 During the construction mobilisation phase, vegetation removal will be required, particularly trees either obstructing the railway track and for cess. The cess is the area immediately either side of the track which must be free of all obstructions for health and safety reasons. Where possible, it is intended to keep mature trees and shrubs along the edge of the railway boundary to provide visual screening and wildlife habitat. In early 2015 vegetation was removed (with the exception of semi-mature trees) along a 10m strip within the disused section of the railway corridor in advance of the topographical survey, required for the engineering design, to provide adequate sight lines.
- 2.3.20 The existing rails and sleepers along the disused section will be removed and reused or recycled as appropriate.
- 2.3.21 The existing ballast and compacted sub-base will be broken out and where possible will be re-used within the railway corridor. Site investigations have shown that the existing ballast does not meet current criteria, as it has degraded over the decades. Furthermore, some of the material is contaminated. Further consideration will be given to re-using the spoil from the site within the railway corridor to reduce the potential impacts of removing the material by heavy goods vehicles ("HGVs") and seeking off-site disposal routes.
- 2.3.22 The vertical alignment will be lowered by about 300 mm under overbridges through excavation and the material used within the site where possible.
- 2.3.23 The following bridge and structures works are required:
- A new footbridge linking to Trinity Primary School entailing some earthworks and foundations for the steel structure, with footpaths to link into existing footpaths.
 - Similar works will be required for a new footbridge at Pill station linking Monmouth Road to the southern dis-used platform, which will require a new paved surface.
 - The Avon Road / Lodway Close rail bridge west of Pill station will be widened and this will entail earthworks to build new retaining walls. This work is to be undertaken within the operational railway boundary; however some temporary access may be needed to third party land during construction.
 - Various culverts are to be either replaced or restored along the dis-used alignment.
 - The existing road over rail bridges at Portbury Old Station, Royal Portbury Dock Road, and Marsh Lane will require minor maintenance works such as replacement of joint mortar etc.

- Minor works are required to Pill Tunnel to provide an emergency and maintenance access route in the event of the need for passenger evacuation from a train in the tunnel.
- 2.3.24 The existing drainage ditches within the railway corridor will be cleaned out and repaired as required. It is currently envisaged that it will not be necessary to enlarge the existing culverts under the railway, but this will be confirmed during the design phase.
- 2.3.25 New sub-base and ballast will be delivered to site, using the railway corridor as far as possible, with new sleepers and rails laid on top, creating the new track formation. A cabling trough will be required alongside the track formation to house cabling for the signalling system. Signals and signal panel boxes will be installed at various locations along the track formation.
- 2.3.26 The works in Portishead include highway works, construction of the station, car park, pedestrian and cycle link to the town centre and landscaping works. The highway works involve removal of the black top, minimal earthworks, re-forming the carriageways, new line marking and kerbing. Traffic management, including partial or full road closures, will be required during the works. The construction of the new station comprises earthworks for foundations, bricklaying for the main body of the building, and fittings. Landscaping works will include installation of hard landscaping such as pavement setts, kerbing and lighting, and new planting.
- 2.3.27 The construction of the car park at Pill comprises site clearance, land levelling, sub-base and surfacing with asphalt and line marking. Additional features include CCTV and lighting. The works required for Pill station are described above.
- 2.3.28 Emergency access to Pill tunnel is required for the emergency services, their vehicles and personnel. A new access track is proposed using part of an existing bridleway and an area of agricultural land to form a turning area and space for emergency vehicles dealing with an incident. The access track is likely to entail a limited amount of earthworks, construction of a sub-base and a permeable surface. The turning and parking area may need to be a sealed surface (such as blacktop) surrounded with landscaping as appropriate.
- 2.3.29 The design of the railway infrastructure will be undertaken by Network Rail and their consultants.
- 2.3.30 The contract for the construction of the works would be awarded to one or more construction companies, depending on how the tendering process is procured. It is likely that the NSC and or Network Rail would also appoint a Supervising Engineer to ensure that the works are built according to the design.

Programme

- 2.3.31 The main milestones to implement the Project are summarised below.
- Submission of the Scoping Report to the Inspectorate – spring/summer 2015
 - Outline Business Case submitted to Joint Transport Board - May 2016
 - Assessments completed in preparation of Environmental Statement May to December 2015
 - GRIP 3 railway engineering design by NR - May to December 2015
 - Formal consultation under the Planning Act 2008 - Stage 1 consultation spring 2015, stage 2 consultation autumn 2015
 - Submission of the DCO application, including the Environmental Statement - spring 2016

- GRIP railway engineering design stages 4 to 5 - spring 2016 to summer 2017
- DCO stages 2 to 6 - spring 2016 to autumn 2017
- Full business case submitted to the Local Transport Body Board - autumn 2017
- Start of construction - winter 2017/18 2017
- Project opening - May 2019.

Operation Phase

- 2.3.32 A new passenger service will be provided between Portishead, Pill and Bristol Temple Meads over the likely operational hours of 0600 to 2400, subject to further development of the business case and railway modelling. It is anticipated that the train service will operate half hourly between 0600 and 1800, then hourly until 2400, Monday to Saturday. On Sundays an hourly service is envisaged from 0900 to 1800.
- 2.3.33 The proposed line speed will be 75 mph between Portishead and the M5 underbridge west of Pill. A voluntary speed limit is in place through Pill in response to concerns by local residents about noise from freight trains. The proposed line speed for the southern section of track though Pill (i.e. the passenger only line) to the proposed Pill Junction is 50 mph and the line speed for the remainder of the freight line to Ashton Gate will be 50 to 60 mph. From Ashton Gate to Parson Street Junction the line speed reduces to 25 mph.
- 2.3.34 All the railway infrastructure and associated land currently in the ownership of NSC will be handed over to NR who will take on the responsibility for asset management and maintenance. The service will be run by a train operator. The train operator is not yet confirmed; however the promoter (NSC) is in discussion with the incumbent operator First Great Western and the Department for Transport.

2.4 Other Works for MetroWest Phase 1

- 2.4.1 The works described below form part of the MetroWest Phase 1 but are not proposed to be included within the application for the DCO since they can be undertaken by Network Rail using permitted development rights under Part 18 of the GDPO.

Portbury Freight Line

- 2.4.2 The following works are required along the Portbury Freight Line.
- Installation of 1.6 kilometres of new track parallel to the existing railway from Bower Ashton to Ashton Gate to link in with the existing double track to Parson Street Junction. The existing junction at Ashton Gate will be replaced with a new junction at Bower Ashton. This section of double tracking is required to allow the freight and passenger services to pass each other.
 - Upgrade works to Parson Street Junction to provide a double track connection with the Bristol to Taunton main line. This double tracking is required to provide sufficient capacity for both freight and passenger services.
 - Installation of an intermediate signal in the Avon Gorge, minor track and access improvements for maintenance purposes. The intermediate signal is needed to enable both freight and passenger services to operate on the single track line in the same direction. The minor track works entails making changes to the track camber to enable passenger trains to operate at higher speeds (up to 55 mph) with acceptable ride quality for passengers. The improvements for maintenance entail providing additional gate accesses / enhancing existing access gates for engineering maintenance personnel with small plant maintenance equipment.

Bedminster Down Relief Line

- 2.4.3 A section of dis-used railway near Bedminster station is to be re-built and brought back into use. The section of dis-used railway is approximately 1 km in length and is located on the alongside (outer edge) of the existing Bristol to Taunton main line, in the southbound direction. This dis-used section of line is required to enable the regulation of freight trains in the southbound direction (returning to Royal Portbury Dock). The works will include the reinstatement of a crossover (a section of track linking two tracks together) and associated signaling. These works are within Network Rail's operational boundary and will be implemented using their General Permitted Development rights. These works are known as “Bedminster Down Relief Line (MetroWest Phase 1)”.

Severn Beach / Avonmouth Signalling

- 2.4.4 An additional signal is required approaching Severn Beach station and / or Avonmouth station to facilitate terminating trains. The precise location of the signal(s) will depend on the confirmation of the train service pattern. Two train services patterns known as option 5B (signal approaching Severn Beach station) and option 6B (signal located at Avonmouth station) are being developed and a decision on which is to be delivered is expected to be made in spring 2016. These works are within Network Rail's operational boundary and will be implemented using their General Permitted Development rights. These works are known as “Severn Beach/Avonmouth Signalling (MetroWest Phase 1)”.

Bathampton Turnback

- 2.4.5 The Bathampton Turnback will comprise a new section of track (crossover) between the existing up line to London and the down line to Bristol, and a short walkway (unsurfaced path) for train drivers to walk from one end of a train to the other end. The local train from Bristol would enter the up loop at Bathampton from the up line, the driver would be able to descend onto the walkway, walk to the other end of the train and mount the train, before moving forward and exiting the loop via a new signal and use the crossover to cross to the down line back to Bristol. All the works will be confined to NR's existing land holding and will be undertaken by NR under their permitted development rights. These works are known as “Bathampton Turnback (MetroWest Phase 1)”.
- 2.4.6 Further information on these works are provided in the Baseline Report.

3 Options Considered

3.1 Introduction

3.1.1 The Portishead Branch Line (MetroWest Phase 1) Project will re-use the existing railway alignment which was first laid out in the 1860s. This approach minimises the need for land-take. Consequently, there are no material options for the horizontal and vertical alignment of the railway.

3.1.2 Options have been considered for the following features:

- the location of the Portishead railway station
- the footbridge to Trinity Primary School.

3.1.3 These options are discussed in the following sub-sections.

3.2 Location of Portishead Railway Station

Background

3.2.1 The Portishead railway line originally opened in 1867 and operated train services until 1964, when it was closed under the Beeching cuts. The location of Portishead rail station in 1964 prior to the closure of the line was on land currently owned by Waitrose, on Harbour Road. In February/March 2013 NSC consulted with the general public on this location, plus two other possible station sites, through the Sites and Policies Plan (Consultation Draft). However, there were some challenges with these sites which led to the need for wider examination of site options to determine the most appropriate and deliverable site for the station.

Planning and Transport Policy

3.2.2 The North Somerset Replacement Local Plan ("RLP") 2007 (policy T/3) safeguarded a site for Portishead station at the rear of Waitrose, close to the former station site in 1964. This is known as site option 1A. Policy T/3 remains a saved Replacement Local Plan and site option 1A is currently the only safeguarded site for the station.

3.2.3 The railway alignment has been safeguarded from development by local plan policies for many years and this has largely been successful in preserving the integrity of rail alignment for future re-opening. However, a new highway (Quays Avenue) was built across the rail alignment in 2004, on the presumption that a rail level crossing would be acceptable and deliverable, should the re-opening the rail line be taken forward. Since Quays Avenue was built the design standards for railways have evolved and the formal position of the Office of Rail Regulation ("ORR") is that it does not support the implementation of new level crossings. The ORR is in fact working with Network Rail on a programme to reduce the total number of level crossings in operation on the national rail network, as a result of concerns about the number of accidents and fatalities each year. In assessing the station sites options, it is necessary to consider land use and transport policies as well as the environmental and social impacts of each site.

3.2.4 The National Networks National Policy Statement ("NN NPS") sets out the need for, and the Government's policies to deliver, development of nationally significant infrastructure projects on the national road and rail networks in England. It provides planning guidance for promoters of nationally significant infrastructure projects on such networks and the basis for the examination by the Examining Authority and decisions by the Secretary of State ("SoS"). The SoS will use the NPS as the primary basis for making decisions on the application for a development consent order for the Project, which must be determined in accordance with the NPS unless other considerations set out in section 104 of the Planning

Act 2008 require otherwise. The Government's vision and strategic objectives for national networks are set out in the NN NPS.

- 3.2.5 The NPS records that the overall strategic aims of the national planning policy framework ("NPPF") and the NPS are consistent *"however, the two have differing but equally important roles to play"* (paragraph 1.17). The NPS notes that the NPPF provides a framework upon which *"local authorities can construct local plans to bring forward developments, and the NPPF would be a material consideration in planning decisions for such developments under the Town and Country Planning Act 1990. An important function of the NPPF is to embed the principles of sustainable development within local plans prepared under it. The NPPF is also likely to be an important and relevant consideration in decisions on nationally significant infrastructure projects, but only to the extent relevant to that project."*
- 3.2.6 *However, the NPPF makes clear that it is not intended to contain specific policies for NSIPs where quite particular considerations can apply. The National Networks NPS will assume that function and provide transport policy which will guide individual development brought under it.....In addition, the NPS provides guidance and imposes requirements on matters such as good scheme design, as well as the treatment of environmental impacts. So, both these documents seek to achieve sustainable development and recognise the different approaches and measures will be necessary to achieve this".*
- 3.2.7 As noted above, the foremost principle of the NPPF is a presumption in favour of sustainable development. NPPF states that development must not have an unacceptable impact on the highway network. Policy T/10 of the RLP states:
- "Development giving rise to a significant number of travel movements will only be permitted if it: i) is not likely to lead to an unacceptable degree of traffic congestion or generate traffic that cannot be accommodated without seriously affecting the character of the surrounding area and can readily be integrated with public transport, cycleway and footpath links and bridleways where appropriate."*
- 3.2.8 Policy T/10 is relevant to the proposed development in terms of consideration of the sites options for Portishead station. Quays Avenue is one of two roads feeding onto Phoenix Way. Phoenix Way serves a new development (Portishead Vale) of approximately 1,000 dwellings and population of over 2,500. Harbour Road connects Phoenix Way to Portishead town centre via Cabstand. Quays Avenue connects Phoenix Way to Wyndham Way, which forms part of the external facing A369 corridor. This route enables the residents of Portishead Vale to access the A369 without having to travel via the Cabstand junction in the town centre. Maintaining both the western (Harbour Road) and southern (Quays Avenue) highway links with Phoenix Way is necessary for efficient access and egress for local residents. Furthermore maintaining both links is necessary to maintain efficient traffic circulation both into the town centre and for outbound trips.
- 3.2.9 Closing Quays Avenue either side of the rail alignment, without other interventions, such that the only way into Phoenix Way would be via Harbour Road and Cabstand, is not feasible as it would effectively create a huge cul-de-sac causing severance problems for residents and it would also have an adverse impact on local traffic distribution and increase traffic queuing on Harbour Road and through Cabstand, resulting in an unacceptable severe highway impact. Consequently all the options for Portishead station need to maintain two road routes to and from Phoenix Way.

Portishead Station Site Consultation - February/March 2013

NSC Sites & Policies Development Plan Document (Consultation Version)

3.2.10 In February 2013, NSC undertook public consultation on its Sites & Policies Development Plan Document (Consultation Version). As part of the consultation the Council published an evidence paper Re-opening Portishead Railway Line and Options for the Location of Portishead Railway Station which set out the project background and included three potential station location sites, together with qualitative summary tables for each option. The three station sites were:

- Option 1 - Town centre location on Harbour Road
- Option 2 - Peripheral town centre location on Quays Avenue
- Option 3 - Edge of town location on land north of Moor Farm

3.2.11 These option sites are shown on Figure 3.1.

Figure 3.1. Location of the Options 1, 2 and 3 for Portishead Station



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Shading indicates station footprint only without car parking for ease of illustration only.

3.2.12 An on-line consultation was undertaken together with staffed exhibitions held in Portishead. A total of 147 consultation responses were received. In summary there was both support and objections for options 1 and 2, while for option 3 there was no support and 25 objections. Furthermore there were suggestions for the Council to consider other station sites.

3.2.13 The consultation responses gave a mixed picture for options 1 and 2, with both receiving both support and objections. While option 1 received the greatest support, it had considerable deliverability challenges owing to the construction of Quays Avenue and the views expressed by the ORR about the possibility of a new level crossing at Quays Avenue (see 3.2.24 below).

Portishead Station Options Appraisal

Overview

3.2.14 In early 2014 NSC undertook a Portishead station options appraisal assessment of six potential sites and published an options appraisal report in June 2014⁵. The purpose of the options appraisal was to undertake a wider assessment of potential sites along the available (safeguarded) railway alignment through eastern Portishead. The optional appraisal took account of relevant policy objectives, project objectives, environmental and social impacts and deliverability considerations. The methodology essentially comprised an assessment of policy fit, an assessment of environmental / social impact and an assessment of site deliverability, resulting in an overall site viability ranking. The methodology is based on the Department for Transport's Early Assessment and Sifting Tool ("EAST"), which is a multi-criteria assessment approach. Each element for each station site was assessed qualitatively lead to a performance ranking. The results of the three elements were then combined and given equal weighting, to produce an overall site viability ranking for each station site.

Area of Search

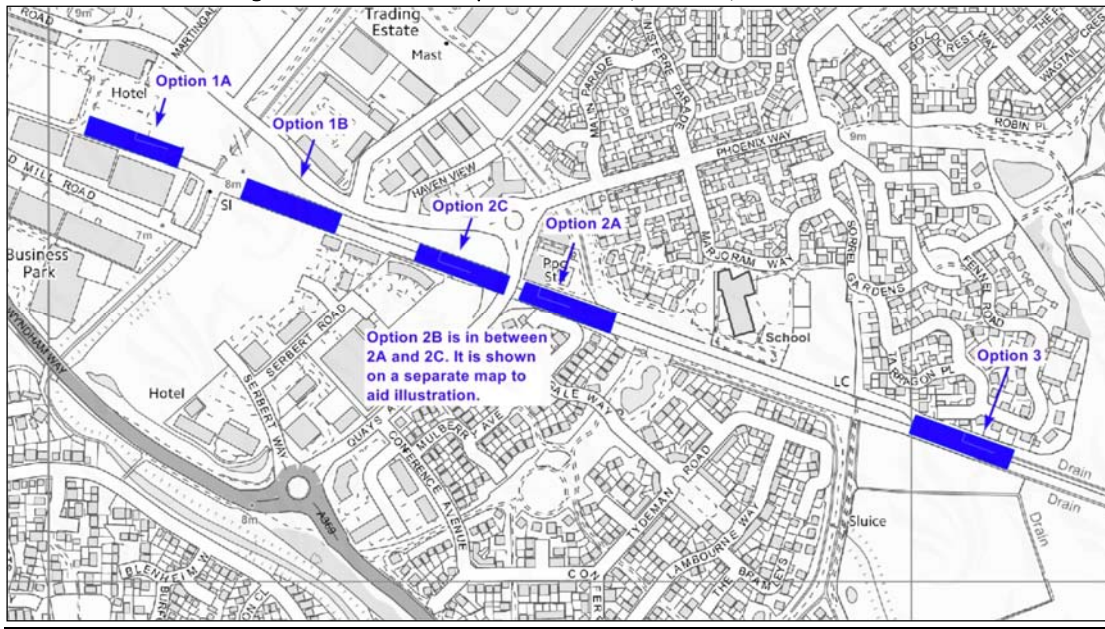
3.2.15 The safeguarded dis-used railway alignment between Portishead to Portbury Dock Junction (near Pill) provides the only practical alignment for re-connecting Portishead to the national rail network. The alignment width varies through Portishead but is generally 15 to 20 metres wide. The land either side of the alignment has been developed over recent years, mainly as residential, with some commercial development closer to the town centre. Consequently, the area of search extended along the safeguarded railway corridor. The site options appraisal included the three station sites previously consulted on, plus three new sites options, giving a total of six site options:

- Site Option 1A - previously labelled option 1
- Site Option 1B - additional option immediately east of option 1A
- Site Option 2A - previously labelled option 2
- Site Option 2B - additional option immediately west of option 2A
- Site Option 2C - additional option immediately west of option 2B
- Site Option 3 - as previously labelled option 3

3.2.16 The location of these sites options are shown in Figures 3.2 and 3.3.

⁵ The study is referenced in the Preliminary Business Case

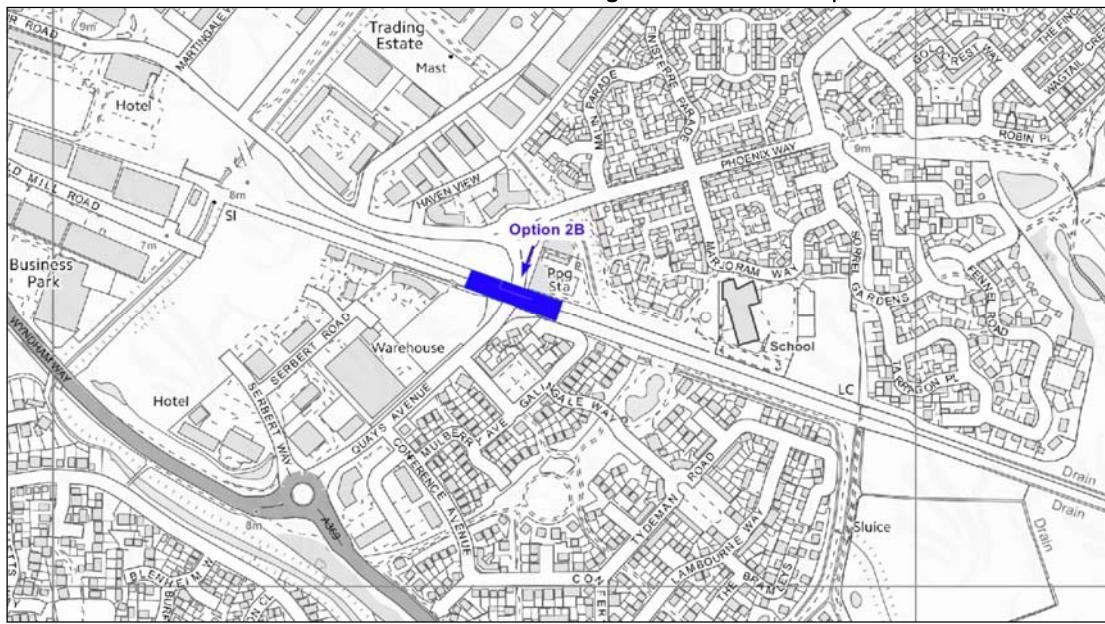
Figure 3.2. Plan of Site Options 1A and B, 2A and C, and 3 Considered for Portishead Station



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Figure 3.3. Plan of Site Option 2B for Portishead Station



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Shading indicates station footprint only without car parking for ease of illustration only.

Feasibility of a Level Crossing at Quays Avenue

- 3.2.17 The ORR policy position on level crossings is set out in the following documents: "Guide To Level Crossing Order Submissions January 2008", "Level Crossings: A Guide for Managers, Designers and Operators December 2011" and "Strategy for Regulation of Health & Safety Risks - Level Crossings January 2014". Paragraph 2.3 of ORR 2008 states "HM Railway Inspectorate [now subsumed into the Office of the Rail Regulation] DOES NOT, in principle, support the creation of any new level crossings, of any type."
- 3.2.18 In 2013 NSC requested a view from the ORR about the possibility of a new level crossing at Quays Avenue. The ORR's response was that it did not support a level crossing stating that

"Level crossings are the greatest source of risk on the rail network, primarily in terms of risk to individual pedestrians or vehicle users, but also to passengers in trains colliding with vehicles and then derailing." Furthermore in relation to the volume of traffic using Quays Avenue the regulator stated *"...the risk arising from a new level crossing would be high, even at the train speeds prevailing 450 metres from the terminal. ORR would not authorise a new crossing at this point."*

- 3.2.19 Given the clarity provided by the ORR's policy position, the specific response from the ORR regarding a level crossing at Quays Avenue and the wider activity by the industry to reduce the number of existing level crossings, it is clear that there is no practical mandate for pursuing a level crossing. NSC therefore concluded that a level crossing at Quays Avenue was not viable.

Site Options Appraisal Conclusions

- 3.2.20 The outcome of the options appraisal was that options 2A, 2B and 2C warranted further consideration, while options 1A, 1B and 3 were not sufficiently robust to take forward. A summary description of the six site options together with the infrastructure required and other factors is set out in Table 3.1 below. The population figures shown were calculated using 2011 census data and data on housing completions since 2011.
- 3.2.21 The site options assessment is presented in Table 3.2 on the policy fit, Table 3.3 regarding the environmental and social impacts, and Table 3.4 on the deliverability assessment.
- 3.2.22 Indicative layout plans have been produced for options 1A, 1B and 3, and concept engineering design drawings have been produced for site option 2A, 2B and 2C. These are presented in Appendix C.

Table 3.1. Overview of Assessed Site Options Table Title

Option	Location & Population Catchment	New Highway Infrastructure Required	Wider Context
Option 1A	<ul style="list-style-type: none"> Rear of Travelodge Harbour Road Location is 300 metres from Cabstand Population within 1km radius is 15,991 	Road over railway bridge at Quays Avenue. A footbridge near Trinity Primary School. A further 50 space car park, in addition to 100 spaces already secured. Bus stops/lay-bys.	ORR has confirmed that a level crossing at Quays Avenue will not be permitted. Consequently this option requires a road over rail bridge. There is not sufficient room for a standard road bridge. The bridge design requires a steeper gradient which reduces the line of sight, and means the junction would have to be signal controlled. The overall environmental impact of the bridge is significant due to the highway being raised over 5 metres above the existing highway level, very close to existing residential / commercial property. The cost of the bridge is not within the funding envelope and

Table 3.1. Overview of Assessed Site Options Table Title

Option	Location & Population Catchment	New Highway Infrastructure Required	Wider Context
Option 1B	<ul style="list-style-type: none"> • Opposite Pure Offices Harbour Road • Location is 400 metres from Cabstand • Population within 1km radius is 15,927 	<p>This option requires substantial highway modifications to form a new highway link between Harbour Road and Wyndham Way, as an alternative route to Quays Avenue, which would be stopped up. Alternatively this option would require the road over rail bridge at Quays Avenue (as option 1A). A footbridge near Trinity Primary School and enhanced footpath links. A 150 space car park. Bus stops/lay-bys.</p>	<p>would compromise the project business case.</p> <p>Requires significant third party land /property, causing impact to commercial business. Requires closure of Quays Avenue (to through traffic) and a new highway link from Harbour Road to Wyndham Way, but this new link be an indirect route and would have a severe highway impact as it would increase pressure on key junctions, causing delays and longer journey times. It is unlikely these highway modifications would be acceptable to NSC as the highway authority.</p>
Option 2C	<ul style="list-style-type: none"> • Between Serbert Road and Harbour Road • Location is 550 metres from Cabstand • Population within 1km radius is 14,402 	<p>Some highway modifications to form a new highway link connecting Harbour Road to Serbert Road as an alternative route to Quays Avenue, which would be stopped up. A westbound pedestrian and cycle link. A pedestrian crossing at Serbert Road. A footbridge near to Trinity Primary School and enhanced footpath links. A 150 space car park. Bus stops/lay-bys.</p>	<p>Requires some third party land /property, including partial demolition of commercial property. Requires some highway modifications to form a new highway link connecting Harbour Road to Serbert Road, as a result of closing Quays Avenue to through traffic. Highway modifications cause some traffic impacts. Car park is located across the road from the station.</p>
Option 2B	<ul style="list-style-type: none"> • Across Quays Avenue • Location is 600 metres from Cabstand • Population within 1km radius is 13,889 	<p>Some highway modifications to re-align Quays Avenue and form a new roundabout junction with Haven View, with some modifications to Phoenix Way. A westbound pedestrian and cycle link. A pedestrian crossing at Quays Avenue. A footbridge near Trinity Primary School and enhanced footpath links. A 100 space main car park and</p>	<p>Requires some third party land/ property. Requires some highway modifications to re-align Quays Avenue and create a new junction at Haven View.</p>

Table 3.1. Overview of Assessed Site Options Table Title

Option	Location & Population Catchment	New Highway Infrastructure Required	Wider Context
		50 space overflow car park. Bus stops/lay-bys.	
Option 2A	<ul style="list-style-type: none"> • East of Quays Avenue • 700 metres from Cabstand • Population within 1km radius is 12,990 	No highway modifications. A westbound pedestrian and cycle link. A pedestrian crossing at Quays Avenue. A footbridge near to Trinity Primary School and enhanced footpath links. A 150 space car park. Bus stops/lay-bys.	No highway modifications. Location is close to existing residential property and would cause some localised environmental impacts. More limited space for station forecourt / facilities. Car park is located across the road from the station.
Option 3	<ul style="list-style-type: none"> • North of Moor Farm Sheepway • Location is 1.3km from Cabstand • Population within 1km radius is 6,975 	This location requires a new highway link road 300 metres in length with a new junction at Sheepway. A westbound pedestrian and cycle link. A pedestrian crossing at Quays Avenue. A 150 space car park. Bus stops/lay-bys.	This location is not within easy walking distance of the town centre and has a much lower catchment of households within 1 kilometre. This location requires a new highway link and junction. Location is close to some existing residential property and is in the green belt, however overall has a more limited localised environmental impact.

Table 3.2. Site Options Appraisal - Policy Fit Assessment

Policy	Option 1A	Option 1B	Option 2C	Option 2B	Option 2A	Option 3
<p>Planning & Land Use Policies</p> <p>North Somerset Council Core Strategy and applicable elements of the Replacement Local Plan. Refer to section 2 for list of policies.</p>	Site is in an area zoned as commercial and the use is commercial. Site is located close to the town centre assisting the vitality of the town centre. Good / excellent policy fit.	Site is in an area zoned as commercial and the use is commercial. Site is located fairly close to the town centre assisting the vitality of the town centre. Good / excellent policy fit.	Site is in an area zoned as commercial and the use is commercial. Site is more peripheral to the town centre but pedestrian/cycle promenade link to would provide strong link to the town centre. Good policy fit.	Site is in an area zoned as commercial and the use is commercial. Site is more peripheral to the town centre but pedestrian/cycle promenade link to would provide strong link to the town centre. Good policy fit.	Site is in an area zoned as residential. As the use is commercial and close to existing residential properties, there are policy implications. Site is peripheral to the town but pedestrian/cycle promenade link to would provide strong link to the town centre. Moderate / good policy fit.	Site is in an area zoned as Green Belt and is close to a number of residential properties. Poor policy fit.
<p>WoE Joint Local Transport Plan</p> <p>Relevant policies include 'Support economic growth' and 'Promote Accessibility' etc</p>	300m from the town centre and ample space for station forecourt / facilities. Good / excellent policy fit.	400m from the town centre and ample space for station forecourt / facilities. Good / excellent policy fit.	550m from town centre, ample space for station forecourt / facilities and corner (prominent) site. Good policy fit.	600m from town centre, ample space for station forecourt / facilities and corner (prominent) site. Good policy fit.	700m from town centre, limited space for station forecourt / facilities. Moderate / good policy fit.	1.3km from town centre, space for station forecourt / facilities. Poor policy fit.
<p>Highway Development Management Policy</p> <p>Replacement Local Plan policy T/10 Safety, traffic and the provision of infrastructure associated with development</p>	Quays Avenue link maintained via road over rail bridge, with signalised T junction. Gradient and derogation of design standards causes some issues for some highway users. Overall provides a poor / moderate fit with policy.	Stopping up of Quays Avenue and providing alternative indirect highway route from Harbour Road to Wyndham Way would cause significant highway impacts resulting in, impacts on key junctions and longer journey times. Overall provides very poor policy fit.	New highway connection from Serbert Road to Harbour Road replaces Quays Avenue link (which is stopped up). New route is reasonably direct, but has narrower carriageway and more junctions. Pedestrian crossing to connect car park with station. Overall provides moderate policy fit.	Re-alignment of Quays Avenue and form a new roundabout junction with Haven View, with some modifications to Phoenix Way. Main station car park is within station grounds. Overall provides a good policy fit.	Quays Avenue link maintained as current arrangement, except a pedestrian crossing is required to link the car park with the rail station. Overall provides a moderate / good policy fit.	A new highway link is needed with new junction from Sheepway. A pedestrian crossing is needed at Quays Avenue. Highway implications are minor. Overall provides a good policy fit.
<p>Equalities Impact Assessment</p> <p>Requirements include race, gender, disability equality, sexual orientation, religion or belief and age</p>	The road over railway bridge would mean the road and pavements would entail gradients that some people may find more difficult. The footbridge near Trinity School would be fully accessible, likewise the station car park and station platform would meet all accessibility standards. Overall poor / moderate policy fit.	The required highway modifications would accord with statutory accessibility standards. The footbridge near Trinity School would be fully accessible, likewise the station car park and station platform would meet all accessibility standards. Overall good policy fit.	The required highway modifications would accord with statutory accessibility standards. The footbridge near Trinity School would be fully accessible, likewise the station car park and station platform would meet all accessibility standards. Overall good policy fit.	The required highway modifications would accord with statutory accessibility standards. The footbridge near Trinity School would be fully accessible, likewise the station car park and station platform would meet all accessibility standards. Overall good policy fit.	No changes are needed to the highway, except new access for the station car park. The footbridge near Trinity School would be fully accessible, likewise the station car park and station platform would meet all accessibility standards. Overall good policy fit.	The required highway modifications would accord with statutory accessibility standards. The station car park and station platform would meet all accessibility standards. Overall good policy fit.
<p>Project Objectives</p> <ul style="list-style-type: none"> support economic growth 	<ul style="list-style-type: none"> excellent policy fit excellent policy fit 	<ul style="list-style-type: none"> good policy fit moderate/good policy fit 	<ul style="list-style-type: none"> excellent policy fit excellent policy fit 	<ul style="list-style-type: none"> excellent policy fit excellent policy fit 	<ul style="list-style-type: none"> excellent policy fit excellent policy fit 	<ul style="list-style-type: none"> moderate/good policy fit moderate/good policy fit

Table 3.2. Site Options Appraisal - Policy Fit Assessment

Policy	Option 1A	Option 1B	Option 2C	Option 2B	Option 2A	Option 3
<ul style="list-style-type: none"> • deliver a more resilient transport offer • improve accessibility to the rail network • make a positive contribution to social well being • contribute to reducing traffic congestion • contribute to enhancing the capacity of the local rail network • contribute to reducing the overall environmental impact of the transport network 	<ul style="list-style-type: none"> • good policy fit • good policy fit • good policy fit • good policy fit • moderate policy fit 	<ul style="list-style-type: none"> • moderate/good policy fit • good policy fit • moderate policy fit • good policy fit • good policy fit 	<ul style="list-style-type: none"> • excellent policy fit • excellent policy fit • good policy fit • good policy fit • excellent policy fit 	<ul style="list-style-type: none"> • excellent policy fit • excellent policy fit • good policy fit • good policy fit • excellent policy fit 	<ul style="list-style-type: none"> • excellent policy fit • good policy fit • good policy fit • good policy fit • good policy fit 	<ul style="list-style-type: none"> • moderate/good policy fit • moderate/good policy fit • moderate/good policy fit • good fit with policy • good fit with policy
<p>Summary</p> <p>Overall policy fit</p>	<p>Overall weaker policy fit. Policy fit ranking 4th best.</p>	<p>Overall weak policy fit. Policy fit ranking 5th best.</p>	<p>Overall strong policy fit. Policy fit ranking 2nd best.</p>	<p>Overall very strong policy fit. Policy fit ranking 1st best.</p>	<p>Overall good policy fit. Policy fit ranking 3rd best.</p>	<p>Overall very weak policy fit. Policy fit ranking 6th best.</p>

Table 3.3. Site Options Appraisal – Environmental & Social Impact

Environmental & Social Impact	Option 1A	Option 1B	Option 2C	Option 2B	Option 2A	Option 3
<p>Carbon emissions</p> <ul style="list-style-type: none"> Change in total vehicle kilometres Impact on carbon emissions, for construction and when operational Total fuel used and fuel efficiency 	<p>Central location close to the town centre, results in attractive and competitive travel option, resulting in a high level of passenger demand and modal switch.</p> <p>However, the construction of the road bridge requires a large volume of concrete, resulting in carbon emissions.</p>	<p>Central location close to the town centre, results in attractive and competitive travel option, resulting in a high level of passenger demand and modal switch.</p>	<p>While the site is more peripheral to the town centre, it provides an attractive and competitive travel option, resulting in a comparatively high level of passenger demand and modal switch.</p>	<p>While the site is more peripheral to the town centre, it provides an attractive and competitive travel option, resulting in a comparatively high level of passenger demand and modal switch.</p>	<p>While the site is more peripheral to the town centre, it provides an attractive and competitive travel option, resulting in a comparatively high level of passenger demand and modal switch.</p>	<p>The out of town station site means the station is more akin to a park & ride than a conventional station. The limited walking catchment for trip origins and for visitors to Portishead, the lack of easy walking distance to the town centre, results in lower passenger demand and modal switch.</p>
<p>Socio-distributional impacts and the regions</p> <p><i>Socio-distribution</i></p> <ul style="list-style-type: none"> Impacts on specific groups and equalities considerations, including impacts from changes to: <ul style="list-style-type: none"> Local environment Well being User benefits Personal affordability <p><i>Regeneration</i></p> <ul style="list-style-type: none"> Impact on targeted regeneration <p><i>Regional Imbalance</i></p> <ul style="list-style-type: none"> Impact on competitiveness of local economy 	<p>The road bridge causes accessibility problems for some people. The road bridge causes environmental impacts for some residents.</p> <p>The impacts are particularly felt by residents with limited mobility and residents close to road bridge.</p>	<p>The highway modifications result in longer and indirect routes particularly between the Village Quarter Wyndham Way resulting in some severance issues. The highway modifications result in some environmental impacts and the traffic impacts could have a long term negative impact on the local economy. Residents of the Village Quarter are particularly affected.</p>	<p>The highway modifications are relatively minor, but some on-street parking will be displaced. Serbert Road and Serbert Way (a commercial area) becomes a through route, however this would increase the prominence of the businesses and as a result would possibly be beneficial to them.</p>	<p>The highway modifications are relatively minor, but would result in some localised environmental impacts.</p>	<p>No changes are needed to the highway, except new access for the station car park. The station site is close to residential properties and causes some localised environmental impacts.</p>	<p>The out of town station site means that most people would need access to a car to use the station. This has a particular impact on young people and older people who generally have more limited access to a car. The station site is close to some residential properties and causes some localised environmental impacts.</p>
<p>Local environment Air quality</p> <ul style="list-style-type: none"> Noise Natural environment*, heritage and landscape Streetscape and urban environment 	<p>The road bridge causes a range of negative environmental impacts for some people.</p>	<p>The highway modifications cause traffic impacts (causing delays and longer journey times), resulting in environmental impacts.</p>	<p>The highway modifications enable the station to be located west of the residential housing. Much of the existing traffic on Quays Avenue would transfer onto Serbert Road and Serbert Way.</p>	<p>The re-alignment of Quays Avenue enables the station to be located west of some of the residential housing and provides space for an area of public open space and environmental mitigation.</p>	<p>The proximity of the station to residential properties causes some localised environmental impacts.</p>	<p>The out of town station site reduces the total number of properties close to the station and the rail line, resulting in reduced environmental impact overall. However, there are a small number of properties close to station, resulting in some localised environmental impacts.</p>
<p>Well being</p> <ul style="list-style-type: none"> Physical activity Injury or deaths Crime Terrorism 	<p>Moderately good accessibility for active modes (walking and cycling), buses and taxis.</p>	<p>Moderately good accessibility for active modes (walking and cycling), buses and taxis, but</p>	<p>Very good accessibility for active modes (walking and cycling), buses and taxis</p>	<p>Very good accessibility for active modes (walking and cycling), buses and taxis</p>	<p>Moderately good accessibility for active modes (walking and cycling), buses and taxis</p>	<p>More limited accessibility for active modes (walking and cycling), buses and taxis but</p>

Table 3.3. Site Options Appraisal – Environmental & Social Impact

Environmental & Social Impact	Option 1A	Option 1B	Option 2C	Option 2B	Option 2A	Option 3
<ul style="list-style-type: none"> Accessibility Severance 		severance issues due to indirect highway route				reduced severance issues compared with some options.
Summary	6th best	5th best	Joint 1st best	Joint 1st best	Joint 3rd best	Joint 3rd best
<ul style="list-style-type: none"> Overall environmental & social Impact 						

* includes ecology, biodiversity, habitats, soils, geology, hydrology / drainage and vibration

Table 3.4. Site Options Appraisal – Deliverability Assessment

Business Case Section	Option 1A	Option 1B	Option 2C	Option 2B	Option 2A	Option 3
Strategic Case	Compelling case & fit with policy objectives. Positive impact on business case.	Case less clearly made and some policy objectives not adequately addressed. Moderately positive impact on business case.	Compelling case & fit with policy objectives. Positive impact on business case.	Compelling case & fit with policy objectives. Positive impact on business case.	Compelling case but some policy objectives slightly less fully addressed. Positive impact on business case.	Case less clearly made and some policy objectives not adequately addressed. Neutral impact on business case.
Economic Case	Substantial additional costs (road bridge) reduce BCR. Estimated cost is approx. £8m more than option 2A. Project value for money is marginal (BCR estimated at 1.5 to 2.0). Some localised environmental impacts. Negative impact on business case.	Substantial additional costs (highway and property) reduces BCR. Estimated cost is approx. £5m more than option 2A. Project value for money is marginal (BCR estimated at 1.5 to 2.0). More limited environmental impacts. Negative impact on business case.	Moderate additional costs (highway & property) but this doesn't have a significant impact on achieving a good BCR. Project value for money is good (BCR estimated at 2.0 to 2.5). More limited environmental impacts. Moderately positive impact on business case.	Some additional costs (highway & property) but this doesn't have any significant impact on achieving a good BCR. Project value for money is good (BCR estimated at 2.0 to 2.5). More limited environmental impacts. Moderately positive impact on business case.	Low cost option enables good BCR. Project value for money is good (BCR estimated at 2.0 to 2.5). Some localised environmental impacts. Moderately positive impact on business case.	Low cost option enables good BCR. Project value for money is good (BCR estimated at 2.0 to 2.5). More limited localised environmental impacts. Moderately positive impact on business case.
Management Case	Substantial delivery challenges. Predicated on road over rail bridge which is a very tight fit in the available space and has significant environmental impacts. Negative impact on business case.	Substantial delivery challenges. Predicated on significant take of third party land, additional supporting infrastructure and impacts on commercial businesses. Negative impact on business case.	Moderate delivery challenges. Predicated on obtaining part of a third party property (which has full planning consent for conversion from commercial to residential use) and partial demolition. Negative impact on business case.	Some delivery challenges. Predicated on obtaining third party property (commercial). Slightly negative impact on business case.	Some delivery challenges. Predicated on gaining planning approval for the station site which adjoins a residential area. Slightly negative impact on business case.	Some delivery challenges. Predicated on gaining planning approval for the station site which adjoins a residential area and is in the green belt. Slightly negative impact on business case.
Financial Case	Cost is above the available funding envelope. There are major affordability issues with this option. Negative impact on business case.	Cost is above the available funding envelope. There are major affordability issues with this option. Negative impact on business case.	Higher cost than some options but is within the available funding envelope. Slightly negative impact on business case.	Higher cost than some options but is within the available funding envelope. Slightly negative impact on business case.	Cost is within the available funding envelope. Positive impact on business case.	Cost is within the available funding envelope. Positive impact on business case.
Commercial Case	Strong case with some potential for saleability / innovation by train operator. Positive impact on business case.	Strong case with some potential for saleability / innovation by train operator. Positive impact on business case.	Strong case with some potential for saleability / innovation by train operator. Positive impact on business case.	Strong case with some potential for saleability / innovation by train operator. Positive impact on business case.	Strong case with some potential for saleability / innovation by train operator. Positive impact on business case.	Case less certain but due to lower passenger demand because of station site. Neutral impact on business case.
Summary <i>Overall business case viability</i>	Overall business case is not sufficiently robust to take forward to delivery. Deliverability ranking – 5th best.	Overall business case is not sufficiently robust to take forward to delivery. Deliverability ranking – 6th best.	Overall marginal business case, requiring property acquisition and partial demolition of a building. Deliverability ranking – 4th best.	Overall sound business case, but requires some property acquisition. Deliverability ranking – 2nd best.	Overall sound business case, with some localised environmental issues. Deliverability ranking – 1st best	Overall sound business case to take forward to delivery. Deliverability ranking – 3rd best.

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Public Consultation on Portishead Station Location

- 3.2.23 Public consultation was undertaken during June and July 2014 on the location of Portishead station. The consultation presented options 2A, 2B and 2C and sought views and feedback on each of them. The consultation explained why options 1A, 1B and 3 had been discounted. Over 400 consultation responses were received, with option 2B being the most popular followed by option 2A and 2C. Further information about the consultation is set out in the Portishead Station Location Consultation Report Sept 2014 which is available from www.travelwise.org/metrowest.

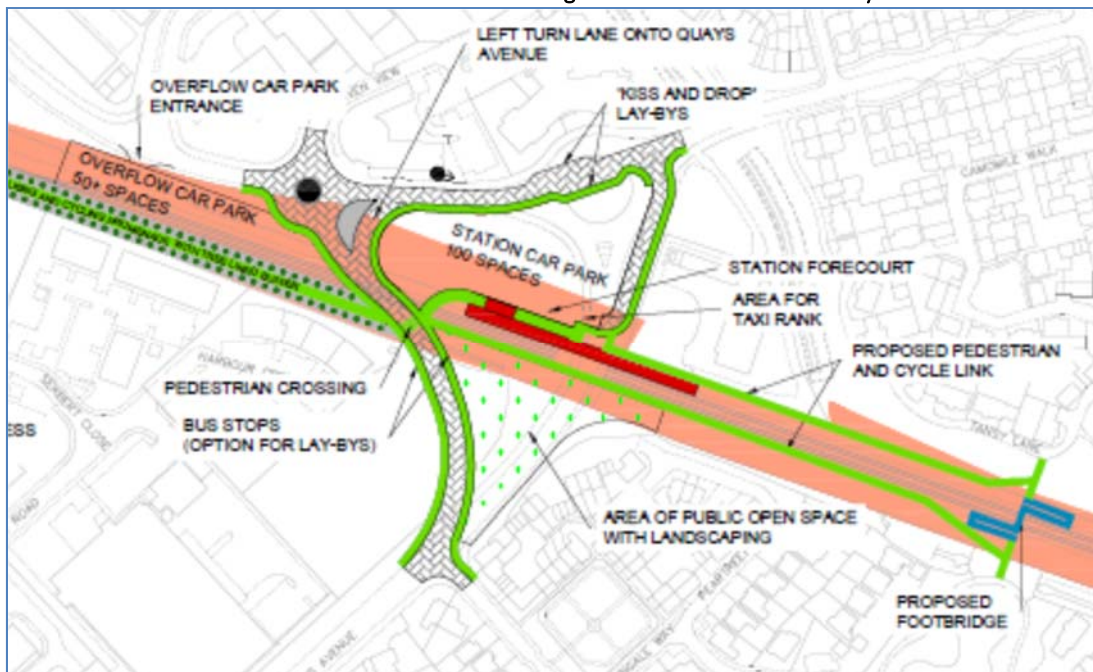
Response to the ORR for the case for a new level crossing

- 3.2.24 Following views expressed by some stakeholders for option 1A as it was closest to the town centre but required a level crossing, the ORR set out ten criteria that it would need to consider in order to determine whether there are exceptional circumstances for a level crossing at Quays Avenue, Portishead. On this basis, NSC prepared and submitted a response to the ORR in January 2015. The ORR issued a formal response to NSC on 2 March 2015 stating "....would NOT contemplate a level crossing at Quays Avenue, Portishead...."

Decision on Portishead Station Location

- 3.2.25 On the basis of the ORR response on the level crossing and responses to the public consultation, option 2B was recommended to the NSC Executive as the preferred option to take through to delivery. The NSC executive endorsed Portishead station location option 2B on 17 March 2015. The plan below is a concept design for Portishead station showing an indicative highway and station forecourt arrangement. Further public consultation will be required to inform the design iteration process as the Project progresses.

Figure 3.4. Preferred Site and Layout for Portishead Station



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3.3 Proposed Footbridge Adjacent to Trinity Primary School

- 3.3.1 Trinity Anglican Methodist Primary School is located adjacent to the railway line at an approximate distance of 1km from the town centre (Cabstand). Since the school was opened in 2009 a permissive pedestrian crossing (footpath) over the dis-used line was constructed, to accommodate access and egress between the surrounding housing, south of the line and the school, north of the line ("Trinity Primary School western permissive crossing").
- 3.3.2 In addition to this permissive crossing, there is an informal crossing at the eastern most boundary with Trinity Primary School ("Trinity Primary School eastern informal crossing"). This informal crossing is on the site of a former highway access road (Moor Lane) that used to provide access to a waste disposal facility, via a level crossing over the rail line. The access road has long since been closed (circa 1960s) and part of it now forms an informal path bounded by vegetation and a ditch on the southern side.
- 3.3.3 It will be necessary to close these pedestrian crossings and fence the boundary of the railway line in order to meet rail design standards and safety requirements. In order to accommodate the existing pedestrian movements to and from the school, the project is proposing to provide a fully accessible footbridge.
- 3.3.4 In the February/March 2013 consultation undertaken by the Council, a footbridge was proposed at Trinity Primary School eastern informal crossing. However, NSC has since undertaken further pedestrian counts of both crossings which show that the Trinity Primary School western permissive crossing has a much greater use than the eastern informal crossing. The eastern informal crossing is not surfaced, is not fully accessible, and appears to be mainly used by dog walkers. Given that the surveys show that the pedestrian desire line is much stronger at the western crossing and that there is considerably more space available to locate a footbridge at this location, it is proposed to site the footbridge at Trinity Primary School western permissive crossing. The delivery of the footbridge is subject to public consultation planned for summer 2015. If the footbridge is not supported sufficiently by the community, the alternative option would be to provide parallel footpath links only to a crossing point by the new station. However, this would increase the walking distances for children and parents and other local residents.

3.4 Committed and Planned Development

- 3.4.1 There are a number of development sites within close proximity of Portishead town centre and the railway alignment. Some of these sites either have full planning consent or are under construction, including the remaining residential units at Portishead Quays (Newfoundland Way) and commercial development on Harbour Road. Furthermore the Old Mill Lane industrial estate has been zoned for a mixed use redevelopment. Some of these development sites are close the proposed Portishead station option 2B and therefore the design of the station, car park, pedestrian and cycle link and associated facilities will need to consider these developments.

4 Planning Framework

4.1 Introduction

- 4.1.1 This chapter provides an overview of the national, regional and local planning policy framework for the Portishead Branch Line (MetroWest Phase 1) Project. A separate Planning Statement will form part of the application for the DCO and an appraisal of the Project's compliance with the relevant legal and policy framework will be presented in that document.
- 4.1.2 The national and regional planning policy background covers all the projects for MetroWest Phase 1, though at the local level specific planning policies vary between the local authorities. The Portishead Branch Line (MetroWest Phase 1) Project is mostly located within NSC, although the Ashton Gate Level Crossing and Barons Close Pedestrian Crossing, which lie on the Portbury Freight Line but form part of the red line boundary, lie in BCC's administrative area. This chapter therefore takes into account the current policies and proposals for both NSC and BCC for completeness.
- 4.1.3 Other elements of MetroWest Phase 1, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, will be undertaken under Network Rail's permitted development rights. The works in Bedminster and Avonmouth are located in BCC, while Bathampton Turnback is located in B&NES. No works are proposed in SGC, however the Project proposes to increase the frequency of the train service for Severn Beach station which extends into South Gloucestershire. An overview of the local plans for the four Councils together with the implication of these works on the relevant local plan policies is provided in the Baseline Report, which has been issued separately.

4.2 National Planning Framework

National Policy Statements

- 4.2.1 Government advice on infrastructure proposals of national significance is variously published by the relevant Government department in the form of National Policy Statements ("NPS"). The National Networks NPS ("NN NPS") was adopted in December 2014.
- 4.2.2 Within its introductory paragraph the NN NPS confirms its role is to set out "*the need for, and Government's policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of nationally significant infrastructure projects on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State*". The Project will be considered in relation to its compliance with NN NPS.
- 4.2.3 The Government's vision and strategic objectives for the national networks are defined as follows:
- "The Government will deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:*
- *Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs.*
 - *Networks which support and improve journey quality, reliability and safety.*
 - *Networks which support the delivery of environmental goals and the move to a low carbon economy.*

- *Networks which join up our communities and link effectively to each other."*

- 4.2.4 The NPS recognises that travel demand for road and rail is expected to increase in the foreseeable future with economic and population growth. Without action, this growth will in turn lead to a worsening in congestion and crowding, constrain economic growth, and worsen quality of life. Transportation networks can unlock regional economic growth and regeneration, by improving connectivity and performance, particularly in disadvantaged areas. The government recognises that there is a compelling need to develop the national networks. Within this framework, railways must provide a safe and reliable route to work, facilitate increased leisure and business travel, support regional and local public transport to connect communities with public services, work places and each other, and provide for freight transport across the country and to and from ports.
- 4.2.5 At paragraph 2.35 the NPS goes on to confirm that it is the Government's view that rail transport has a crucial role to play in delivering significant reduction in pollution and congestion. At paragraph 2.37 it states *"the Government's policy is to improve the capacity, capability, reliability and resilience of the rail network at key locations for both passenger and freight movements to reflect growth in demand, reduce crowding, improve journey times, maintain or improve operational performance and facilitate modal shift from road to rail..."* The other emphasis of the Government is to encourage modal shift to rail in the light of the need to reduce significantly national CO₂ emissions from the transport sector.
- 4.2.6 The need to improve transport networks is to consider the Government's policies on the environment, safety, technology, sustainable transport and accessibility.
- 4.2.7 The NPS requires an application for a transportation project to be accompanied by a transport business case, based on the Transport Business Case guidance and WebTAG guidance published by the Department for Transport ("DfT"). WebTAG combines the economic, environmental, and social appraisal of the development which is taken into consideration when deciding whether to finance the project.
- 4.2.8 An environmental impact assessment ("EIA") will be required for projects likely to result in significant effects on the environment in accordance with the EIA Regulations. Where some details are still to be decided, the assessment needs to be based on a worse case to ensure that the potential impacts have been addressed properly. The Examining Authority needs to assure themselves that all the likely significant effects have been assessed and that any requests for additional information is proportionate and focussed on significant effects.
- 4.2.9 The NPS includes obligations on the Secretary of State ("SoS") to ensure whether the project is likely to have a significant effect on a European site of nature conservation under the Habitats Regulations. The applicant is required to provide sufficient information to the SoS to carry out an appropriate assessment. If the project is likely to have significant effects, it is possible to apply for a derogation from the Habitats Directive following a three step process: that no feasible, less-damaging alternatives are available, that there are imperative reasons of overriding public interest ("IROPI"), and that adequate compensation measures will be put in place to safeguard the overall coherence of the network of protected sites.
- 4.2.10 The development of the project and the assessment of effects needs to take account of good design principals and adaptation to climate change. Any activities that are regulated under pollution control legislation will need to obtain the relevant consents before operation commences. Consideration must be given to possible sources of nuisance under section 79 of the Environmental Protection Act 1990, such as noise, and the means for mitigation. The design of the railway and associated facilities will take account of safety, security, and the health and well-being and quality of life of the population.

- 4.2.11 The NPS identifies generic impacts associated with transport schemes, which will need to be assessed as part of the EIA. The impacts listed include air quality and emissions; biodiversity and geological conservation; waste management; dust, odour, artificial light, smoke and steam; flood risk; the historic environment; land use including open space, green infrastructure and Green Belt; noise and vibration; transport networks; water quality and resources.
- 4.2.12 The NPS identifies the Portbury Freight Line as a strategic freight route with negligible interaction with passenger services and the Bristol - London main line as a strategic freight route with interaction with high speed passenger services.

National Planning Policy Framework (March 2012)

- 4.2.13 The National Planning Policy Framework (“NPPF”) published by the Department for Communities and Local Government (“DCLG”) in March 2012 sets out Government planning policies for England to achieve sustainable development and details how the policies are expected to be applied. The overarching aim of the NPPF is the achievement of sustainable development, with the planning system expected to contribute to this goal. Within this context, the NPPF places emphasis on contributing to a strong economy by ensuring that development supports growth and innovation, creating a high quality built environment that supports strong, vibrant and healthy communities, and development that protects and enhances the natural, built and historic environment.
- 4.2.14 Although the NPPF does not contain specific policies for NSIPs, the following provisions will require further consideration during the EIA.
- Building a strong, competitive economy (Section 1): this section requires that planning should operate to encourage and not act as an impediment to sustainable growth and should seek to address potential barriers to investment, including any lack of infrastructure provision.
 - Promoting sustainable transport (Section 4): This section supports development that reduces greenhouse gases and reduces congestion, facilitates the use of sustainable modes of transport and develops strategies for the provision of viable infrastructure including large scale facilities such as rail freight interchanges. Local planning authorities are required to identify and protect sites and routes which could be critical in developing infrastructure to widen transport choice. Whilst there is also a requirement to ensure that during the decision making process consideration has been given to maximizing the use of sustainable modes of transport.
 - Requiring good design (Section 7): Good design is seen as a key aspect of sustainable development and integral to delivering good planning. Good design applies not only to individual buildings, public and private spaces, but also to wider area development schemes. The provisions in this section seek to not only enhance the aesthetic appearance of development, but also to ensure that the development functions well, optimises the potential of the site, and supports local facilities and transport networks. Whilst it is recognised that the visual appearance of development is important, during the decision making process consideration will need to be given to the connections between people and places and the integration of new development into the natural, built and historic environment. Infrastructure proposals which promote high levels of sustainability should not be refused planning permission by local planning authorities because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design.
 - Promoting health communities (Section 8): this section identifies that development has a role in contributing to the promotion of healthy communities by providing safe integrated environments free from crime, deliver high levels of accessibility, and seek to protect and enhance public rights of way.

- Protecting green belt land (Section 9): This section seeks to define and enhance the beneficial use of Green Belt land. Inappropriate development should not be approved except in very special circumstances where any harm is clearly outweighed by other considerations. However, this section also identifies certain forms of development that are not considered inappropriate in the Green Belt provided they preserve openness and do not conflict with the purposes of the Green Belt, including local transport infrastructure which can demonstrate a requirement for a Green Belt location.
- Meeting the challenge of climate change, flooding and coastal change (Section 10): This section seeks to reduce carbon emissions through policies to encourage energy efficiency and a move to a low carbon economy, as well as address the longer term impacts from climate change such as the risk of flooding.
- Conserving and enhancing the natural environment (Section 11): This section relates to the protection and enhancement of landscapes, geo-diversity and biodiversity.
- Conserving and enhancing the historic environment (Section 12): This section seeks to conserve and enhance historic assets.

4.2.15 The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development and that a presumption in favour of sustainable development is at the heart of the NPPF. Similarly, and in light of the drive towards sustainable development, the NPPF highlights a number of core principles that should govern development planning. These include:

- proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs;
- support the transition to a low carbon future in a changing climate;
- contribute to conserving and enhancing the natural environment and reducing pollution; and,
- actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling.

4.2.16 The promotion of more sustainable modes of transport is intrinsically linked to a number of these core principles. The NPPF aims to integrate planning and transport by noting that transport policies can help facilitate sustainable development at the same time as contributing to wider sustainability, health and economic objectives. Sustainable transport and other infrastructure are also presented as crucial to supporting economic development, by improving accessibility to consumer and labour markets for businesses and improving access to jobs for the labour force. To this end, the NPPF promotes the delivery of high quality public transport provision.

National Planning Practice Guidance (March 2014)

4.2.17 On 6 March 2014 DCLG launched the National Planning Practice Guidance ("NPPG") as a web-based resource to provide planning guidance on a range of categories covering issues such as the green belt, flood risk, housing and employment and transport and infrastructure, along with guidance to assist with the preparation of local plans, determining planning applications, and the use of planning conditions. This guidance recognises the importance of local infrastructure planning in the development of healthy communities.

4.3 Regional and Local Planning Framework

Regional and Sub-regional Planning Context

- 4.3.1 The Localism Act 2011 made provision for the removal of regional planning policy. The Regional Strategy for the South West (Revocation) Order 2013, which came into force on 20 May 2013, revoked the Regional Strategy for the South West. It also revoked all directions made under paragraph 1(3) of Schedule 8 to the Planning and Compulsory Purchase Act 2004 preserving policies contained in structure plans within the area to which the Regional Spatial Strategy related, except for the direction made in September 2007 in respect of the Somerset and Exmoor National Park Joint Structure Plan Alteration 1991-2011 so far as it preserves policy 6 (Bristol/Bath green belt). This policy therefore still forms part of the development plan and is a material consideration until such time that it is replaced by other policies in emerging plans.
- 4.3.2 There is the intention from NSC, BCC, B&NES and SGC to prepare a Joint Strategic Planning Strategy, which will provide a strategic planning framework for the West of England. It will be used to inform local plan reviews and set out objectives for the overall quantum of housing and jobs to be delivered within the West of England, including their distribution across the sub-region, the overall spatial strategy, strategic priorities, and strategic infrastructure necessary to support the deliver the strategy. A Pre-commencement Document was published in December 2014, with aim of submitting the document for Examination in summer 2016 and ultimate adoption in spring 2017. Given that the strategy is at a very early stage, it currently carries little weight.

Local Planning Context

Background

- 4.3.3 The local planning framework comprises a number of key adopted documents which form the statutory development plan for each authority, against which proposals seeking planning permission are assessed. These policy documents comprise saved policies from extant Local Plans as well as new emerging policy documents.
- 4.3.4 While emerging plans and the policies and proposals contained within them do not form part of the development plan until adopted, depending on the stage at which such documents have reached in the plan preparation process, they may be held as material considerations in the determination of applications for development. The further advanced such documents are, the more weight they carry. It is also recognised that during the formulation of the Portishead Branch Line (MetroWest Phase 1) Project, the planning context may evolve so emerging documents of potentially significant influence are included in the following sections.

North Somerset Council

- 4.3.5 The statutory development plan in NSC comprises the following suite of documents:
- North Somerset Core Strategy (April 2012): The Core Strategy remains an adopted development plan document with the exception of nine housing policies, which are currently the subject of a legal challenge.
 - Saved policies from the Replacement Local Plan ("RLP") (March 2007): policies from this document are applied in the assessment of development proposals.
 - Policies relating to minerals and waste development covered by the North Somerset Waste Local Plan (2002), Joint Waste Core Strategy (2011) and Minerals Working in Avon Plan (1993).
- 4.3.6 Other planning policy considerations include:

4.3.7 **Sites and Policies Plan Part 1: Development Management Policies.** The Council is in the process of preparing this document and consulted on the Consultation Draft in 2013. Once adopted, the document will detail planning policies and site allocations to deliver the vision and objectives of the adopted Core Strategy and the emerging policies and proposals will supersede the remaining saved policies from the RPL.

4.3.8 While the document is only at the first stage in the preparation process, it is worth noting,

- Policy DM22: Existing and proposed railway lines will safeguard land for the proposed route including the Portishead to Pill railway.
- Policy DM53: Royal Portbury Dock seeks to provide protection from development that would prejudice proposals for a station and associated parking facilities off Royal Portbury Dock Road.
- Policy PH2: Old Mill Road, Portishead, seeks to redevelop the site for retail, tourist, leisure, employment and residential facilities and other town centre uses.
- Policy PH3: Proposed railway stations and transport infrastructure for the Portishead to Bristol railway line, identifies that land will be safeguarded from inappropriate development to facilitate the construction of stations and associated transport infrastructure in conjunction with the reopening of the Portishead to Bristol railway line.
- **Neighbourhood Development Plans (“NDP”)**
 - **Long Ashton NDP** - Long Ashton Parish Council has prepared a neighbourhood development plan that once fully approved will replace specific planning policies covering Long Ashton. The NDP underwent consultation between August and October 2014.
- **Supplementary Planning Guidance (“SPG”)**
 - **Forest of Avon - A Guide for Developers** (October 2005): This SPG has its basis in RPL policy relating to new developments in the Forest of Avon and the requirement for new tree planting.
 - **Biodiversity and Trees SPD** (Dec 2005): This SPD is intended to provide additional guidance to applicants by supplementing the policies and proposals relating to biodiversity in the North Somerset RLP and seeks to further the actions of Biodiversity Action Plans (“BAP”).

Bristol City Council

4.3.9 The statutory development plan for BCC comprises the following suite of documents:

- **Bristol Core Strategy (Adopted June 2011):** The Bristol Core Strategy is part of the Local Plan which sets out the overall approach and spatial strategy for future development in Bristol and provides the overarching strategic policy and guidance to deliver sustainable communities and economic growth across the City. The Core Strategy replaces a number of strategic policies saved from the 1997 Plan.
- **Site Allocations and Development Management Policies (Adopted July 2014):** This document incorporates site allocations for development, policy designations and development management policies. It forms part of the Bristol Local Plan and will seek to deliver the policies of the Core Strategy. It also replaces a number of saved policies from the 1997 Plan.
- **Bristol City Council Local Plan Saved Policies (1997):** A number of policies from the 1997 Plan have been saved by a Secretary of State Direction and remain a material consideration within the Central Bristol Area until replaced by the Bristol Central Area Plan.

- West of England Joint Waste Core Strategy: The Joint Waste Core Strategy guides decisions about where waste management facilities should be located within the West of England.

4.3.10 Other planning policy considerations include:

- Bristol Central Area Plan Publication Version (February 2014): The Publication Version was submitted to the Secretary of State on 4 July 2014 for independent examination. Following the hearing in October 2014, consultation has taken place on the proposed Main Modifications. All consultation responses are now with the Inspector for consideration before confirmation will be given on the soundness of the document. This document includes site allocations, spatial policies and development management policies specifically for the centre of Bristol, and once adopted will replace any relevant saved policies of the 1997 Plan. Whilst, it has not yet been adopted, given its advanced nature, it carries significant weight and as such will need consideration.
- Supplementary Planning Guidance
 - PAN 2 - Conservation Area Enhancement Statements (November 1993) - seeks to protect and enhance whole areas with architectural or historic character and details the Clifton Conservation Area and is accompanied by the Conservation Area 5 - Clifton & Hotwells Character Appraisal & Management Proposals.

Policies and Proposals for the Project

Portishead to Pill

- 4.3.11 This section summarises the planning policies that affect the Portishead Branch Line (MetroWest Phase 1) Project and surrounding area between Portishead and Pill. The key policies are illustrated in the Baseline Report.
- 4.3.12 The proposal is located on land which has various designations with applicable policies in both the NSC Core Strategy and the saved policies of the RPL.

General

- 4.3.13 The NSC Core Strategy includes a number of strategic overarching policies that are applicable throughout the study area. Policies CS1 to CS5, CS9, CS10 and CS26 are of particular relevance, relating to environmental protection, nature conservation and the delivery of sustainable transport infrastructure. The policy designations throughout the study area include **T/1 - Proposed Railway** which safeguards the Portishead to Portbury alignment for rail use; **ECH/9 - Forest of Avon** covers rural land between Portishead and Pill; and then between Pill and Ashton is Green Belt under policy **RD/3 - Green Belt** including the Bristol and Bath Green Belt. Some sections of the track alignment are also identified as at risk of flooding which is covered by policy **CS3** of the NSC Core Strategy, and **BCS16** of the BCC Core Strategy.

Sections

- 4.3.14 The prevailing surrounding land uses in the vicinity of the proposed Portishead station options consist of commercial and employment uses. North of Wyndam Way there is an amenity area designated under policy **ECH/1**. The periphery development to the east of Portishead, which extends to the Bristol Green Belt setting is predominantly mixed use, low density commercial and employment use with some lower-medium density housing. Opportunity for development exists at the proposed Portishead Station site owing to the existence of vacant previously developed land.
- 4.3.15 Sections of the project route are identified as being within the coastal zone with policy **ECH/15 - Coastal Zone** being applicable. Within the confines of the urban area of

Portishead the route is bordered by amenity land situated adjacent the proposed line with policy **ECH/1 - Amenity** being applicable. The section of track situated to the south of the Royal Portbury Docks is predominantly in a rural setting with a Green Belt Designation. The proposed line is closely set between the Royal Portbury Docks and the M5 Corridor and its associated grade-separated highway junction coupled with the Sustrans route No. 26. Part of the land is identified in the RLP as being within a site of nature conservation interest ("SNCI") under policy **ECH/14 - Wildlife and geological sites and local nature reserves** and is located within 100m of the Severn Estuary SAC, SPA, Ramsar site and SSSI covered by RLP policies **ECH/12 and ECH/13** and Core Strategy policy **CS4 - Nature conservation**.

- 4.3.16 At Pill the context is predominantly residential urban land use surrounded by Green Belt to the south west and the Avon Gorge to the north east with a number of non-designated recreational spaces and connections within and across the development site. Part of this section of line remains within the flood plain at the approach to Pill Junction though the line is elevated through the centre core of Pill village.

The Portbury Freight Line

- 4.3.17 This section of the Project is covered by the same general policies as the Portbury to Pill section, namely: **ECH/9 - Forest of Avon and RD/3 - Green Belt**. Some sections of the track alignment are at risk of flooding covered by policy **CS3** of the NSC Core Strategy, and **BCS16** of the BCC Core Strategy.

- 4.3.18 From Pill the line of the existing track is set between the Avon Gorge and rural North Somerset. It covers several landscape and wildlife designations affected by the following policies:

- **ECH/5 - Registered Historic Parks and Gardens**
- **ECH/12 - Special Area of Conservation**
- **ECH/13 - Avon Gorge SSSI**
- **ECH/13 - Leigh Woods**
- **ECH/14 - Avon Gorge and Leigh SNCI**

- 4.3.19 The existing line enters the periphery of Bristol City via Ashton Gate which in this location comprises a mix of predominantly commercial and residential uses. Sections of the Portbury Freight Line are covered by a number of environmental policies.

- **BSC6 - Green Belt**
- **BSC9 - Green infrastructure**
- **BSC16 - Flood Risk and Water Management**

4.4 Potential Impacts, Mitigation and Residual Impacts

- 4.4.1 Table 4.1 summarises the relevant policies and proposals in the Local Plans, and the likely implications of this project on achieving those policies.

SECTION 4

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
<i>North Somerset Council Adopted Policy</i>				
<i>North Somerset Core Strategy</i>				
CS1	Addressing climate change and carbon reduction	An overarching policy aimed at development in general to encourage implementation measures to reduce CO ₂ , through design, use of walking, public transport and reuse land	The Project promotes a shift from car use to public transport	Project is considered likely to result in a net carbon reduction: Potentially Compliant
CS2	Delivering sustainable design and construction	Sets out the energy, drainage and thermal requirements for new buildings	Construction of new station building	New buildings can be constructed to be in compliance with this policy: Potentially Compliant
CS3	Environmental impacts and flood risk management	An overarching policy aimed at directions developments away from flood plains	Construction within Flood Zone; requirement for sequential or exception test.	Sequential Test or Exception Test can be demonstrated See relevant sections: Potentially Compliant
CS4	Nature conservation	Promotes the conservation and enhancement of biodiversity through: <ul style="list-style-type: none"> • Meeting Biodiversity Action Plan targets • Maximising biodiversity 	The project may necessarily lead to loss of trees and habitats along the Project and within the areas required to construct the proposal.	Mitigation such as replacement habitat may be required and incorporated into any application seeking consent:

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
		<ul style="list-style-type: none"> Protect, enhancement and important habitats Promote green infrastructure and tree planting 		Potential to be compliant through implementing good working practices and through mitigation
CS5	Landscape and the historic environment	Emphasis on protecting the landscape character and Mendip Hills Area of Outstanding Natural Beauty (“AONB”) and conserving historic environments	The project may have temporary or permanent effects on landscape character, but it is too far from the Mendip Hills AONB to affect that designation.	Potential for compliance heavily dependent upon Project design.
CS9	Green infrastructure	Has the objective of protecting and expanding the provision with three objectives: improved access; landscape and visual; and biodiversity	Project has potential to sever existing areas of green infrastructure	Restoration mitigation may not be possible in the same place or at all. Potential for compliance heavily dependent upon Project design.
CS10	Transportation and movement	Confirms the proposed development is a priority. Confirms the criteria which transport schemes have to fulfil amongst other things: <ul style="list-style-type: none"> enhance the facilities for sustainable modes; improve road and personal safety and environmental conditions; 	The proposal supports the aims and objectives of this policy.	Potentially positive impact

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
		<ul style="list-style-type: none"> • reduce the adverse environmental impacts of transport and contribute towards carbon reduction; • mitigate against increased traffic congestion; • improve connectivity within and between major towns both within and beyond North Somerset; • Support the movement of freight by rail. 		
CS26	Supporting healthy living and the provision of health care facilities	Sets out the requirements for Health Impact Assessments (“HIA”) of developments and health impacts of developments to the wider community. Point 1 of the policy states that all “large scale developments” require a HIA.	The proposal will contribute towards the aims of promoting healthy lifestyles through the creation of a more sustainable means of transport	Positive impact through the improvement to sustainable transport connectivity and accessibility
<i>North Somerset RPL 2007</i>				
ECH/1	Amenity areas and gateways to settlements	Aims to protect amenity areas of public value from unacceptable harm.	Potentially addressed through landscape mitigation or best practice urban principles	Cannot be confirmed at this stage owing to the limited development of detailed Project design.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
ECH/3	Conservation areas	Is a criterion based policy aimed at protecting conservation areas and their setting from inappropriate development	Limited potential to impact on setting	Cannot be confirmed at this stage owing to the limited development of detailed Project design.
ECH/4	Listed Buildings	Development proposals need to preserve the interest, style and design of listed buildings and their settings	Limited potential to impact on setting	Cannot be confirmed at this stage owing to the limited development of detailed Project design.
ECH/5	Historic parks and gardens	Is a criterion based policy aimed at protecting historic parks and their setting from inappropriate development	The existing line between Pill and Ashton may influence a number of parks and gardens.	Limited impact on planning policy.
ECH/6	Archaeology	Development causing damage to historic assets not permitted.	May be a possibility of impact upon historic assets as confirmed in Chapter 6. Potential impacts on setting.	Negligible policy impact providing archaeological resources have been adequately recorded. Potential for proposal to be in compliance.
ECH/9	Forest of Avon	Policy may require landscape and planting to develop the woodland setting.	The proposal will require tree removal. Tree planting may be required.	Potential for compliance heavily dependent upon Project design and construction impacts. Cannot be confirmed at this stage.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
ECH/11	Protected species and their habitats	Aimed at avoiding and mitigating for harm to and habitats used by protected species.	The proposal may during construction and operation affect habitats. Mitigation or compensation may be required.	Certain protected species are present, bird populations may be displaced through tree removal – see Chapter 7. Mitigation may be possible with potential for the Project to be compliant.
ECH/12	Wildlife sites of international importance	Aimed at protecting international designations from direct or indirect adverse effects.	The Project passes through a European site and lies within 5km of other such designations identified in Chapter 7. Mitigation, compensation, adapted working practices may be required.	As above and potentially compliant
ECH/13	Sites of Special Scientific Interest and National Nature Reserves	Aimed at protecting international designations from direct or indirect adverse effects balanced against other material considerations.	As above, the proposal may during construction affect such designations. Mitigation and compensation may be required. Demonstration of material considerations required.	As above and potentially compliant
ECH/14	Wildlife and geological sites and local nature reserves	Aimed at protecting such designations from direct or indirect adverse effects.	The proposal passes through a geological SSSI and is adjacent a number of local wildlife sites identified in Chapter 7.	As above and potentially compliant.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
ECH/15	Coastal zone	This is an environmental protection policy which is relevant in the area designated as coastal zone.	Measures in policy terms to counteract flooding, coastal erosion and land instability risks have to be demonstrated.	See flooding and drainage, geo-environmental chapters.
RD/3	Development in the Green Belt	This is a criterion based restrictive policy which confirms acceptable conditions for development in Green Belt areas.	No policy impact owing to inclusion of the proposal within the LTP.	Potentially compliant
E/5	Safeguarded Employment Areas	This policy safeguards land for future employment development	The project will require the creation of a station and associated parking facilities on land safeguarded by the policy for employment development	Potential conflict with policy depending on Project design and station location
E/6	Proposals for development on safeguarded land at Court House Farm	This policy safeguards land for port related development, provided that, amongst other criteria, proposals demonstrate that development would not prejudice proposals for a station and associated parking facilities off Royal Portbury Dock Road in accordance with Policy T/3	The project will require the creation of stations and associated parking facilities on land safeguarded by Policy T/3	Compliant with policy
H/2	Proposed sites for new residential development,	This policy allocates land for future housing development	Whilst allocations are located adjacent to the proposal at	Potentially compliant

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
	incorporating target for previously-developed land and phasing policy		Portishead, none should be affected by the proposal	
T/1	Existing and proposed railway lines	Safeguards the alignment of the Portishead – Portbury railway line for rail traffic use	Proposal will follow the safeguarded route	Compliant with policy
T/3	Proposed railway stations	Safeguards land for stations and associated parking facilities in conjunction with the reopening of the Portishead to Bristol line at sites at Harbour Road, Off Royal Portbury Dock Road, and at Severn Road.	The proposal will require the creation of stations and associated parking facilities on land safeguarded by the policy	Potentially compliant with policy. A proposed revised policy is set out in the NSC Sites and Policies DPD (consultation version).
T/7	Protection, development and improvement of the rights of way network and other forms of public access	This is aimed at maintaining and improving public access provision along the existing public right of way network.	The proposal will lead to the alteration of parts of the ProW network and mitigation / replacement provision will have to be assessed against this policy.	Potential for compliance partly dependent upon Project design. The Sustrans cyclepath will remain. One footpath may be stopped on Moore Lane. The tow path along the Avon Gorge, already used for maintenance access, will form part of an emergency access to Clifton Tunnel No. 1.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
T/8	Strategic cycle routes	Aimed at protecting existing and proposed strategic routes	The proposal will lead to the alteration of parts of the network and mitigation / replacement provision will have to be assessed against this policy.	Potential for compliance partly dependent upon Project design. The Sustrans cyclepath will remain, with minor reductions of width under bridges.
T/10	Safety, traffic and the provision of infrastructure, etc associated with development	Seeks to ensure that proposals will not lead to unacceptable highways impacts or that such impacts will be appropriately mitigated by entering into a legal agreement to fund any necessary improvements	The Project will provide an alternative means of transport to the private car; however the creation of stations and associated parking facilities will need to be considered against this policy.	Potentially compliant dependent upon Project design
RT/3	The other town and district centres	Allows for the extension of Portishead Town Centre for retail development along with non-food and/or business employment uses on land at Wyndham Way	The Project will require the creation of a station and associated parking facilities on land which is adjacent to this allocation	Compliant provided the Project does not encroach into this allocation
CF/4	Safeguarding of existing and proposed sites and buildings	Seeks to protect existing community facilities and open space from inappropriate development	The Project is located adjacent to a number of community facilities and open spaces which could be affected by the proposal and will need to be assessed against this policy	Potentially compliant dependent upon Project design and mitigation

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
<i>Bristol City Council Adopted Policy</i>				
<i>Bristol Core Strategy</i>				
BCS1	South Bristol	Strategic policy which has the overall objective to regenerate south Bristol and focus development within the existing built up area connected by high quality transport networks	The proposal will help to deliver the objectives of this policy through the creation of a high quality sustainable transport connection	Compliant with policy
BCS6	Green Belt	This policy indicates the broad extent of the Green Belt within Bristol and the approach to development within it, following the principles set out in national planning policy	The Project will need to be designed to accord with the policy principles of development in the green belt.	Potentially compliant dependent upon Project design and demonstration of ‘exceptional circumstance’.
BCS9	Green infrastructure	The City council aims to increase the connectivity of the strategic green infrastructure network, retain and prevent its loss	Project has potential to sever existing areas of green infrastructure or reduce provision	Potentially compliant dependent upon Project design and mitigation.
BCS10	Transport and Access Improvements	This policy confirms the support for the reopening of the Portishead to Bristol Rail Line.	The proposal will help to deliver this objective	Compliant with policy

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
BCS16	Flood Risk and Water Management	This policy sets out the council's approach to minimising the risk and impact of flooding in the context of new development.	Construction within Flood Zone; requirement for sequential or exception test.	Sequential Test or Exception Test can be demonstrated
<i>Bristol Site Allocations and Development Management Practices</i>				
DM1	Presumption in favour of sustainable development	A positive approach will be taken that reflects the presumption in favour of sustainable development set out in the NPPF	The Project is in accordance with the principles of delivering sustainable development as it seeks to deliver a high quality sustainable transport connection	Compliant with policy
DM17	Development Involving Existing Green Infrastructure	Sets out the detailed approach to conserving green infrastructure assets	The Project has potential to sever existing areas of green infrastructure or reduce provision, but also to enhance the green infrastructure network.	Restoration mitigation may not be possible in the same place or at all. Potential for compliance heavily dependent upon Project design
DM19	Development and Nature Conservation	Seeks to ensure that consideration is given to the likely impact that development could have upon habitat, species or features, which contribute to nature conservation in Bristol, and that appropriate mitigation is provided where such impacts would occur.	The Project is likely to impact upon the natural environment and as such further consideration as to the extent of this impact and any measures to mitigate it will be required.	Certain protected species are present, bird populations may be displaced through tree removal – see chapter 7. Mitigation may be possible with potential for the Project to be compliant.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
DM23	Transport Development Management	Sets out the transport and traffic considerations that development proposals should address, including parking standards for non-residential development. It also seeks to ensure that new development is accessible by sustainable transport methods such as walking, cycling and public transport.	The Project is supported by this policy; however there are conflicts particularly with respect to ProW along the railway corridor which will be affected by the Project.	Potentially compliant dependent upon Project design and mitigation.
DM24	Transport Schemes	Safeguards land required for the implementation of transport schemes including railway sites and associated land for passenger and rail freight purposes.	The Project accords with the provisions of this policy	Compliant with policy
DM25	Greenways	Sets out how proposals should facilitate and improve access to the network of 'Greenways'.	The Project could potentially sever existing green infrastructure connections or reduce provision, but there are also opportunities to enhance the green infrastructure network.	Potentially compliant dependent upon Project design and mitigation.
DM35	Noise Mitigation	Development that would have an unacceptable impact on environmental amenity or biodiversity by reason of noise will	The Project will pass through areas which are sensitive to noise and as such consideration of this	Potentially compliant dependent upon Project design and mitigation.

Table 4.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Planning Policy

Policy Number	Policy Name	Policy Test or Requirements	Activity	Planning Policy Compliance
		be expected to provide an appropriate scheme of mitigation.	impact and measures that may be required to mitigate it will require.	

4.5 Methodology

Definition of the Study Area

- 4.5.1 The extent of the planning policy framework review is focused on the length of the Portishead Branch Line (MetroWest Phase 1) Project. A buffer of 300m will be used to capture potentially sensitive land uses and planning policy designations within and adjoining the Project. Where the construction and operation of the Project may give rise to environmental effects on receptors that lie beyond 300m of the project then all relevant planning policies will be taken into consideration.

Evaluation of the Project and Planning Policy

- 4.5.2 An initial appraisal of the Project with national policy indicates that it is broadly in line with the Government's overarching aims and objectives towards transport infrastructure delivery which from the NPS NN are understood to be:
- Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs
 - Networks which support and improve journey quality, reliability and safety
 - Networks which support the delivery of environmental goals and the move to a low carbon economy
 - Networks which join up communities and link effectively to each other
- 4.5.3 Although the primary policy advice of relevance to the Project is set out in the NPS, regard has been had to the NPPF and to development plan and emerging plan policies contained within Local Plans and Core Strategies of the NSC and BCC in the design and location of the Project.
- 4.5.4 As the engineering design and the environmental assessment is developed, the emerging Project will be appraised against planning policies. A final review of the Project against national, regional and local policy will be provided with the DCO Application.

5 Air Quality and Carbon

5.1 Introduction

- 5.1.1 The Portishead Branch Line (MetroWest Phase 1) Project ("the Project") has the potential to give rise to likely significant effects on air quality. This Chapter:
- describes the air quality baseline having regard to existing information and information presented in a separate Baseline Report;
 - describes the relevant legal and policy framework which will inform the undertaking of the assessment;
 - identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
 - describes the methodology proposed to be used for the identification and assessment of likely significant air quality effects in the Environmental Statement ("ES"); and
 - considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.
- 5.1.2 MetroWest Phase 1 will add new services of diesel-powered trains on the three local rail lines, the Portishead Branch Line, the Severn Beach / Avonmouth line, and the Bristol to Bath Spa line and provide for modal shift to move passenger trips from road to rail. Combustion of diesel emits carbon dioxide ("CO₂") and water vapour with trace amounts of the pollutants nitrogen oxides ("NO_x") and soot (particulate matter less than 10 microns in diameter - "PM₁₀"). The fossil carbon dioxide ("carbon") emissions are a factor in climate change. The pollutants NO_x and PM₁₀ are also the main pollutants of concern from road traffic and have adverse impacts on human health. Rail transport is more energy efficient than road transport as a transport mode, by virtue of greater scale, lower rolling resistance, and lower wind resistance. As a consequence, it gives rise to less pollution per passenger kilometre than road transport. MetroWest Phase 1 also has the potential to affect local air quality during the construction phase.
- 5.1.3 The construction activity generated by the Portishead Branch Line (MetroWest Phase 1) Project is likely to give rise to dust deposition and combustion emissions from vehicle traffic. Materials used during construction will also have an embodied carbon impact.
- 5.1.4 The operational phase of the Project has the potential to affect air quality and carbon owing to a modal shift from road vehicles to rail, leading to a change in vehicle journeys and traffic distribution on the road network. The Project would be expected to lead to an overall reduction in vehicular emissions of pollutants and carbon, although there is likely to be an increase in emissions on roads surrounding the railway stations.
- 5.1.5 The works that will be undertaken by Network Rail exercising its permitted development rights, namely the works on the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, are small scale and likely to be of short construction duration. The site clearance and construction phase will involve activities such as minor earthworks and possibly replacement of ballast which are likely to generate dust emissions. The construction of new signals are unlikely to generate any significant dust.
- 5.1.6 During the operational phase, there will also be increased emissions associated with the additional services from the diesel locomotives. Portishead Branch Line project will result in increased services along the Portbury Freight Line and main line to Bristol Temple Meads. Similarly, the proposed increase in services along the Severn Beach / Avonmouth

line and the Bristol to Bath Spa line, will lead to an increase in local emissions. The programme for overhead line electrification will be introduced in the medium term, which would lead to reduction of emissions along the railway corridors.

- 5.1.7 The approach to the proposed assessment of operational carbon emissions is presented in this Chapter while the approach to construction carbon emissions is presented in Chapter 14 Materials and Waste.

5.2 Legal and Policy Framework

EU and National Legislation

Air Quality

- 5.2.1 The European Union has established common, health-based and eco-system based ambience concentration limit values for main pollutants in the Ambience Air Quality Directive (2008/50/EU) ("the Air Quality Directive"), which Member States are required to meet. The Air Quality Standard Regulations 2010 implement European Directive 2008/50/EC⁶ on ambient air quality and cleaner air for Europe and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. The Regulations make provision for the assessment of ambient air quality and impose duties on the SoS in relation to limit values, target values, long term objectives and other matters. The SoS is required to draw up air quality plans and has the power to direct local authorities.
- 5.2.2 Part IV of the Environment Act 1995 provides that the UK Government will produce a national air quality strategy ("AQS") which contains standards, objectives and measures for improving ambient air quality. The current Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007 provides the policy framework for air quality management and assessment in the UK. The Environment Act 1995 also requires local authorities to review the quality of air within their area and provide an assessment as to whether any prescribed air quality standards or objectives are being achieved or are likely to be achieved within the period prescribed by regulations.
- 5.2.3 The ambient air quality standards and objectives set out in the AQS are prescribed in England through the Air Quality (England) Regulations 2000 and Air Quality (England) (Amendment) Regulations 2002. The only AQS objectives exceeded in the UK as a result of vehicular emissions are those for nitrogen dioxide ("NO₂") and PM₁₀.

Carbon

- 5.2.4 Human activities are 95% certain⁷ to be causing climate change, by enhancing the warming of the greenhouse effect (i.e. retaining more of the sun's heat in the atmosphere), by the increased emissions of greenhouse gases ("GHG"). The main GHG emitted is CO₂, often referred to as 'carbon'.
- 5.2.5 The United Nations Framework Convention on Climate Change sets protocols to reduce the emissions of GHGs.

⁶ The Air Quality Directive replaced Council Directive 96/62/EC on ambient air quality assessment and management, Council Directive 1999/30/EC relating to limits for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, particulate matter and lead and ambient air, Council Directive 2000/69/EC relating to limit values for benzene and carbon monoxide and ambient air, and Council Directive 2002/3/EC relating to ozone and ambient air.

⁷ IPCC Working Group 1, (2013), *Summary for Policy Makers*; http://www.climatechange2013.org/images/uploads/WGIAR5-SPM_Approved

- 5.2.6 The Kyoto Protocol set limits on GHG emissions to 2012, with a second commitment period to end 2020 (which includes the EU, and thus the UK) to reduce emissions⁸. The Kyoto Protocol provides for the establishment of mechanisms such as the EU Emission Trading Scheme, which caps the emissions of certain industrial sectors (including power generation and cement and steel production). The Doha Amendment to the Kyoto Protocol provides for transition arrangements 2020 pending the negotiation of a comprehensive international treaty to address climate change, which is expected to take place in Paris in December 2015.
- 5.2.7 The Climate Change Act 2008⁹ establishes a framework for the UK to achieve its long-term goals of reducing GHG emissions by at least 80% from 1990 levels by 2050 and to ensure that steps are taken towards adapting to the impact of climate change. An interim target of 34% reduction from 1990 levels by 2020 has also been agreed. The reductions are in the context of government policy to increase economic activity as measured by gross domestic product ("GDP") growth.
- 5.2.8 The Carbon Plan¹⁰ sets out the Government's plans for achieving the GHG emissions reductions committed to in the Climate Change Act and the first four carbon budgets. Low carbon transport is an essential part of the Carbon Plan. The Plan states that rail travel will become substantially decarbonised through increasing electrification and the use of more efficient trains and lower carbon fuels.
- 5.2.9 In 2011 (the latest figures available), the UK's progress against its Climate Change Act targets was a reduction of 29.1% (i.e. 549,200,000 tCO₂e) from 1990 levels excluding the effects of emissions trading^{4,5}. In terms of overall UK emissions, transport accounted for 134,800,000 tCO₂e (25%) and rail for 4,400,000 tCO₂e (less than 1%).
- 5.2.10 Carbon budgets were introduced as part of the Climate Change Act 2008. The fifth carbon budget is currently in preparation. The first four, five-year budgets have been set in law from 2008-2027. The budgets are split into traded and non-traded carbon. A limit on UK carbon emissions is imposed for each five-year period. The budgets are prepared by the Committee on Climate Change ("CoCC") who were set up under the Climate Change Act as an independent evidenced advisory body to the UK Government and Parliament. The Third Carbon Budget (2010) was accepted by Parliament and covers the period 2018-2022, which includes the proposed opening year for the Portishead Branch Line (MetroWest Phase 1) Project of 2019. The key recommendations for the budget include:
- the need for the UK to be on a pathway to at least an 80% cut in GHG below 1990 levels by 2050, with maximum 2050 emissions of 160,000,000 tCO₂e; and
 - by 2025, annual UK emissions should be reduced to around 390,000,000 tCO₂e (a 50% reduction relative to baseline levels).

EU, National and Local Policy

- 5.2.11 The 2011 *White Paper Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system*¹¹ published by the European Commission states that transport policy must be resource and energy efficient. Its goal is

⁸ UNFCCC Appendix I - Quantified economy-wide emissions targets for 2020; http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php;

⁹ HM Government, (2011), *The Carbon Plan: Delivering our Low Carbon Future*, <https://www.gov.uk/government/publications/the-carbon-planreducing-greenhouse-gas-emissions--2>;

¹⁰ HM Government, (2011), *The Carbon Plan: Delivering our Low Carbon Future*, <https://www.gov.uk/government/publications/the-carbon-planreducing-greenhouse-gas-emissions--2>;

¹¹ European Commission, (2011), *White Paper Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system*; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011DC0144:EN:NOT>; Accessed: 26 March 2014

"to help establish a system that underpins European economic progress, enhances competitiveness and offers high quality mobility services while using resources more efficiently". It also states that curbing mobility is not an option.

- 5.2.12 The NN NPS advises on the approach to the assessment of air quality in the case of national infrastructure networks, including railways, at paragraphs 5.3 - 5.15. It advises that an environmental statement should describe:
- existing air quality levels;
 - forecasts of air quality at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme; and
 - any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the Project. In addition, the Secretary of State must be provided with a judgment on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive.
- 5.2.13 The UK's NPPF (2012) states that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas ("AQMA") and the cumulative impacts on air quality from individual sites in local areas. Local authorities are responsible for designating AQMAs and preparing and implementing Air Quality Action Plans ("AQAP") to address the air quality problems. Planning decisions should ensure that any new project in AQMAs is consistent with the local AQAP.
- 5.2.14 The Joint Local Transport Plan 3 ("JLTP3") (2011) has been produced by the West of England Partnership authorities and covers the period 2011 to 2026. One of the aims of the JLTP3 is to improve air quality in AQMAs and ensure that air quality in other areas remains better than UK and EU standards. The plan also focuses on raising the awareness of air quality and promoting more sustainable modes of transport.

5.3 Baseline Conditions

Air Quality

Portishead Branch Line (MetroWest Phase 1) Project

- 5.3.1 NSC has not declared any AQMAs and air quality monitoring undertaken by NSC indicates that pollutant concentrations meet air quality objectives within the vicinity of the Project. The Ashton Gate Level Crossing may just enter the Bristol AQMA. The nearest air quality monitoring station in Greville Smyth Park shows that the annual mean NO₂ concentration is well below the objective.
- 5.3.2 There are a number of European and nationally designated ecological sites within 1km of the Project comprising:
- the Severn Estuary SAC, SPA, Ramsar site and SSSI; and
 - Ashton Court SSSI;
- 5.3.3 The average nitrogen deposition rates (based on interpolated data for 2009 to 2011) are less than the empirical critical loads for Severn Estuary SSSI habitat of meadows and grassland, but exceed the empirical critical loads for Ashton Court SSSI, which may be an indication of significant harmful effects due to pollution.
- 5.3.4 These issues are considered further in the Baseline Report.

Portbury Freight Line

- 5.3.5 BCC has declared a single AQMA in Bristol city centre and parts of the main radial roads including the M32. The Portbury Freight Line passes through the AQMA in the vicinity of Ashton Gate and re-enters the AQMA at Parson Street Junction. The AQMA has been declared for NO₂ (1-hour mean and annual mean objectives) and PM₁₀ (24-hour mean objective). The nearest air quality monitoring stations to the Portbury Freight Line include the Greville Smyth Park monitoring station discussed above, and several monitoring stations in Hotwells, Parson Street and Bedminster which show exceedances of the annual mean NO₂ objective.
- 5.3.6 The following European and nationally designated ecological sites lie within 1km of the permitted development works proposed on the Portbury Freight Line:
- Avon Gorge Woodlands SAC, Avon Gorge SSSI, and Leigh Woods NNR, and
 - Ashton Court SSSI.
- 5.3.7 Average nitrogen deposition rates (based on interpolated data for 2009 to 2011) exceed the empirical critical loads for both sites, which may be an indication of significant harmful effects due to pollution.
- 5.3.8 These issues are considered further in the Baseline Report.

Bedminster Down Relief Line

- 5.3.9 The Bedminster Down Relief Line lies within the Bristol AQMA. The nearest air quality monitoring stations for Bedminster and Parson Street show substantial exceedances of the the mean annual NO₂ concentration.
- 5.3.10 There are no internationally or nationally designated ecological sites within 1km of the Bedminster Down Relief Line.

Severn Beach / Avonmouth Signalling

- 5.3.11 The Severn Beach / Avonmouth Signalling project does not lie within an AQMA. The nearest monitoring station is the Portway Park and Ride which shows that the mean annual NO₂ concentration is well below the objective. There are no air quality monitoring stations for PM₁₀ within 1km of the project.
- 5.3.12 The Severn Beach / Avonmouth Signalling project lies within 1km of the Severn Estuary SAC, SPA, Ramsar site and SSSI. As described above, the average nitrogen deposition rates (based on interpolated data for 2009 to 2011) are less than the empirical critical loads for Severn Estuary SSSI habitat of meadows and grassland.

Bathampton Turnback

- 5.3.13 B&NES has declared one AQMA in the centre of Bath, which extends along the main roads including Warminster Road and London Road. The Bath AQMA is located approximately 500m from the Bathampton Turnback and has been declared for NO₂ (1-hour mean and annual mean objectives). The nearest NO₂ monitoring station is located at Bathampton School approximately 50m from the project, and shows that NO₂ concentrations are well below the annual mean objective.

Carbon

- 5.3.14 The CO₂ emitted within the administrative boundaries of NSC, BCC and B&NES in 2011 was estimated at 2,036, 1,351, and 897 kilotonnes ("Kt") respectively for all economic sectors, with carbon emissions from diesel railways for all three local authorities estimated at 7 Kt (0.003% of total CO₂ emissions) and with road transport accounting for about 516 Kt (25% of total CO₂ emissions) for BCC and NSC.

5.4 Potential Impacts, Mitigation and Residual Impacts Portishead Branch Line (MetroWest Phase 1) Project

5.4.1 The potential impacts, mitigation and residual impacts associated with the Project are summarised in Table 5.1.

Cumulative Impacts of MetroWest Phase 1

5.4.2 The potential cumulative impacts, mitigation and residual impacts associated with the other developments are summarised in Table 5.2.

Table 5.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Air Quality and Carbon

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Raising dust during various activities: earthworks, storage of aggregate, tracking along dirt access road, etc. Emissions from construction plant and vehicles. Embodied carbon in materials used in construction (concrete, steel, etc).	Temporary increase in particulate matter (PM) in the air during construction phase, potentially causing nuisance and adverse ecological effects through soiling. Fine particulate matter could also adversely affect human health. NOx and carbon contribute to global warming and climate change.	Properties within 200m of construction activities. Receptors such as residential properties within 200m of haulage / construction traffic routes.	Contractor to implement measures to suppress dust, minimise emissions from plant, and traffic management plans to reduce construction traffic.	Dust nuisance likely to occur from time to time, on windy days during dry weather, when mitigation measures are not effective. Impacts are expected to be temporary and not persist beyond construction. Emissions from plant and machinery are typically too low to affect compliance with air quality objectives and are very low in comparison to heavily trafficked roads such as the M5.
Operation activities				
New service from Portishead to PIII.	New pollution source from diesel locomotives leading to an increase in air pollutants alongside the railway line and an increase in emissions of carbon.	Receptors such as residential properties and ecological sites within 200m of the railway line.	No effective mitigation to reduce emissions from engines in the short term. In the longer term, electrification of the line would remove pollution source from along the railway line.	Increase in emissions from diesel engines to air along the railway line. Defra TG:09 ¹² guidance indicates this is not likely to be significant.

¹² Department of Environment, Food and Rural Affairs (“Defra”) *Technical Guidance for Local Air Quality Management* (Defra, 2009) (TG:09) in conjunction with the Highways Agency’s DMRB, Volume 11, Section 3, Part 1 HA 207/07 guidance

Table 5.2. Potential Cumulative Impacts, Mitigation and Residual Impacts on Air Quality and Carbon

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Construction dust, plant and vehicle emissions and embodied carbon during construction works along the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback (see Table 5.1).	Temporary increase in particulate matter (PM) in the air. NOx and carbon contribute to global warming and climate change.	Sensitive receptors within 200m of construction activities and along haul routes.	Contractor to implement measures to suppress dust, minimise emissions from plant, and traffic management plans to reduce construction traffic.	Dust nuisance likely to occur from time to time. Impacts are temporary. Emissions from plant and machinery are typically too low to affect compliance with air quality objectives and are very low in comparison to heavily trafficked roads such as the M5.
Operation activities				
Increased services along the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach and Bristol to Bath Spa.	Increased carbon emissions and air pollution alongside the railway line where additional diesel locomotives are introduced.	Residential properties and ecological sites within 200m of the railway line.	No effective mitigation to reduce emissions from engines in the short term. In the longer term, electrification of the line would remove pollution source from along the railway line.	Increase in emissions from diesel engines to air along the railway line. Defra guidance indicates this is not likely to be significant except on heavily trafficked railway lines.
Modal shift from road to rail.	Change in road traffic pollutants and carbon emissions. Likely decrease in carbon.	Receptors such as residential properties within 200m of affected roads. Global effect for carbon.		Project expected to lead to an overall reduction in road traffic leading to air quality and carbon benefits.

5.5 Methodology

Guidance and Best Practice

Air Quality

- 5.5.1 The assessment of the Project on air quality will follow the Department of Environment, Food and Rural Affairs ("Defra") *Technical Guidance for Local Air Quality Management* (Defra, 2009) (TG:09) in conjunction with the Highways Agency's DMRB, Volume 11, Section 3, Part 1 HA 207/07 guidance. Significance criteria will be taken from the Environmental Protection UK *Guidance Development Control Planning for Air Quality*.

Carbon

- 5.5.2 The Department for Transport's ("DfT") web-based Transport Analysis Guidance ("WebTAG") Environmental Impact Appraisal (Unit A3)¹³ is the appropriate guidance for quantifying the operational carbon impact of the Project. This methodology uses an appraisal period of 60 years, over which the difference in GHG emissions due to the rail traffic is compared with and without the Project.
- 5.5.3 The Hybrid Bill¹⁴ deposited in Parliament on 25 November 2013 for Phase 1 of High Speed Two ("HS2") (the high speed rail link between London and Birmingham), may be considered to be 'best practice' in terms of assessing climate change impacts. The assessment for HS2 uses life-cycle analysis or 'carbon footprinting' to combine the evaluation of both construction and operational impacts. Overall operational emissions reductions through shifts from more polluting transport modes are a key aspect of the business case for the Project. The project will, where possible, identify the most significant cost-effective opportunities to reduce the embodied carbon emissions associated with project activities. This may be achieved through leaner design, designing out waste, reusing materials, and selecting materials with lower embodied carbon over the project life-cycle.

Definition of the Study Area

- 5.5.4 Defra's (2009) guidance for the air quality impacts on human health associated with the introduction of diesel locomotives will be used. Defra recommends that air quality impacts along railway lines only need to be considered where there is currently heavy traffic from diesel trains and where the estimated background NO₂ concentration is greater than 25 µg/m³. The only railway line which meets this criteria across the full extent of MetroWest Phase 1 is likely to be the Bristol Temple Meads to Bristol Parkway railway line, which will not experience any change in services as a result of the Project. Consequently, following Defra guidance, the local air quality impacts of emissions from diesel locomotives introduced as a result of MetroWest Phase 1 are not expected to be significant. This will be confirmed and if appropriate this topic will be scoped out of any further assessment.
- 5.5.5 The study area for assessing the air quality impacts of construction and road traffic air quality impacts associated with the operational phase will be defined in accordance with the Highways Agency's DMRB whereby affected roads are identified from the traffic modelling where:

¹³ Department for Transport, January 2014, <https://www.gov.uk/government/publications/webtag-tag-unit-a3-environmental-impact-appraisal>

¹⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/259488/Volume_3_Route-wide_effects.pdf and https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/259613/Volume5_Climate_Summary_carbon_calculation_outputs_CL-002-000.pdf

- road alignment will change by 5 m or more; or
 - daily traffic flows will change by 1,000 Annual Average Daily Traffic ("AADT") flow or more; or
 - Heavy Duty Vehicle ("HDV") flows will change by 200 AADT or more; or
 - daily average speed will change by 10 kph or more; or
 - peak hour speed will change by 20 kph or more.
- 5.5.6 The study area for the carbon impact assessment will be defined as part of the transport appraisal using the Greater Bristol Area Transport Study ("GBATS") model area/MOIRA model area (see Chapter 14 Transport, Access and Non-Motorised Users).

Construction Impacts of the Project

- 5.5.7 The assessment of air quality impacts during construction will follow DMRB guidance. Sensitive receptors (e.g. houses, schools, hospitals, and designated sites) will be identified within 200m of construction activities and mitigation measures to suppress dust emissions will be recommended.
- 5.5.8 The carbon impacts of construction are principally associated with the materials used in the infrastructure of the new railway stations and are discussed in Chapter 10 on Materials and Waste.

Operation Impacts of the Project

Air Quality Assessment

- 5.5.9 The assessment of air quality impacts during operation will follow DMRB and Defra *Local Air Quality Management Technical Guidance* (Defra 2009).
- 5.5.10 The assessment of operation impacts for the new railway service between Portishead and Parson Street Junction will be assessed following Defra 2009 guidance. However, as described above in Section 5.5.2, it is likely that the impact of the new service on local air quality will be scoped out, due to the comparatively small number of trains.
- 5.5.11 Operational air quality impacts associated with changes in road traffic and the proposed changes to road access to the railway stations at Portishead and Pill will be assessed for the affected roads where the appropriate criteria are met. The dispersion model ADMS-Roads will be used to assess changes in NO₂ and PM₁₀ concentrations at sensitive receptors within 200m of affected roads. The modelling will be undertaken for the base year (2014), and for the project opening year (2019) with and without the project. The air quality model will be compared and verified against base year monitoring data in line with Defra guidance (Defra, 2009).
- 5.5.12 The significance of the predicted change in air quality with and without the project will be defined according to guidance from the Environment Protection UK guidance *Development Control: Planning for Air Quality* (EPUK, 2010).

Carbon Assessment

- 5.5.13 The carbon impacts of the operation of the new railway services are likely to result in a reduction of (or offset against business as usual) emissions through modal shift from car to rail use.

- 5.5.14 The DfT WebTAG for Environmental Impact Appraisal (Unit A3)¹⁵ uses an appraisal period of 60 years, over which the difference in GHG emissions due to the rail traffic is compared, for the situations with and without the Project. The appraisal monetises the GHG impacts of the Project, for inclusion in the benefit cost ratio ("BCR") for the business case. The current central estimated price per tonne of CO₂ emitted in 2019 (in 2010 prices) is £61.88¹⁶. Therefore for each tonne of CO₂ emission avoided by the Project, this amount will accrue as a benefit of the Project. This appraisal calculation of emissions does not take into account embedded emissions associated with materials used in construction, as these considered to be covered the 'traded' sector.
- 5.5.15 There are three stages of transport modelling and appraisal to be performed before the Project is constructed:
- For the Preliminary Business Case
 - For the Outline Business Case (supplying information for the EIA, in the second half of 2015)
 - For the Final Business Case
- 5.5.16 The multi-modal transport model for the Greater Bristol area, GBATS¹⁷, will be used to model the modal shift from road to rail. The rail aspects of the Project will incorporate information from NR's Rail Demand Model.
- 5.5.17 The difference in operational carbon emissions will then be quantified from the change in rail emissions from the new services, and the change in road vehicle emissions, provided by the transport analysis in the second half of 2015, which is for the Outline Business Case. Adjustments and assumptions may need to be made to allow for any difference in the years modelled in GBATS and the assessment years for the Project.
- 5.5.18 In the transport analysis, the benefits to non-users will be calculated using the External Cost of Car Use ("ECCU") model from WebTAG Unit A5-4. The ECCU shows the unit rate of removing one mile of road journey for each road type and congestion level by Government Region. This unit rate comprises of impact on road congestion, greenhouse gases and noise and air pollution. The discounted cash flow ("DCF") model estimates the total road mileage removed by incorporating MOIRA rail mileage output and converted to equivalent road mileage following WebTAG. The ECCU unit rate for the South West region is then applied to the road mileage number to calculate the non-rail user benefits. This will be supplemented with a cross-check of highway benefits using GBATS and TUBA. The reduction in road miles due to modal shift to rail from cars, can be extracted from the GBATS model comparison between the with and without Project scenarios and quantified as a tonnage CO₂ emission/year, by converting the mileage fuel consumption by the appropriate emissions factors¹⁸.
- 5.5.19 The carbon impact of the Project will be expressed as emissions of tCO₂/year, and compared with a projection of the emissions per local authority area in the opening year (as set out in the baseline section).

¹⁵ Department for Transport, January 2014, <https://www.gov.uk/government/publications/webtag-tag-unit-a3-environmental-impact-appraisal>

¹⁶ <https://www.gov.uk/government/publications/webtag-environmental-impacts-worksheets> Greenhouse Gas accessed 4th April 2014

¹⁷ The Greater Bristol Area Transport Study (GBATS) model is owned by the West of England Partnership, and operated on its behalf by CH2M HILL. The Highways element of it is the model SATURN, and the public transport element of it (bus and rail) is the model EMME.

¹⁸ Currently Emissions Factor Toolkit, version 5.2, Defra.

Cumulative Effects of MetroWest Phase 1

- 5.5.20 In terms of local air quality, the number of additional rail services to be operated and the changes in road traffic are not likely to cause cumulative impacts, since the scale of these is anticipated to be relatively small.
- 5.5.21 The potential changes to local air quality due to modal shift from highways to railway for the Portishead Branch Line (MetroWest Phase 1) Project will be considered as part of the modelling studies described in Section 5.5.4 above.

6 Cultural Heritage

6.1 Introduction

6.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on cultural heritage. This Chapter:

- describes the cultural heritage baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant cultural heritage effects in the Environmental Statement ("ES");
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

6.1.2 The cultural heritage resource comprises built heritage (including extant railway architecture of all types), designated areas (including Conservation Areas "CA", Scheduled Monuments "SM", and Registered Parks and Gardens "RP&G"), extant and buried archaeology, and Historic Landscape Characters ("HLC").

6.1.3 A desk-based baseline study has been undertaken, and the results summarised in the baseline section below and in a separate Baseline Report. Information on cultural heritage assets potentially affected by the Portishead Branch Line (MetroWest Phase 1) Project has been obtained from:

- aerial photographic records held by the National Monuments Record ("NMR");
- listed buildings, scheduled monuments, registered battlefields and historic parks and gardens information from the NMR;
- cross-checking of designation data from English Heritage ("EH") through the website www.magic.gov.uk;
- historic mapping (Ordnance Survey ("OS") and pre-OS) from the Somerset Heritage Centre ("SHC") in Taunton;
- published sources such as local histories and archaeological journals at the SHC;
- the National Heritage List for England (www.english-heritage.org.uk) to cross-check designation information;
- the North Somerset Council's ("NSC") Historic Environment Records ("HER") website (<http://map.n-somerset.gov.uk/HER>) for cross-checking designated and non-designated assets in addition to HLC data; and
- Bristol City Council's ("BCC") website (<http://maps.bristol.gov.uk/knowyourplace>) for cross-checking designated and non-designated assets.

6.1.4 Data on designated heritage assets were gathered for the Portishead Branch Line (MetroWest Phase 1) Project for a 500m buffer area either side of the railway. Where topography results in inter-visibility with the project, designated features beyond the 500m buffer area have been included. Data for non-designated built heritage and archaeology were gathered for the project and a 50m buffer area.

- 6.1.5 A site walkover of the disused section of the project between Portishead and Pill was undertaken by the Project Archaeologist on 19 March 2014 to observe features in the field.
- 6.1.6 Data on designated and non-designated heritage assets were also obtained from the HER for the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback. The PastScape website (www.pastscape.org.uk) was also used to search for archaeological sites in Bath and North Somerset (B&NES) for Bathampton Turnback. The results are presented in the Baseline Report.
- 6.1.7 The ES for the Project will consider the direct and indirect impacts of the Project on statutory and non-statutory designations in addition to non-designated cultural heritage assets during construction and the operation phases.

6.2 Legal and Policy Framework

- 6.2.1 The main legal framework governing the conservation of cultural heritage assets is provided by the Ancient Monuments and Archaeological Areas Act 1979 (as amended) and the Planning (Listed Buildings and Conservation Areas) Act 1990. The Ancient Monuments and Archaeological Areas Act 1979 provides for the protection of scheduled monuments. The Planning (Listed Building and Conservation Areas) Act 1990 requires local authorities to designate areas of 'special architectural or historic interest' as Conservation Areas with the aim of preserving and enhancing their character and appearance. English Heritage may need to be consulted with regard to proposed works within a Conservation Area and section 72(1) requires Local Authorities to pay particular attention to Conservation Areas in the planning process. This legislation states the desirability of preserving or enhancing the character of a Conservation Area and to preserve listed buildings and their settings.
- 6.2.2 The National Policy Statement for National Networks ("NPS") advises on the assessment of effects of nationally significant infrastructure projects ("NSIP") on the historic environment at paragraphs 5.120 - 5.142. It advises that the ES should include a description of the significance of any heritage assets affected, including the contribution made by the setting. The level of detail should be proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the ES should include an appropriate desk-base assessment and, where necessary, a field evaluation. Matters relevant to the determination by the Secretary of State ("SoS") are described.
- 6.2.3 The National Planning Policy Framework ("NPPF") Section 12 on *Conserving and enhancing the historic environment* states the approach to be used by local planning authorities to determine planning applications in relation to cultural heritage and also listed building consent applications. They apply both to designated heritage assets, such as Listed Buildings and Conservation Areas, and also to undesignated, but potentially significant, heritage assets such as buried archaeological remains and other historic structures, including those that make a positive contribution to the character of a Conservation Area.
- 6.2.4 North Somerset Replacement Local Plan (Adopted March 2007) includes policies relating to cultural heritage - ECH/3 (Conservation Areas), ECH/4 (Listed Buildings), ECH/5 (Historic Parks and Gardens) and ECH/6 (Archaeology).

Policy ECH/3 - Conservation areas

"Development within a Conservation Area, or development elsewhere likely to affect the setting of, or the views into and out of, a Conservation Area, will be permitted provided that it preserves or enhances:

i. the character or appearance of the area; and

- ii. features of special architectural or historic interest of the area; and*
- iii. other elements of the townscape, including traditional buildings and public realm that make a positive contribution to the quality of the area's character and appearance.*

In the case of proposals for demolition of buildings or structures that make a positive contribution to the character or appearance of a Conservation Area, there will be a presumption in favour of retention unless it can be demonstrated that there is no viable alternative use"

Policy ECH/4 - Listed buildings

"Development proposals requiring planning permission affecting a Listed Building and / or its setting only will be approved where the following criteria can be satisfied:

- i. the architectural and historic interest of the building and its setting is preserved; and*
- ii. the style, design, plan and other features of special architectural or historic interest are preserved; and*
- iii. any conversion or proposed new use would be compatible with the preservation of the building.*

When considering planning applications that would result in the demolition or substantial demolition of Listed Buildings there will be a strong presumption in favour of preservation."

Policy ECH/5 - Historic parks and gardens

"Development likely to affect a Historic Park or Garden identified on the Proposals Map, or its setting, will only be permitted where:

- i. its historic character and appearance will not be unacceptably harmed: and*
- ii. its historic importance will not be unacceptably harmed; and*
- iii. the development enables features, landscaping and planting schemes of historic interest to be conserved, enhanced or restored"*

Policy ECH/6 - Archaeology

"Development will not be permitted where it would involve significant alteration or cause damage to nationally-important archaeological remains (whether Scheduled or not), or would have a significant impact on the setting of such remains".

6.3 Baseline Conditions

Portishead Branch Line (MetroWest Phase 1) Project

Designated Assets

- 6.3.1 There are no SMs within 500m of the project. The Conygar Hill SM, a univallate pre-historic hill fort, lies c550m south of the project near Portbury, and will be included in the assessment due to its position on a visually prominent hill. SMs are considered to have a high value.
- 6.3.2 The Project does not cross any Registered Parks and Gardens. The Ashton Gate Level Crossing lies about 400m east of the Ashton Court Grade II* (high value) Registered Park and Garden.

- 6.3.3 The project does not cross any Conservation Areas, but lies within 500m of two of them. Shirehampton Conservation Area is located to the north of the River Avon about 300m from the proposed station refurbishment at Pill. The works at Ashton Gate Level Crossing lie about 400m south of the Bower Ashton Conservation Area. Given their mixed nature, it is difficult to assign a value to Conservation Areas, but an estimated medium value can be given to them.
- 6.3.4 There are no listed buildings within the red line boundary. There are 12 listed buildings within 500m of the disused section of the railway between Portishead and Pill. The Church of St Mary, Portbury is a Grade I listed building. The Church of St George (between Portbury and Junction 19 of the M5) is a Grade II* listed building. Both of these churches are considered to be of high value. The remaining buildings are all Grade II listed buildings of medium value and include Moor Farmhouse, a thatched cottage at Sheepway, Elm Tree farmhouse, several buildings associated with The Priory in Portbury, and Court House farmhouse.
- 6.3.5 There are several listed buildings in and around Pill. These include Lodway Croft, The Watch House, Mulberry House and Cottage, and four buildings on the site of the old Ham Green hospital comprising the main house Watergate, a gazebo and an administrative block. These are all Grade II listed.
- 6.3.6 There are also three listed buildings in Shirehampton conservation area, the Lamplighters public house, Wellington House and stables, and 103 Station Road, all Grade II, which lie approximately 400-450m north east of the proposed station at Pill.
- 6.3.7 Ashton Gate Level Crossing lies within 500m of listed buildings in the Bower Ashton Conservation Area, notably Lower Lodge to Ashton Court (Grade II*).
- 6.3.8 There are no World Heritage Sites ("WHS") or Registered Battlefields within 500m of the project.

Non-Designated Assets

- 6.3.9 There are seven non-designated archaeological sites along the disused section of the railway line. These include the Portishead branch line itself, associated infrastructure such as the remains of Portbury Railway station, signal boxes and sidings, and other features such as Defence of Britain ("DoB") sites. The archaeologist also identified the track, signal posts, and three historic railway bridges, during the site walkover. There are a further three non-designated archaeological sites within the red line boundary in Pill, the core settlement of Pill, Pill railway viaduct and Ham Green Tunnel (Pill Tunnel).
- 6.3.10 There are also a further 25 non-designated archaeological sites within 50m of the project including medieval fish ponds, undated field enclosures, the non-designated historic park and garden in Pill at The Folly, harbour features, railway features, and Defence of Britain structures.
- 6.3.11 These are all considered to have a low heritage asset value.

Portbury Freight Line

Designated Assets

- 6.3.12 There are three SMs within 500m of the Portbury Freight Line. The Sea Mills Roman settlement of Abonae, an Iron Age fort at Clifton Down Camp, and an Iron Age fort at Stokeleigh Camp. Sea Mills SM and Clifton Down Camp SM are located on the east side of the Avon Gorge, while Stokeleigh Camp SM is located on the west side of the Gorge about 120m west of the Portbury Freight Line.

- 6.3.13 The Portbury Freight Line passes through the Leigh Court Grade II listed (medium value) Registered Park and Garden and abuts the Ashton Court Grade II* (high value) Registered Park and Garden.
- 6.3.14 Five of the Conservation Areas, Sea Mills, Sneyd Park, The Downs, Clifton, and City Docks lie next to each other in Bristol and include the River Avon within their boundaries. Leigh Woods and Bower Ashton Conservation Areas lie to the west of the Portbury Freight Line in North Somerset.
- 6.3.15 There are many listed buildings lying within 500m of the Portbury Freight Line mostly on the east bank of the River Avon in Bristol, but a few also on the west bank of the River Avon close to the Portbury Freight Line. The Portbury Freight Line passes under the Clifton Suspension Bridge in tunnel. The bridge, designed and built by Isambard Kingdom Brunel, is a Grade I listed building with a very high heritage value.

Non-Designated Assets

- 6.3.16 There are eleven non-designated assets lying within the Network Rail owned land along the Portbury Freight Line. These mostly comprise railway features, such as Clifton Bridge Rail tunnel and station, as well as the site of a 17th century lime kiln and cottage and 1930s garage.
- 6.3.17 There are some 19 non-designated features with 50m of the railway corridor along the Portbury Freight, including old quarries, Leigh Woods non-registered park and garden at Burwalls, and old industrial sites such as a 17th century copper works, a brick and tile works, cotton mill.

Bathampton Turnback

- 6.3.18 There are no scheduled monuments, Registered Battlefields, Registered Parks and Gardens or Conservation Areas within 500m of the proposed Bathampton Turnback. The Bath WHS, which is of very high value, extends to approximately 350m from the proposed works. Of the 34 listed buildings in the study area, three are located close to the works, namely the bridge over the Kennet and Avon Canal, the Railway Bridge, and Meadow Farm. These are all Grade II listed buildings and have a medium heritage value.

Severn Beach / Avonmouth Signalling

- 6.3.19 There are no scheduled monuments, registered battlefields, registered historic parks and gardens or conservation areas within a 500m buffer area of Option 6B and Option 5B. There are three listed buildings within 500m of the Project, none of which is directly adjacent to the existing railway line. These buildings are all Grade II listed and are accorded a medium value. There are also 54 non-designated monuments recorded on the HER for the combined options. The majority represent extant buildings and structures and include a number of railway infrastructure assets.

Bedminster Down Relief Line

- 6.3.20 Cultural heritage assets in the vicinity of the Bedminster Down Relief Line comprise both designated and non-designated assets. There are no scheduled monuments, registered battlefields or registered historic parks and gardens within a 500m buffer area surrounding the Project. The Bedminster Conservation Area lies within the 500m study area, with the nearest portions of the Conservation Area lying approximately 200m north of the present railway line. Part of the Conservation Area in this location lies alongside the ancient (originally Roman) road now underlying the line of East and West Streets.
- 6.3.21 There are 16 listed buildings within 500m of the project. None of these lie within 200m of the existing railway line. These buildings are all Grade II listed and are assigned a medium value.

- 6.3.22 In terms of non-designated cultural heritage assets, there are 71 known archaeological monuments within the 500m buffer area recorded on the HER. The majority of these lie over 150m to the north of the existing railway line. These generally relate to extant buildings and warehouses, plus ecclesiastical structures. The vast majority date from the later post medieval periods.
- 6.3.23 Closer to the railway line, Bedminster Station is recorded (reference 2027M) together with various post medieval engineering works and warehouses. Bedminster has an historical settlement core dating the early medieval period.

6.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 6.4.1 Table 6.1 identifies the potential impacts, mitigation, and residual impacts associated with the construction and operation of the Project.

Cumulative Impacts of MetroWest Phase 1

- 6.4.2 The minor works required to raise the vertical alignment of the Portbury Freight Line to accommodate the new passenger service, construct a new signal and the double tracking between Bower Ashton and Ashton Gate, could potentially affect non-designated archaeological features and undiscovered remains within operating railway land. However, it is worth bearing in mind that heritage assets may have been damaged or destroyed during the construction of the original railway line. Potential impacts would be mitigated through minimising the construction footprint and preparing a Written Scheme of Investigation of mitigation to be implemented during construction.
- 6.4.3 The additional train services on the Portbury Freight Line may affect the setting of and views from cultural heritage resources inter-visible with the railway line, such as Clifton Suspension Bridge, other listed buildings, the various conservation areas, and parks and gardens.
- 6.4.4 The Bedminster Down Relief Line will potentially affect the cultural heritage resource more in terms of operational than construction changes, with the likelihood of increased rail traffic. The impacts of this on cultural heritage are likely to be very limited but nevertheless would be examined by Network Rail through their GRIP process.
- 6.4.5 The proposed Severn Beach / Avonmouth Signalling will add a very limited amount of rail infrastructure to that already existing. The additional infrastructure will be placed within the existing operational railway corridor and will not therefore directly affect archaeology or built heritage in the wider area. New developments in the vicinity, along with the proposed signalling, will potentially change the settings of designated structures, but would be assessed more fully in due course under Network Rail's GRIP process.
- 6.4.6 The Baseline Report has identified numerous cultural heritage features close to the Bathampton Turnback facility, but none on Network Rail land. The proposed construction works at Bathampton Turnback are small scale and within the existing operational railway, which would have been disturbed due to previous construction of the railway. Any upstanding features associated with the works may impact on the setting of nearby features. The nearest listed buildings are bridges associated with the railway and canal.
- 6.4.7 The increased services proposed between Bristol, Bath and Severn Beach are not expected to have a significant effect on the setting of cultural heritage features.

Table 6.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Cultural Heritage Assets

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Removal of railway features associated with the original 1867 railway eg sleepers, minor modifications to vertical / horizontal alignment.	Loss or alteration to features associated with the original railway infrastructure.	The original railway.	Minimise the construction footprint	Potential for loss or damage to archaeological features in the construction footprint.
Earthworks, drainage, spoil disposal, and minor works along the railway corridor resulting in the loss of or damage to buried archaeological remains.	Potential loss of buried archaeology within the footprint of the new Portishead Station.	Archaeological resource in the footprint for the new Portishead station and other locations where it will be necessary to break ground.	Prepare a Written Scheme of Investigation to be implemented by the Contractor during construction setting out agreed mitigation.	Potential impact on the setting of nearby cultural heritage features.
Construction activities detracting from the setting of built heritage (listed buildings and CAs).		Built structures within the visual envelop of the proposed works.	Reuse features of industrial heritage interest in the proposed Project, where feasible.	Negligible effect if archaeological resources have been adequately recorded.
Construction of the new Portishead Station.		Potential buried archaeology and historic landscape signatures.	Use of screening and good housekeeping to avoid temporary impacts on the setting of nearby features.	
			Identification of archaeological resources through detailed assessment and, if appropriate, archaeological mitigation to achieve preservation by record.	

Table 6.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Cultural Heritage Assets

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Operation activities</i>				
New service between Portishead and Pill. The restoration of the railway corridor to its original function.	Change setting of cultural heritage features near the alignment due to increased number of trains.	Heritage features along the railway corridor within the visual envelope.	Maintain existing planting and new planting to screen views.	Some change in setting of nearby heritage features due to passing trains.

- 6.4.8 The construction impacts for the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback and the potential operational impact of additional services on the setting of nearby cultural heritage resources for other services under MetroWest Phase 1 are scoped out of the cumulative impacts assessment of the DCO Project, as these are not considered to have a significant effect on the setting of any cultural heritage features along these sections of railway. The impact of these works on the cultural heritage resource will be considered by Network Rail under their GRIP process.

6.5 Methodology

Guidance and Best Practice

- 6.5.1 The assessment methodology will follow the Highways Agency's Design Manual for Roads and Bridges ("DMRB"), HA 208/07 Volume 11, Section 3, Part 2, Chapter 5 and Annexes 5 (Archaeological Remains) and 6 (Historic Buildings). Following a desk based assessment of the existing cultural heritage resources, which is reported separately in the Baseline Report, the assessment of the direct and cumulative impacts will follow the three-stage approach:
- Establishing the scale of the asset values, which are set as very high, high, medium, low and negligible using the definitions described in DMRB;
 - Determining the likely magnitude of impacts upon the cultural heritage assets, based on an understanding of the project and professional judgement, and summarised on the scale major, moderate, minor adverse, negligible and no change; and
 - Determining the significance of effect by comparing value and the magnitude of impact on the following scale: very large, large, moderate, slight and neutral.
- 6.5.2 Proposals for mitigation and the residual impacts of the mitigated project will be developed.

Definition of the Study Area

- 6.5.3 The study area will be divided into two sub-areas, a wider corridor 500m either side of the Project to assess the impacts on the setting of designated cultural heritage assets, and a narrower corridor 50m either side of the Project to assess the impacts on potential damage and setting of non-designated assets.

Construction Impacts for the Project

- 6.5.4 The construction impacts for the Project will be determined through the use of DMRB criteria for the assessment of impacts to built heritage, archaeology and historic landscapes. Potential impacts would include, but not be exclusive of, the removal of the remaining railway architecture still present on the disused line, potential impacts to the buried environment relating to the construction of Portishead Station and new overbridges, and the impacts on the setting of designated sites within 500m of the Project from construction plant and traffic and the removal of vegetation.

Operational Impacts for the Project

- 6.5.5 The operational impacts of the project on the setting of cultural heritage features will be addressed following the procedure described in Section 6.5.1 above. The impacts will cover the change of setting of designated and non-designated features arising from the new works and the increased number of train services.

Cumulative Effects

- 6.5.6 The assessment of cumulative effects will consider the impact of committed developments within the vicinity of the Portishead Branch Line (MetroWest Phase 1) Project.
- 6.5.7 The assessment of cumulative effects will consider the permitted development works along the Portbury Freight Line, with particular emphasis on the impacts on landscape and views from sensitive receptors.
- 6.5.8 The potential for cumulative effects during the construction of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton and increased services on those lines for MetroWest Phase 1 have been scoped out for cultural heritage.

7 Ecology and Biodiversity

7.1 Introduction

7.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on ecology and biodiversity. This Chapter:

- describes the ecology and biodiversity baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant ecology and biodiversity effects in the Environmental Statement ("ES");
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

7.1.2 This chapter focuses on the valued ecological receptors which comprise: sites which are designated (statutory and non-statutory) for their nature conservation value at the European, national and local level; sensitive and valued habitats (e.g. wetland and mature trees); species which are protected through European or national legislation; and habitats and species which are valued through either policy, biodiversity action plans ("BAP") or as priorities for conservation. Some ecological receptors may still be important but not covered by the stated criteria, but still provide an important ecological function e.g. hedgerows and linear habitats which provide potential corridors for movement for species. These ecological receptors have potential significance at the European, national, regional or local level.

7.1.3 Various studies have been undertaken to date. Detailed surveys were undertaken along the disused section of the railway between Portishead and Pill for Phase 1 and Phase 2 habitat surveys, bats, great crested newts, water vole, reptiles, badger, breeding birds and invertebrates in 2011¹⁹, ²⁰. In 2014 and 2015, further baseline studies were undertaken comprising a desk-based data search and field surveys. Data on designated sites and species were obtained from the Multi-Agency Geographic Information for the Countryside website ("MAGIC") and the Bristol Regional Environmental Records Centre ("BRERC") for the Portishead Branch Line, the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback. The data search covered international sites with bats as a qualifying feature within 30km of the projects, other internationally designated sites within a 5km radius of the projects, nationally designated sites with 2km, non-designated sites within 0.5km and species records. In March 2014, a Phase 1 survey was undertaken along the disused section of the Portishead to Pill railway line to verify the previous studies undertaken in 2011, and along the Portbury Freight Line. A preliminary bat survey was undertaken in the autumn of 2014 for the disused section of the railway between Portishead and Pill and an overwintering bird survey in 2014-15 in the Severn Estuary Special Area of Conservation ("SAC"), Special Protection Area ("SPA") and Ramsar site in

¹⁹ Halcrow, 2011. Ecological Appraisal Portishead Railway

²⁰ Mott MacDonald, 2011. Phase 2 Habitat and Protected Species Report.

the vicinity of Pill. The results of these studies are summarised in the Baseline Section below and presented in a separate Baseline Report.

- 7.1.4 The proposed scope of the ES has been based on a review of the ecological studies undertaken to date. The ES will focus on the impacts of the construction and operation of the Portishead Branch Line (MetroWest Phase 1) Project. The cumulative effects will also consider the impact of the construction and operation of any committed development in the vicinity of the project and other works required for MetroWest Phase 1, namely the permitted development works on the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback.

7.2 Legal and Policy Framework

National Legislation and Policy

- 7.2.1 The Conservation of Habitats and Species Regulations 2010 (as amended) ("the Habitat Regulations") transpose *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora* ("the Habitats Directive") into national law. The Habitat Regulations provide for the designation and protection of European sites, the protection of European protected species listed in the Habitats Directive, and the adaptation of planning and other controls for the protection of European Sites. European sites are defined in the Habitats Regulations to include all SACs, candidate SACs proposed by the UK Government to the European Commission ("cSAC"), sites of community importance ("SCI") placed on a list adopted by the European Commission prior to designation as SACs by the Government, and SPAs for wild birds. As a matter of planning policy, the UK Government extends the same level of protection to proposed sites once a Ministerial announcement has been made that it is proposed to consult on the designation of such sites. The UK Government also, as a matter of policy, applies the same level of protection to Ramsar sites, which are wetlands of international importance designated under the Ramsar Convention.
- 7.2.2 On the Portishead Branch Line (MetroWest Phase 1) Project, European Protected Species ("EPS") with potential to be affected by the Project are bats and great crested newts, whose presence within the project vicinity have been identified through baseline studies. The project lies within 30km of three European designated sites with bats as a qualifying feature, the North Somerset and Mendip Bats SAC (8km to the south), the Bath and Bradford-on-Avon Bats SAC (c24km to the east), and the Avon Gorge Woodlands SAC (crossed by the Portbury Freight Line). Screening for appropriate assessment under the Habitats Regulations is presented in Appendix A.
- 7.2.3 The Wildlife and Countryside Act 1981 (as amended) ("WCA") consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats ("Bern Convention") and Council Directive 79/409/EEC on the Conservation of Wild Birds ("Birds Directive") in Great Britain. The WCA is the main piece of national legislation which protects animals, plants, and in some cases their habitats in England.
- 7.2.4 The Protection of Badgers Act 1992 consolidates and improves previous legislation (including the Badgers (Further Protection) Act 1991). It is an offence to kill, injure, take, possess or cruelly ill-treat a badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority. Sett interference includes disturbing badgers while they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. Baseline studies show that badgers are present along the Portishead Branch Line (MetroWest Phase 1) Project.
- 7.2.5 The Natural Environment and Rural Communities Act 2006 ("NERC") extended the biodiversity duty set out in the Countryside and Rights of Way ("CRoW") Act 2000 to public

bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. The Duty is set out in Section 40 of the Act which states that: *"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"*. This Act includes lists of Habitats and Species of Principal Importance for England and there is an obligation to implement measures to further the conservation interest of such species and to restore or enhance their populations or habitats. Habitats and Species of Principal Importance for England are present in the vicinity of the Portishead Branch Line (MetroWest Phase 1) Project, such as the Upland Ashwoods of the Avon Gorge Woodlands SAC and protected species such as various species of bat, great crested newts, dormouse, hedgehog and water vole.

7.2.6 The National Policy Statement for National Networks ("NPS") advises on biodiversity and ecological conservation in the context of national networks at paragraphs 5.20 - 5.38. Applicants should ensure that the ES clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England) on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The ES should consider the full range of potential impacts on ecosystems. The applicant should also show how a project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests. The factors relevant to the decision making of the SoS are described.

7.2.7 The National Planning Policy Framework ("NPPF") includes Chapter 11 *Conserving and Enhancing the Natural Environment*. In addition to being concerned with the protection of statutorily designated sites, the NPPF outlines ways in which the planning system is required to contribute to and enhance the local environment and sets out guidance for local authorities in respect of the consideration of biodiversity and green infrastructure, including *"minimising impacts on biodiversity and providing net gains in biodiversity where possible"* and *"establishing coherent ecological networks that are more resilient to current and future pressures"*. The NPPF is a material planning consideration.

Local Policy Framework

7.2.8 The NSC Core Strategy includes two policies relevant to biodiversity and conservation.

- **Policy CS1: Addressing climate change and carbon reduction:** 5) a network of multi-functional green infrastructure will be planned for and delivered through new development...; and 6) protecting and enhancing biodiversity across North Somerset including species and habitats that are characteristic of the area, in order to support adaptation to climate change.
- **Policy CS4: Nature conservation:** The biodiversity of North Somerset will be maintained and enhanced by:

"1) seeking to meet local and national Biodiversity Action Plan targets taking account of climate change and the need for habitats and species to adapt to it;

2) seeking to ensure that new development is designed to maximise benefits to biodiversity, incorporating, safeguarding and enhancing natural habitats and features and adding to them where possible, particularly networks of habitats. A net loss of biodiversity interest should be avoided, and a net gain achieved where possible;

3) seeking to protect, connect and enhance important habitats, particularly designated sites, ancient woodlands and veteran trees;

4) promoting the enhancement of existing and provision of new green infrastructure of value to wildlife;

5) promoting native tree planting and well targeted woodland creation, and encouraging retention of trees, with a view to enhancing biodiversity."

- 7.2.9 The Bristol Core Strategy includes **Policy BCS9 Green Infrastructure** to increase the connectivity of the strategic green infrastructure network and retain and prevent its loss. The Bristol Site Allocations and Development Management Policies, which support delivery of the Core Strategy, includes **Policy DM17 Development Involving Existing Green Space** and **Policy DM19 Development and Nature Conservation**.
- 7.2.10 There are various biodiversity action plans relevant to this project. *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*, (Defra, 2011), is the most recent biodiversity strategy for England (replacing the UK BAP following the publication of the *UK Post-2010 Biodiversity Framework* published by JNCC and Defra in July 2012).
- 7.2.11 The *Action for Nature North Somerset Biodiversity Action Plan* (NSC, 2005) ("NSBAP") and the *Bristol BAP* ("BBAP") (BCC, undated) identify priority habitats and species and set targets for their conservation. This includes habitats and species of relevance to the project, such as woodland, standing open water, rivers and streams, greater horseshoe bat and hedgehog.

7.3 Baseline Conditions

Portishead Branch Line (MetroWest Phase 1) Project

Natural Areas

- 7.3.1 The Portishead Branch Line (MetroWest Phase 1) Project is located within two "natural areas" defined by Natural England (see also Chapter 8 Landscape and Visual). The Severn and Avon Vales Natural Area (Number 56) is an area of undulating low-lying land where the river floodplains regularly flood in winter and there are relict wetland sites and features such as old pollards, wet pastures, ditches and tall hedgerows. The Bristol, Avon Valleys and Ridges Natural Area (Number 62) is a complex and variable landscape, characterised by alternating ridges and broad valleys with some steep wooded slopes and open rolling farmland.

Designated Sites

- 7.3.2 There are three internationally designated sites with bats as a qualifying feature within 30 km of the Project. The nearest site is the Avon Gorge Woodlands SAC which is crossed by the Portbury Freight Line, while the North Somerset and Mendip Bats SAC and the Bath and Bradford-on-Avon Bats SAC lie at 8km and 24km distance respectively.
- 7.3.3 There are four internationally designated sites within a 5km radius of the Project, namely:
- The Severn Estuary SAC, SPA and Ramsar site, which is located about 800m of the western end of the study area near Portishead and as close as 80m in the vicinity of Pill; and
 - The Avon Gorge Woodlands SAC, which is traversed by the Portbury Freight Line over c3.8 km.
- 7.3.4 SSSIs and National Nature Reserves ("NNR") are nationally designated sites. There are five SSSIs designated for their nature conservation within 2km of the project, comprising the Severn Estuary SSSI and Avon Gorge SSSI, whose boundaries are co-incident with the international designations described above, plus Weston Big Wood SSSI, Horseshoe Bend SSSI in Shirehampton and Ashton Court SSSI. Leigh Woods NNR forms part of the Avon Gorge SSSI.
- 7.3.5 There are numerous Wildlife Sites ("WS") and Sites of Nature Conservation Importance ("SNCI"), (non-statutory designated sites within North Somerset and the city of Bristol

respectively) within 0.5 km of the project. Eight are located immediately adjacent to the project, namely:

- Portbury Wharf Nature Reserve WS (also an Avon Wildlife Trust Nature Reserve);
- Drove Rhyne and adjacent fields WS;
- Fields between railway line and A369 Portbury WS (part of which is Priory Farm Avon Wildlife Trust Nature Reserve);
- Field east of Court House WS;
- Field east of M5 motorway, Lodway WS.
- River Avon (part of) WS and SNCI;
- Avon Gorge and Leigh Woods WS; and
- Bower Ashton Mineral Railway (disused) SNCI.

Habitats

- 7.3.6 Habitats identified along the disused section of the railway between Portishead and Pill are: scrub, woodland and trees, semi-improved and amenity grassland, tall ruderal, reedbed, open water (watercourses and ponds) and structures.
- 7.3.7 The dominant habitat type present is bramble *Rubus fruticosus* scrub with hawthorn *Crataegus monogyna*, tending to be most dense to the sides of the disused tracks, but regularly covering the whole of the railway corridor. Willow *Salix* sp. scrub is also frequent, where it is rooted in drainage ditches. Other frequently occurring species are self-sown silver birch *Betula pendula* and ash *Fraxinus excelsior* saplings, the latter usually on ballast in the centre of the tracks. Self-sown butterfly bush *Buddleja davidii* occurs frequently.
- 7.3.8 Along either side of Portbury Dock Road the trees have matured to form a silver birch woodland. Lords-and-Ladies *Arum maculatum*, hart's-tongue *Phyllitis scolopendrium*, male-fern *Dryopteris felix-mas* and cleavers *Galium aparine* are frequent within the ground flora. Mature ash trees are present between Quays Avenue and Sheepway Lane and many of these have a dense covering of ivy *Hedera helix*.
- 7.3.9 Grassland only occurs occasionally in places where scrub has not yet colonised, possibly due to rabbit grazing or where there are farm crossings. There are two large area of semi-improved grassland, one to the west of Quays Avenue (colt's-foot *Tussilago farfara* and sedge *Carex* sp. present with bramble and butterfly bush encroaching) and one adjacent to Harbour Road (species include cock's-foot *Dactylis glomerata*, common bent *Agrostis capillaris*, ribwort plantain *Plantago lanceolata*, teasel *Dipsacus fullonum*, broad-leaved dock *Rumex obtusifolius*, vetch *Lathyrus* sp., white clover *Trifolium repens* and creeping cinquefoil *Potentilla reptans*) where patches of bare ground are present and bramble is starting to develop within the sward.
- 7.3.10 Tall ruderal vegetation is of limited extent comprising predominantly common nettle *Urtica dioica*, with broad-leaved dock, rosebay willowherb *Chamerion angustifolium* and cleavers in areas surrounded by bramble.
- 7.3.11 Common reed *Phragmites australis* occurs in association with ditches and are species-poor and generally small in extent.
- 7.3.12 A number of watercourses are present passing beneath the disused railway and also as drains parallel to it (many were dry when surveyed and are considered to be ephemeral features). Generally these are shallow and leaf filled with no emergent or aquatic vegetation, due to heavy shading. Ponds are all shallow and shaded features of small extent and often covered with duckweed *Lemna minor*, although, there are a number of ponds beyond the disused railway boundary. Ham Green Lakes (fishing lakes) partially lie

under the line near the eastern portal of Pill Tunnel and are likely to be connected to the River Avon during high tide and flooding. Colliter's Brook is culverted under the line at Barons Close.

- 7.3.13 Significant structures present include five bridges over the disused railway at Sheepway Lane, Station Road, Portbury Dock Road, Marsh Lane and the M5, and other brick railway bridges over watercourses or farm access. There are also numerous culverts carrying watercourses under the disused railway.

Species

- 7.3.14 There is potential for, bats, amphibians (including great crested newt *Triturus cristatus*), water vole *Arvicola amphibious*, reptiles, badgers *Meles meles*, dormouse *Muscardinus avellanarius*, breeding birds and invertebrates. Surveys for these species along the disused section of the railway were undertaken in 2011 and details of the survey methodologies used and summaries of the results and conclusions (where relevant) are provided in the Baseline Report.

Portbury Freight Line

Natural Areas

- 7.3.15 The Portbury Freight Line lies entirely within the Bristol, Avon Valleys and Ridges Natural Area (Number 62). This is a complex and variable landscape, characterised by alternating ridges and broad valleys with some steep wooded slopes and open rolling farmland, with the urban expanse of Bristol and the limestone Avon Gorge dominating the central part.

Designated Sites

- 7.3.16 There are three internationally designated sites with bats as a qualifying feature within 30km of the Portbury Freight Line. The line traverses the Avon Gorge Woodlands SAC over some 3.8km, while the North Somerset and Mendip Bats SAC and the Bath and Bradford-on-Avon Bats SAC lie at 8km and 24km distance respectively.
- 7.3.17 There are four internationally designated sites within a 5km radius of the Portbury Freight Line, namely:
- The Severn Estuary SAC, SPA and Ramsar site, which is along the North Somerset coast and lower River Avon; and
 - The Avon Gorge Woodlands SAC.
- 7.3.18 There are four SSSIs designated for their nature conservation within 2km of the Portbury Freight Line, comprising the Severn Estuary SSSI, Horseshoe Bend SSSI, the Avon Gorge SSSI (including the Leigh Woods NNR) and Ashton Court SSSI.
- 7.3.19 There are numerous Wildlife Sites ("WS") and Sites of Nature Conservation Importance ("SNCI"), (non-statutory designated sites within North Somerset and the city of Bristol respectively) within 0.5km of the site. Three are located immediately adjacent to the Portbury Freight Line, namely:
- River Avon (part of) WS and SNCI;
 - Avon Gorge and Leigh Woods WS; and
 - Bower Ashton Mineral Railway (disused) SNCI.

Habitats

- 7.3.20 Habitats identified along the Portbury Freight Line are: woodland and trees, scrub, semi-improved grassland, ephemeral/short perennial, tall ruderal, open water (watercourses), and structures.

- 7.3.21 Throughout the Avon Gorge section woodland dominates the adjacent habitat and banks of the railway cutting. The woodland within the banks of the railway is dominated by sycamore *Acer pseudoplatanus*, ash, oak *Quercus robur* and silver birch. Hazel *Corylus avellana* and willow dominate the understorey in many areas. Ground flora largely comprises Lords-and-Ladies, hart's-tongue fern and herb Robert *Geranium robertianum*, with areas of dense ivy. The adjacent woodland is part of the Avon Gorge Woodlands SAC and dominant species include hazel, yew *Taxus baccata*, beech *Fagus sylvatica*, and sweet chestnut *Castanea sativa*. Part of the SAC includes Leigh Woods NNR which is an area of ancient woodland that includes veteran oak pollards and flower-rich limestone grassland.
- 7.3.22 Scrub is dominant in more urban areas, with bramble and hawthorn most prevalent and sections of blackthorn *Prunus spinosa*. Butterfly-bush is present at the extremities of the site in particularly dense areas of scrub next to industrial units and residential gardens.
- 7.3.23 There is very little grassland habitat within the railway corridor and the observed plant diversity is considered low. Most of the grassland adjacent to the site is semi-improved rural pasture, with an area of semi-improved neutral grassland south of Ashton Vale Road, which is dense with Canadian goldenrod *Solidago canadensis* and bramble.
- 7.3.24 Some sections of railway ballast along the track are distinctly species-rich and include species such as, bristly ox-tongue *Picris echioides*, clover *Trifolium repens*, purslane *Claytonia sibirica*, germander speedwell *Veronica chamaedrys*, dandelion *Taraxacum officinale* agg., common groundsel *Senecio vulgaris*, rosebay willowherb *Chamerion angustifolium* and barren strawberry *Potentilla sterilis*. None of the rare plants found within the Avon Gorge Woodland SAC were noted present.
- 7.3.25 Tall ruderal habitat is not frequent, however, there are some dense patches of common nettle *Urtica dioica*, broad-leaved dock, rosebay willowherb and cleavers *Galium aparine* in areas surrounded by bramble. Two stands of the invasive non-native species Japanese knotweed *Fallopia japonica* were recorded (just south of Leigh Woods and at Ashton Vale).
- 7.3.26 The River Avon runs parallel for much of its length and a small tributary stream runs under the site from Oak Wood. A small drain runs parallel to the railway line from Ashton Vale Road to Ashton Road over-bridge where the drain is partially vegetated including Japanese knotweed. A narrow watercourse runs in from the Avon under the site at Miles Dock underbridge into the adjacent woodland. Colliter's Brook is culverted under the railway line at Barons Close. No ponds or standing water are within the site, although Ham Green Lakes (fishing lakes) partially lie under the line and are likely to be connected to the River Avon during high tide and flooding.
- 7.3.27 Numerous tunnels and structures run along, over and under the line, many of which have potential to support bats, lichens and mosses. Most of the structures are stone or brick and mortar and four tunnels are carved within the limestone and sandstone of the ridge. There is a small derelict building within the railway corridor at Ashton Gate and very small concrete building adjacent to exposures of inland rock within Avon Gorge woodlands.

Species

- 7.3.28 Along the Portbury Freight Line, there are features with potential to be affected by the works that provide suitable habitat opportunities for bats, amphibians (including great crested newt), dormouse, reptiles, badgers, breeding birds and invertebrates.

Bedminster Down Relief Line

Designated sites

- 7.3.29 There is one internationally designated site within a 5km radius of the Bedminster Down Relief Line, namely, the Avon Gorge Woodlands SAC, which lies at approximately 2.49km from the Bedminster Down Relief Line.
- 7.3.30 There are no national designations within the Bedminster Down Relief Line. However there are two designations, within a 2.5km radius of the site, the Avon Gorge SSSI and Ashton Court SSSI.
- 7.3.31 There are four locally designated Wildlife Network Sites within 0.5km of Bedminster Down Relief (Figure B.3.3) Line.
- St. John's Burial Ground
 - Cotswold Road Open Space
 - Railway between A38 road crossing and Bath Rd, and
 - Victoria Park.

Habitats

- 7.3.32 The habitats within the Bedminster Down Relief Line were identified through the MAGIC website and include:
- Scrub - Bramble *Rubus fruticosus* scrub with hawthorn *Crataegus monogyna*. Butterfly bush *Buddleja davidii* is also likely to be present towards the edges of the site.
 - Tall ruderal vegetation - The commonest species are common nettle *Urtica dioica* with rosebay willowherb *Chamerion angustifolium* and cleavers in areas which have been disturbed in the past.
 - Trees - Trees border the railway land.
 - Waterbodies - Malago stream passes under the site at its southern end. There is also one pond within 110m to the north of the site.

Protected species

- 7.3.33 The following species and/or their habitats have been confirmed as present within or in habitat immediately adjacent to the project.
- Amphibians. Three ponds within 500m of the project which may have potential to support great crested newt. BRERC also returned records of common frog *Rana temporaria*, smooth newt *Lissotriton vulgaris* and common toad *Bufo bufo* within the search area.
 - Numerous records for bats were received by BRERC. The nearest record of a bat roost is for lesser horseshoe bat *R. hipposideros* approximately 1km from the site.
 - BRERC returned records of 45 species of birds. Of these, seven are listed under Schedule 1 of the WCA 1981 (as amended). Numerous opportunities for nesting and foraging exist within the project boundary and adjoining areas.
 - BRERC returned one record of slow worm *Anguis fragilis* in the search area. Potentially suitable habitats for reptiles are present in the project area, with trees, scrub and tall ruderal habitats present.
 - BRERC data held numerous records for invasive and protected species. The records which are of most relevant to this site are several records of invasive species, two

records of bluebell *Hyacinthoides non-scripta*, which is listed under Schedule 8 of the WCA 1981 (as amended), and veteran black poplar trees recorded in Victoria Park.

Severn Beach / Avonmouth Signalling

Designated sites

- 7.3.34 There are four internationally designated sites within a 5km radius of the proposed Severn Beach / Avonmouth Signalling (MetroWest Phase 1) Project. Three of these are all components of the Severn Estuary SAC, SPA and Ramsar site, which lies at its closest point within 10m from the railway line in Avonmouth. The fourth is the Avon Gorge Woodland SAC located approximately 2km south of Shirehampton.
- 7.3.35 There are no national designations within the Project footprint, but the Severn Estuary SSSI falls within 10m of the Project at its closet point and Horseshoe Bend, Shirehampton SSSI within 1km distance. Avon Gorge SSSI lies within 2km of the Project.
- 7.3.36 There are eight locally designated Sites of Nature Conservation Importance ("SNCIs") within 0.5km of the Project. In addition there are 25 Wildlife Network Sites and one Strategic Nature Area (Gorge & Downs) located within 0.5km of the railway line between Shirehampton and Severn Beach.

Habitats

- 7.3.37 The habitats within the site are dominated by bare ground and railway infrastructure along with railway verge comprising a mix of hedgerow, trees and grass embankment. Parks, fields and gardens dominate the adjacent habitat between Shirehampton station and the M5 and a wide section of woodland and scrub south of Avonmouth station. Hedge lined fields and rhyes border the railway line north of St Andrew's Road to Severn Beach.

Protected species

- 7.3.38 A number of protected species records have been received for this site. The following species and/ or their habitats have been confirmed as present within or in habitat immediately adjacent to the project.
- Amphibians. Records of great crested newt *Triturus cristatus*, common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* have been received from BRERC within 0.5km of the Project.
 - Badger. BRERC has several record of badgers within 0.5km of the Project and adjacent habitat and embankments offer suitable foraging habitat and potential for sett construction.
 - Bats. The linear habitat on sites offers suitable foraging habitat for bats and mature trees and structures could provide opportunities for roosting bats. Numerous records for bats were received by BRERC.
 - Water vole. BRERC has numerous records for water vole within 0.5km of the project with a stronghold located in the St Andrew's Road Rhyne close to the train station.
 - Numerous opportunities for bird nesting and foraging exist within the project boundary and adjoining areas.
 - Potentially suitable habitats for reptiles are present on the banks of the track particularly where these are adjacent to grassland, tall herb and scrub mosaics. BRERC records confirm that slow worms *Anguis fragilis* and grass snakes *Natrix natrix* have been sighted within 0.5km of the Project.
 - Plants. BRERC data held numerous records for invasive and protected species.

- Other Notable Species. Records for hedgehog *Erinaceus europaeus* and water shrew *Neomys fodiens* are known from within 0.5km of the Project.

Bathampton Turnback

Designated Sites

- 7.3.39 There is one internationally designated site within a 5km radius of the site, the Bath and Bradford on Avon Bats SAC, which is comprised of several locations, with its nearest point to Bathampton Turnback being approximately 950m distant.
- 7.3.40 There are two SSSIs designated for their nature conservation value within 2km of the project, Combe Down and Bathampton Down Mines SSSI (which is also covered by the SAC designation) at approximately 950m distance and Brown's Folly SSSI which lies approximately 2km away.
- 7.3.41 There is one SNCI located immediately adjacent to the site, (part of) the Kennet and Avon Canal and another five SNCIs within the 0.5km of the project: the River Avon; Kensington Meadows; Fields by the canal and railway (Hampton Row); Bathwick Slopes; and Bathampton Down and Woodlands SNCI.

Habitats

- 7.3.42 Bathampton Turnback lies within the existing Network Rail operational main line railway between London and Bristol. The central part of the project comprises two sets of railway lines on ballast. The habitats along the boundary of the site comprises scrub habitat which includes bramble, willow saplings and butterfly-bush with narrow areas of semi-improved grassland. To the south are a line of mature pedunculate oak *Quercus robur* and sycamore *Acer pseudoplatanus* trees. There is an area of species-poor semi-improved grassland, but this habitat is narrow and relatively small in extent.

Species

- 7.3.43 The following potential for protected species has been identified:
- a tree has been highlighted as having potential for bats;
 - two water bodies with potential to support great crested newt lie within 120m of the site boundary;
 - there is potential for badgers to be present as there is good foraging habitat where setts may be located are present, and
 - there are features with potential to support breeding birds.

7.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 7.4.1 Table 7.1 sets out the potential construction and operational impacts and effects on the resources and receptors that have been identified, with an indication of the likely potential mitigation and residual impacts.

SECTION 7

Table 7.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Ecology

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Construction traffic on access routes	Risk of harm Damage to retained habitats	Reptiles, great crested newts, badgers and birds Trees, semi-improved grassland and wetland features	In accordance with the legal protection afforded to protected species and subject to any licences as a minimum. Retained habitats to be protected in accordance with best practice guidance.	Not Significant (probable)
Construction site pollution incidents	Damage to habitats	Watercourses and adjacent designated sites	Habitats to be protected in accordance with best practice guidance.	Potentially Significant (unlikely)
Dust pollution from construction activities	Covering vegetation resulting in reduced growth rates and loss of vegetation within 100m of construction sites	Trees, woodland, grassland and adjacent designated sites	Habitats to be protected in accordance with best practice guidance.	Not Significant (probable)
Site clearance, including felling of trees, along the disused section	Disturbance and risk of harm	Roosting bats, great crested newts, reptiles, badgers and breeding birds	In accordance with the legal protection afforded to protected species and subject to any licences as a minimum.	Not Significant (probable)
Loss of trees along the disused section	Loss of nesting/roosting, foraging and commuting habitat	Bats and birds	In accordance with the legal protection afforded to protected species and	Not Significant (probable)

Table 7.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Ecology

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
			subject to any licences as a minimum.	
Site clearance to lay new maintenance access to Pill Tunnel	Loss of vegetation including Dormouse habitat	Dormouse	In accordance with the legal protection afforded to protected species	Potentially Significant (unlikely)
Improvement works to structures	Disturbance and loss of roosting habitat	Roosting bats	In accordance with the legal protection afforded to protected species and subject to any licences as a minimum.	Not Significant (probable)
Lighting from construction compounds	Disturbance	Roosting, foraging and commuting bats	In accordance with the legal protection afforded to protected species and subject to any licences as a minimum.	Not Significant (probable)
Construction noise and human activity	Disturbance and disruption to breeding and feeding activity	Bats, reptiles and breeding birds	In accordance with the legal protection afforded to protected species and subject to any licences as a minimum.	Not Significant (probable)
<i>Operation activities</i>				
Permanent habitat loss along the disused section	Loss and fragmentation of semi-natural habitats and green infrastructure and loss and	Trees, woodland, habitat (green) corridors	Habitat compensation to be determined. Mitigation for protected species in	Potentially Significant (unlikely)

Table 7.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Ecology

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
	fragmentation of associated species populations	Bats, great crested newts, reptiles, badgers and breeding birds	accordance with their legal protection and subject to any licences as a minimum.	
Operational rail noise	Disturbance and disruption to breeding and feeding activity	Bats, badgers and breeding birds	In accordance with the legal protection afforded to protected species.	Not Significant (probable)
Vibration	Disturbance	Roosting bats	In accordance with the legal protection afforded to protected species.	Potentially Significant (unlikely)
Rail movements	Risk of harm	Bats, great crested newts, reptiles and breeding birds	In accordance with the legal protection afforded to protected species.	Potentially Significant (unlikely)
Pollution incidents from rail stock	Damage to habitats	Watercourses and adjacent designated sites	Drainage and pollution prevention measures to be in accordance with best practice guidance.	Potentially Significant (unlikely)

Cumulative Impacts of MetroWest Phase 1

- 7.4.2 Other construction works concerned with MetroWest Phase 1 involve modifications within the existing Network Rail land along operational railways.
- 7.4.3 The minor works required on the Portbury Freight Line within the Avon Gorge Woodlands SAC will be confined to the existing railway corridor. Although the works to improve the alignment of the railway line are unlikely to require vegetation clearance, some localised vegetation clearance may be needed to improve access for maintenance and to construct a new signal. This may affect SAC qualifying features and habitat that supports protected species such as dormouse.
- 7.4.4 The operation of the new passenger service along the Portbury Freight Line through the Avon Gorge Woodlands SAC may also increase disturbance to fauna, including bats, and result in localised air pollution due to emissions, which in turn may indirectly impact on the flora.
- 7.4.5 The proposed double tracking from Bower Ashton to Ashton Gate will be undertaken within the railway corridor. This section of the line does not cross any designated sites, and provided suitable mitigation is undertaken, vegetation removal is not considered likely to have a significant effect on habitats, flora and fauna.
- 7.4.6 The cumulative impacts of the permitted development works required along the Portbury Freight Line will be considered in the ES for the Portishead Branch Line (MetroWest Phase 1) Project.
- 7.4.7 Bedminster Down Relief Line is located close to a line of trees and important open space. Provided that the works to upgrade the railway line do not affect the nearby habitats, and particularly the trees, then the effects on flora and fauna are likely to be insignificant.
- 7.4.8 The Severn Beach / Avonmouth Signalling project will involve the erection of one or more signals within the operational railway land at Avonmouth. These works may require a small area of land clearance for the footprint of the signal, but this is unlikely to have a significant effect on flora in the area.
- 7.4.9 The construction of the siding and associated platform for Bathampton Turnback would require removal of the scrub within the railway boundary and the loss of that habitat for species, which has the potential to support protected species including badger, great crested newts and breeding birds. If protected species are found within the footprint of the Project, Network Rail would ensure that suitable mitigation is undertaken in accordance with the legal obligations, such as applying for the appropriate licences to close badger setts, translocate species such as the great crested newts and manage the vegetation to minimise impact on small mammals and breeding birds.
- 7.4.10 The environmental assessment of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback will be undertaken by Network Rail as part of their GRIP process. The results will be reviewed as part of the cumulative impacts assessment for the Portishead Branch Line (MetroWest Phase 1) Project. Notwithstanding, given the distance between the projects and the small scale of these works, it is considered that there will be no cumulative effects due to construction associated with the development of the Portishead Branch Line.
- 7.4.11 The potential impacts of additional services on the Bedminster, Severn Beach / Avonmouth and Bath lines as part of MetroWest Phase 1 are scoped out, as the potential disturbance of additional services on fauna are not considered to be significant.

7.5 Methodology

Guidance and Best Practice

- 7.5.1 The ecological impact assessment will be undertaken in accordance with the *Guidelines for Ecological Impact Assessment in the United Kingdom* produced by the Institute of Ecology and Environmental Management (IEEM, 2006²¹). The assessment will consider impacts with and without development, prior to construction and once operational on the as-built site on day 1. In order to assess the potential positive impacts of habitat creation and mitigation up to 15 years following completion will also be considered.

Definition of the Study Area

- 7.5.2 The study area for the project focuses on the footprint of the existing estate of the railway line between Portishead and Pill, and the two sections on the Portbury Freight Line for the Ashton Gate Level Crossing and Barons Close Pedestrian Crossing as defined by the red line boundary (see Figure 2.1) and a 0.5km buffer around the red line boundary. Consideration will also be given to potential effects on internationally designated sites within 5km. The cumulative effects section will also cover the Portbury Freight Line between Pill and Parson Street Junction. This study area is considered sufficient to include the likely zone of influence of the project on habitats, flora and fauna.
- 7.5.3 While the above provides an indication of the spatial scope for this topic, its extent will be reviewed following identification of all potential direct and indirect impacts and consultations.

Baseline Surveys

- 7.5.4 It is proposed to undertake further survey work during 2015-16 comprising the following activities:
- A Habitat Suitability Index ("HSI") survey of ponds within 250m of the railway line to assess the suitability of the ponds for supporting great crested newts
 - A presence / absence survey for great crested newts for ponds with medium and high HSI scores
 - A badger survey of the disused section of the Portishead to Pill railway line.
 - Water vole surveys in drains and ditches along the disused section of the Portishead to Pill railway line, where there are potential connectivity with the project.
 - Reptile surveys in locations of suitable habitat.
 - Winter and summer bat surveys along the disused section of the Portishead to Pill railway line and in association with the four tunnels on the Portbury Freight Line.
 - In the event that the engineering design identifies the need for works in the Avon Gorge Woodlands SAC, a survey of "qualifying features" in the area likely to be cleared of vegetation and dormouse surveys in suitable adjoining habitat.

Construction and Operational Impacts of the Project

- 7.5.5 Following the IEEM ecology impact assessment guidance, the following factors will be considered in determining the potential ecological impacts of the activities associated with the construction and operation of the proposed development:

²¹ Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment within the United Kingdom. IEEM. Winchester

- Extent;
 - Magnitude;
 - Duration;
 - Reversibility;
 - Timing and frequency; and
 - Cumulative effects.
- 7.5.6 The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, unitary authority, local and lastly, within the immediate zone of influence of the proposals only.
- 7.5.7 The guidelines recommend that a threshold of value for the ecological features is defined, above which any impact upon them could be considered significant and therefore requires more detailed assessment. Features to be subject to more detailed assessment should be both of sufficient value that impacts upon them may be significant and potentially vulnerable to significant impacts arising from the development. This approach is consistent with the EIA Regulations, which only require investigation of likely significant effects. For the purposes of this assessment, the threshold level of value of a receptor below which it is considered that an impact would not be considered significant will be set at unitary authority value. Therefore, impacts will be assessed in detail only for receptors of at least unitary authority value or subject to some form of legal protection, for example, under the WCA 1981 (as amended), the Protection of Badgers Act 1992, and the Habitats Regulations 2010 (as amended).
- 7.5.8 The significance of likely impacts will be determined through a three stage process:
- identifying the ecological resource/receptors likely to be affected, determining their value and sensitivity and evaluating them to identify the important ones;
 - determine the magnitude and nature of impacts; and
 - characterising the nature of the individual and combined impacts on each important feature, to determine significant effects for the feature in terms of ecological structure and function.
- 7.5.9 Where it is concluded that an impact would negatively affect the ecological integrity and/or conservation status of any sensitive receptors, it will be described as significant.
- 7.5.10 Where statutorily protected species are found to be present following survey, mitigation strategies (and applications for licences to Natural England, where relevant) will be prepared to protect them in advance of construction works.
- 7.5.11 Mitigation will focus on modifications to design and construction practices and enhancement of existing key habitats within the site, as well as creation of new habitats (where necessary). Any new habitat creation will focus on local priorities and will be consistent with local policy documents, including the priorities and targets of Biodiversity 2020, the NSBAP and BBAP. Where mitigation is necessary, a range of measures will be considered where practicable and relevant to the construction and operation of the project.
- 7.5.12 The Ecology chapter of the Environmental Statement will consider the potential impacts of the project on the ecological resources with regard to natural and modified habitats, sites of importance for nature conservation and populations of key plant and animal species. This topic will also draw on outputs of other topics of the EIA, notably Air Quality, Noise and Vibration and Water Resources, to determine the nature and extent of possible impacts. There will also be cross-referencing to the landscaping proposals, particularly in

relation to mitigation. However, the evaluation of the significance and severity of such impacts on ecological resources will be addressed under the Ecology topic.

Habitats Regulations Assessment

- 7.5.13 To deliver the Portishead Branch Line (MetroWest Phase 1) Project minor works will be undertaken along the existing Portbury Freight Line within the Avon Gorge Woodlands SAC. The modifications to the existing track involves on-line raising of the track by a few centimetres. The location for the new signal will be identified during GRIP 3. The new emergency access will follow the existing tow path along the River Avon which is currently used by Network Rail for maintenance access to the railway.
- 7.5.14 A new section of track is required from Bower Ashton to Ashton Gate to extend the section of double tracking to allow freight and passenger trains to pass each other. The new section of track will lie within the existing railway land owned by Network Rail. Early designs extended the new section of track some 80m into the European designated Avon Gorge Woodlands SAC. However, consideration has been given to re-locating these works so that they are outwith the European designated site.
- 7.5.15 A preliminary Habitats Regulations Assessment ("HRA") Screening report was prepared and consultations held with Natural England during 2014, on the basis that there will be no construction works with the Avon Gorge Woodlands SAC and during operations there would be a modest increase in air emissions from diesel engines running along the Portbury Freight Line and through the Avon Gorge Woodlands SAC (see Appendix A).
- 7.5.16 The preliminary HRA screening report concluded that at this stage it cannot be proven beyond reasonable doubt that there is no significant effect from the proposed project on the site, and that further study is required. This will include confirming the engineering designs on the location of the new track and emergency access during the GRIP 3 engineering studies and assessing the potential construction and operational impact of the project on the qualifying features of the SAC.
- 7.5.17 The operational impact of higher emissions from the increased number of diesel trains on the local air quality may be partially offset by a decrease in vehicle emissions in the wider area resulting from the modal shift from road traffic to trains, and this source of pollution will be removed altogether in the medium to longer term as the railway network is electrified.
- 7.5.18 The ecological studies for the EIA will be conducted in parallel with the HRA screening and studies to inform appropriate assessment.

Cumulative Effects

- 7.5.19 In order to understand the full cumulative effects of MetroWest Phase 1 the assessment will need to consider potential impacts to ecological receptors for areas beyond the Portishead Branch Line. The cumulative effects will include committed developments identified from searches of the planning portals for the NSC and BCC and other works associated with MetroWest Phase 1, comprising the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback.
- 7.5.20 The works for the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback will be confined to Network Rail land and is unlikely to impact significantly on flora and fauna. While the impacts will be investigated further, it is expected that these will be scoped out of the EIA for the Portishead Branch Line (MetroWest Phase 1) Project and that any further ecological impact assessment will be dealt with by Network Rail through GRIP.

8 Geology, Hydrogeology, Ground Conditions, and Contaminated Land

8.1 Introduction

8.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on geology, hydrogeology, ground conditions and contaminated land. This Chapter:

- describes the geology, hydrogeology, ground conditions and contaminated land baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant geology, hydrogeology, ground conditions and contaminated land effects in the Environmental Statement ("ES");
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

8.1.2 This chapter assesses the potential for impacts from the construction of the Portishead Branch Line (MetroWest Phase 1) Project on the underlying geology and associated groundwaters, and also any potential for impacts arising from ground conditions, such as the presence of contamination or mineral workings. Any potential for impacts on geological conservation sites present within the footprint of the project are also considered.

8.1.3 Baseline studies have been undertaken comprising the search for and review of documentation relating to the study area, a walkover survey of the proposed station locations at Portishead and at Pill, and consultation with North Somerset Council's ("NSC") Environmental Health Department in relation to the recent ground investigations in Portishead near the proposed location for the station.

8.1.4 The following sources of information have been used in determining the likely ground conditions:

- British Geological Survey online mapping tool;
- Environment Agency "What's in your backyard" online data warehouse;
- Landmark EnviroCheck report covering Portishead;
- Coal Authority data held on their website;
- MAGIC online data (www.magic.gov.uk); and
- The GRIP 2 report by URS 2014²², which included the results of a preliminary site investigation along the disused section of the alignment.

²² URS, 2014. MetroWest Phase 1. Feasibility Report.

- 8.1.5 A summary of the baseline conditions is provided below and the data are presented in a separate Baseline Report. This information has been used to identify the potential impacts and the proposed approach to the ES.

8.2 Legal and Policy Framework

Relevant Legislation

- 8.2.1 The protection of groundwaters is provided for at the European level by the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC). Together these provide the framework within which much of the national legislation intended to secure the protection of groundwaters is established. National legislation relevant to the Project comprises the Environmental Protection Act 1990, the Water Resources Act 1991, the Water Act 2003, the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and the Groundwater (England and Wales) Regulations 2009.
- 8.2.2 A statutory regime for the identification and remediation of land posing unacceptable risks of human health and the environment is set out in the Environment and Protection Act 1990 Part 2A.

National Policy

- 8.2.3 The National Policy Statement for National Networks ("NPS") advises that geological conservation relates to sites that are designated for their geology and/or their geomorphological importance (paragraph 5.20). The assessment of land stability, where necessary, is advised on at paragraph 5.116 - 5.119. Land stability should be considered in respect of new development as set out in the National Planning Policy Framework ("NPPF") and proposals should be appropriate for the location, including preventing unacceptable risks from land instability. Where development is proposed on previously developed land, applicants should ensure that they have considered the risks posed by land contamination and how it is proposed to address this (paragraph 5.168).
- 8.2.4 The NPPF paragraph 109 requires that the planning system contributes to enhancing the local environment by protecting and enhancing geological conservation interests and remediating contaminated land where appropriate.

8.3 Baseline Conditions

Portishead Branch Line and Portbury Freight Line

Geology and Hydrogeology

- 8.3.1 The project crosses a series of geological strata dating from the Devonian in the west to Carboniferous Periods in the south with these rocks overlain in the north and south by younger Triassic sediments. The solid strata are in turn overlain by a varying assemblage of alluvium, tidal flat deposits, terrace gravels and head deposits. The oldest rocks are present in the west comprising Devonian sandstones with the sequence passing through steadily younger rocks of the Carboniferous Limestone Series and Coal Measures to the south towards Ashton. These rocks were uplifted and eroded during earth movements and the younger Triassic Mercia Mudstones deposited over them. The older rocks have been exposed following further erosion of the softer Mercia Mudstones.
- 8.3.2 The geological sequence offers varying potential for groundwater. The Carboniferous sediments are classified as a Principal aquifer. These are layers of rock with high permeability and a high level of water storage, which may support water supply and/or river base flow at a strategic scale. The Devonian Sandstones and the River Terrace Deposits are classified as Secondary A aquifers; permeable layers capable of supporting

water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The River Terrace Deposits are likely to provide limited water resources due to their limited catchment, being isolated over less permeable lithologies. The Mercia Mudstone is classified as a Secondary B aquifer - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. There are no source protection zones ("SPZ") or licensed water abstractions along or within 2km of the Portishead Branch Line or the Portbury Freight Line between Portishead and Parson Street Junction.

- 8.3.3 The Portbury Freight Line passes through a Site of Special Scientific Interest ("SSSI") at Ham Green where the existing railway cutting exposes a section through Pleistocene sediments. The route also passes through the Avon Gorge which is designated as an SSSI primarily for reasons of ecology but part of the citation discusses the complete local succession of the Carboniferous Limestone that is present in the area and exposed in quarries and cuttings. The Quarry Steps, Durdham Down SSSI is located about 1.3 km to the north east of the Portbury Freight Line in Bristol and is designated for its fossil assemblage.

Land Use History

- 8.3.4 The route of the Portishead Branch Line follows the previously used railway corridor that was abandoned in the 1960s and the existing currently used railway corridor on the Portbury Freight Line from Pill to Ashton Gate. The original railway was constructed in 1864-67 and has changed little since then.
- 8.3.5 The proposed location of the station at Pill was originally developed as a railway station which then became disused following cessation of passenger services on the line. The former station is largely still present with platforms on either side. The location of the proposed car park on the former sidings comprises a level platform surfaced with aggregate. There is no visual evidence of any former use remaining; mapping data suggest a single siding off the main line with a number of small buildings dating from 1915. The sidings likely became disused on cessation of passenger services.
- 8.3.6 Several options were considered for the location of Portishead station along the route of the former railway. The historic land uses at these sites include land previously developed as a gas works and railway land; made ground from refuse tips and slag heaps; and possibly green field sites. Consequently there is potential for contaminated ground to be present at the proposed Portishead station site.

Bedminster Down Relief Line

- 8.3.7 The Bedminster Down Relief Line (MetroWest Phase 1) Project is located on Mudstone and Halite-stone rocks of the Mercia Mudstone Group of the Triassic Period with no recorded superficial deposits. The Triassic sediments around the project are classified as Secondary B aquifers, predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers. There are no nationally protected geological sites within 3km of the project.

Severn Beach / Avonmouth Signalling

- 8.3.8 The Severn Beach / Avonmouth Signalling (MetroWest Phase 1) Project is located on undifferentiated mudstone, siltstone and sandstone rocks of the Triassic Period overlain with alluvium of silt sand and clay. The Triassic sediments around the project are classified as Secondary B aquifers, predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the

former non-aquifers. There are no nationally protected geological sites within the Project location, but there are two SSSIs designated for geological reasons within 3km of the Project, namely Ham Green and Quarry Steps at Durdham Down in Clifton.

Bathampton Turnback

- 8.3.9 The geology at the site of the Bathampton Turnback facility comprises Charmouth Mudstone Formation of the Jurassic Period with alluvium and river terrace deposits overlying. A number of rocks within this sequence are classified as principal aquifers although there are no licensed water abstractions in the vicinity of Bathampton Turnback.

8.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 8.4.1 Table 8.1 sets out the potential construction and operational impacts and effects on the resources and receptors that have been identified, with an indication of the likely potential mitigation and residual impacts.
- 8.4.2 Any impacts that may arise from the underlying ground conditions will be dealt with at the construction phase. Such impacts may arise from contaminants within the underlying soils or from the chemical nature of the soils themselves. During the operational life of the project there will be some incidental contamination of the underlying track bed from leaks and spillages; this is not anticipated to be significant.

Table 8.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Geology, Hydrogeology, Ground Conditions and Contaminated Land

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Removal and replacement of ballast along the railway. Foundations and earthworks at Portishead Station.	Contamination in underlying ground. H&S risk for safe disposal of spoil.	Building Fabric Occupants	Design to reduce sensitivity. Design to remove exposure pathways and/or sources. Safe handling and final disposal for spoil.	Not significant
Operational activities				
Leakages of oils, diesel and wastewater.	Contamination along the railway line.	Ballast and soil along the railway line.	Train maintenance.	Not significant.

Cumulative Impacts of MetroWest Phase 1

- 8.4.3 The construction impacts relating to other works associated with MetroWest Phase 1 are proposed to be scoped out because the area of works, for the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton

Turnback, is small, located wholly within railway land, and will be assessed and mitigated through Network Rail's GRIP. It is not anticipated that there will be any cumulative effects on or arising from the underlying ground conditions assuming that the proposed construction is undertaken taking account of any constraints arising from previous potentially contaminative land uses and that the design of the structures takes account of the underlying ground conditions.

- 8.4.4 The impact of new and additional services on the railway lines is proposed to be scoped out as, following construction, there will be no further impact on geology, soils and contaminated land.

8.5 Methodology

Guidance and Best Practice

- 8.5.1 The methodology for the investigation of ground conditions is described in *Contaminated Land Report 11, the Model Procedures for the Investigation of Contaminated Land* (Environment Agency, 2004) which sets out a phased approach to identifying constraints arising from ground conditions and determining what if any mitigation measures would be required to enable the proposed development.

Definition of the Study Area

- 8.5.2 The study area comprises the footprint of the Portishead Branch Line (MetroWest Phase 1) Project as defined by the red line boundary, including the new station at Portishead, the railway corridor, Pill station and car park, the new access required to Pill tunnel, and the sections of the Portbury Freight Line for the Ashton Gate Level Crossing and Barons Close Pedestrian Crossing.

Construction Impacts for the Project

- 8.5.3 The renovation of the disused railway corridor will require the existing ballast to be lifted and new ballast to be laid, as the GRIP 2 study showed that the existing ballast is no longer suitable. Some of the ballast is also contaminated, and consideration will be given to whether this ballast can be re-used on site.
- 8.5.4 The construction of the new railway along the disused corridor will have no impact on the underlying geology or hydrogeology. There will be no impact on the railway from underlying ground conditions and the railway construction will not be sensitive to any residual contamination beneath the existing railway corridor.
- 8.5.5 Construction of the station at Portishead may be on land that has residual contamination arising from historic land uses. The nature of the proposed development, being a relatively small station building and platforms, is such that it is not expected that the underlying ground conditions will have a significant impact on the building; any constraints relating to contamination will need to be identified and the construction designed to mitigate the risks identified. The construction itself will have no impact on the underlying ground.
- 8.5.6 Renovation of the station at Pill will have no impact on the underlying geology, the station platforms are already in existence and will be renovated. Construction of the station buildings will need to take account of the ground conditions but it is not anticipated that these would pose any significant constraints on construction. The construction of the car park will need to take account of the underlying ground conditions, particularly with regard to bearing capacity within the underlying sediments. However it is considered that the existing ground conditions are highly unlikely to be such that construction of a car park would not be possible using standard ground engineering techniques. Any residual contamination present within the old sidings will need to be assessed but again, this is not

expected to be so significant that construction of the car park would be affected. Dealing with any such contamination is likely to have a positive effect on the local environment through treatment of any contamination present.

- 8.5.7 The proposed construction sites at Pill and Portishead stations will be investigated to determine the underlying ground conditions in order to inform the design of the proposed structures. These investigations will include assessment of the ground in terms of contaminants that may be present and allow any requirements for mitigation of risks to the development and the wider environment to be determined. This assessment will be undertaken in accordance with the Model Procedures (Environment Agency, 2004).
- 8.5.8 The 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 envisaged. Vegetation clearance may allow the cutting to be exposed however the site will be an active railway and consequently the opportunities for academic study of the exposed sediments will be limited.

Operational Impacts for the Project

- 8.5.9 It is proposed to scope out the operational impacts of the Project on Geology, Hydrogeology, Ground Conditions and Contaminated Land. Following construction, there will be no material changes in the underlying soils and geology. While there is a risk of contaminants from the trains discharging onto the track (hydrocarbons, wastewater), any effects on the underlying geology from pollutants entering the ground would be managed through standard maintenance practices. This would be the case for all railways.

Cumulative Effects

- 8.5.10 There are no predicted significant cumulative effects, so it is proposed to scope this topic out of the ES.

9 Landscape and Visual Impacts Assessment

9.1 Introduction

9.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on landscape and visual impacts. This Chapter:

- describes the landscape and visual impacts baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant landscape and visual impacts effects in the Environmental Statement ("ES"); and
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

9.1.2 This chapter considers the landscape character and visual impact assessments, which are separate, but related topics. The landscape character assessment relates to features and patterns which make up the landscape character, whereas the visual assessment relates to the change in views from particular locations referred to as the visual receptors.

9.1.3 The process of landscape and visual impact assessment ("LVIA") involves developing an understanding of the existing landscape and visual resources in relation to the project, and then assessing the impact of the project on these resources. Mitigation measures are proposed and included within the design where required.

9.1.4 An understanding of the significance of landscape and visual resources in the area is important to the assessment process. The significance of the landscape character will be assessed through consideration of nationally and locally designated landscapes and their features, as well as site specific qualities.

9.1.5 An understanding of the visual impact will be developed by preparing an approximate visual envelop of the project, and assessing the magnitude of the change in views from selected viewpoints within the envelope with and without the project.

9.1.6 The LVIA will focus on the construction and operation of the Portishead Branch Line (MetroWest Phase 1) Project. The cumulative effects will also consider the impact of committed development in the vicinity of the project as well as the construction and operation of the proposed works for the Portbury Freight Line, the Bedminster Down Relief Line and Severn Beach / Avonmouth Signalling in the Bristol area, and the Bathampton Turnback, which is located near the outskirts of the Bath World Heritage Site ("WHS").

9.2 Legal and Planning Framework

National Policy

9.2.1 The National Planning Statement on National Networks ("NPS") advises on the assessment of landscape and visual impacts for nationally significant infrastructure projects ("NSIP") for national networks including railways at paragraphs 5.143 - 5.161. Applicants should undertake an assessment of any likely significant landscape and visual impact assessments

and describe these in the ES. The assessment should include reference to any landscape character assessment and associated studies and take account of any relevant policies based on these assessments in local development documents in England. The assessment should include any significant effects during the construction of the project and/or the significant effects of the completed development in its operation on landscape components and landscape character (including historic landscape characterisation). The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.

- 9.2.2 The landscape and visual impact assessment will be considered in relation to the NPPF Chapter 7 *Requiring good design*, Chapter 11 *Conserving and enhancing the natural environment*, and Chapter 12 *Conserving and enhancing the historic environment*.

Local Policy

- 9.2.3 The Project will be reviewed against relevant landscape and design policies in the various local plans for North Somerset Council (“NSC”) and Bristol City Council (“BCC”). The Bedminster Down Relief Line and Severn Beach / Avonmouth Signalling are both located in BCC. The Bathampton Turnback is located within the jurisdiction of B&NES.

9.3 Baseline Conditions

Portishead Branch Line (MetroWest Phase 1) Project

Landscape Baseline

- 9.3.1 The disused section between Portishead and Pill sits within the Natural England National Character Area (“NCA”) 106 Severn and Avon Vales. It also passes through two character areas defined by NSC. These are NSC Local Character Area A2 Clapton Moor which is a predominantly rural, pastoral area with woodland, marshy grassland fens, reed beds, sub and occasional arable fields creating a varied landscape, and NSC Local Character Area C2 Portbury Settled Coastal Edge typified by flat, low lying land, with broad views and with a predominantly industrial and maritime character.
- 9.3.2 At Pill, the route enters NSC Local Character Area J6 Avon Rolling Farmland, a transitional landscape character area between the higher land of F1 Abbots Leigh Sandstone Uplands to the south and the south bank of the River Avon to the north. This local landscape character area is predominantly rural, with large open pastoral fields, areas of historic parkland, woodland belts, and strong urban influence at Pill.
- 9.3.3 The existing railway corridor starts in the urban-fringe on the outskirts of Portishead (which is not included in the local character area), passes through the flat, pastoral landscape around Sheepway, the industrial landscape associated with the industrial units and car store areas of Portbury, and the village of Pill.
- 9.3.4 The project sits either within, adjacent to, or within reasonable proximity to the following designated areas and features.
- Green Belt bounded by the edge of Portishead and Portbury.
 - Forest of Avon which covers the whole of North Somerset.
 - Coastal Zone (North Somerset Adopted Local Plan only) bounded to Portishead to the west, Sheepway Lane to the east, and the A369 to the south.
 - The Vale Park in Portishead, bounded by the disused railway line to the north, is designated as Amenity in North Somerset Adopted Local Plan only and Local Green Space in North Somerset Emerging Site and Polices Plan only.

- Common Land and Town or Village Greens designed by NSC in its Emerging Site and Polices Plan to the northwest and south of Pill.
- Cultural heritage features (see Chapter 6), including Conygar Hill SM, listed buildings such as The Thatched Cottage and Elm Tree Farmhouse to Sheepway, Moor Farmhouse to Portishead, as well as a numerous listed buildings in Portbury and Easton-in-Gordano, such as Court House Farm and St. Georges Hall; and the non-registered Park and Garden at St. Georges Hall designated by NSC, located within Easton-in-Gordano east of Junction 19.

Visual Baseline

9.3.5 Key visual receptors along the disused section of the railway between Portishead and Pill are as follows.

- Commercial units and residential buildings at Portishead, which will be in close proximity to the new station and railway line.
- Industrial units and car store at Portbury adjacent to the railway line.
- Residential buildings at Pill which will have views of the nearby railway line from back windows.
- Listed buildings such as Elm Tree Farm and Court House Farm which are likely to have glimpsed views of the nearby railway line due to screening provided by vegetation. Further field study will be required in order to develop a detailed understanding of the change in view, which will depend on the nature of the proposals.
- St. Georges Hall is likely to have glimpsed views of the nearby railway line due to vegetation and landform. Further field study will be required in order to develop a detailed understanding of the change in view, which will depend on the nature of the proposals.
- National Cycle Network route and bridleways between Portishead and Pill.
- Major roads such as the M5 and Portbury Hundred as well as rural lanes such as Sheepway, Station Road and associated private tracks.

Portbury Freight Line

Landscape Baseline

9.3.6 The Portbury Freight Line passes through NCA 118 Bristol, Avon Valleys and Ridges and four local character areas defined by NSC, namely from west to east:

- NSC Local Character Area J6 Avon Rolling Valley Farmland, with parkland, farmland and urban areas,
- NSC Local Character Area D1 Avon Gorge, with steep cliffs, exposed limestone faces, woodland, grassland and scrubland,
- NSC Local Character Area G2 Failand Settled Limestone Plateau, with a flat upland landscape, and leisure and recreational uses, and
- NSC Local Character Area E5 Tickenham Ridge with elevated ridges, woodland, parkland and pasture.

9.3.7 The project also passes through one character area defined by BCC's City Centre Context Study, Cumberland Basin, as a hard industrial dockside with numerous warehouses.

9.3.8 From Pill, the Portbury Freight Line passes through farmland and grassland, then through the wooded Avon Gorge, where views are narrow and constrained. Around Ashton Gate the land opens out with views across towards Ashton Court parkland and the railway line.

The route then continues through the urban-fringe landscape of Ashton Vale on the outskirts of Bristol.

9.3.9 The project sits either within, adjacent to, or within reasonable proximity to the following designated elements.

- Green Belt to west of River Avon and Bristol, which includes the railway line and landscape between the settlements of Pill and Long Ashton.
- Cultural heritage features (see Chapter 6) including:
 - Scheduled Monuments ("SM") such as Stokeleigh Camp Fort in Leigh Woods, the Roman Settlement to Sea Mills and Clifton Down Camp to the south of Clifton Down;
 - Conservation areas Sea Mills, Sneyd Park, The Downs, Clifton, Bristol City Docks, Leigh Woods, and Bower Ashton;
 - Listed Buildings in Pill, Ham Green and the conservation areas of Sea Mills, Sneyd Park, The Downs, Clifton, and City Docks on the east side of the Avon, as well as Ashton Court and Leigh Court on the west side of the Avon. Most notable is the Grade I listed Clifton Suspension Bridge which provides views across the gorge and is a famous Bristol landmark.
 - Unregistered Parks and Gardens of The Folly around Ham Green in Pill and Burghwalls Camp, both designated by NSC. The Folly is bounded to the south by the disused railway as it goes into a tunnel and to the east by Ham Green. Burghwalls Camp is situated in Leigh Woods Conservation area, on the west side of the Avon Gorge.
 - Registered Parks and Gardens Leigh Court and Ashton Court to west of Avon gorge and King Weston House in Shirehampton, north of the River Avon.
 - Local Historic Parks and Gardens designated by BCC.
- Areas designated for their ecology (see Chapter 7) including the Avon Gorge Woodlands Special Area of Conservation ("SAC") and Avon Gorge Site of Special Scientific Interest ("SSSI"), Leigh Woods National Nature Reserve ("NNR") and Ashton Court SSSI.
- Various areas designated in the North Somerset Emerging Sites and Policies Plan (including the Forest of Avon, Local Green Space in the area of Avon Walkway to the north east edge of Pill, Common Land and Town or Village Greens to both northwest and south of Pill) and in the BCC Adopted and Emerging Plans for Open Space (such as Principal Landscape Features, and Important Open Space, which includes allotments in close proximity to the railway line, landscape to the top of the gorge on the eastern side, Greville Smith Park and part of the route of project once it enters the urban area of Bristol).

Visual Baseline

9.3.10 The key visual receptors along the Portbury Freight Line are as follows.

- Farmsteads and residential properties at Ham Green, which may have glimpsed views of the railway line, but this needs to be confirmed as the landform and vegetation are quite complex in this area, and the railway line goes into tunnel.
- Residential buildings at Sneyd Park Conservation Area have glimpsed views across the Avon Gorge to the railway line.
- Residential buildings and Clifton Conservation Area which overlook the Avon gorge and railway line.

- Leigh Woods NNR, bounded to the east by the Portbury Freight Line, however paths within the woods generally do not overlook the railway.
- Clifton Down Conservation Area and associated listed buildings, with views over the Avon Gorge.
- Listed buildings, in particular the Grade I Clifton Suspension Bridge and Grade II* Ashton Court Estate with its elevated views.
- The Registered Park and Garden of Ashton Court has glimpsed views of part of the railway line.
- The unregistered park and garden of The Folly may have glimpsed views of the railway line.
- Cycle routes and public bridleways, in particular the River Avon Trail.
- Commercial and residential units to Ashton Gate/Ashton Vale.
- Commercial units to Parson Street area.
- Major roads such as the A4 (Portway) and rural roads/private lanes in the Ham Green area.

Bedminster Down Relief Line

Landscape Baseline

- 9.3.11 The character of the Bedminster landscape is primarily dense urban residential with some industrial and commercial development on the north side of the railway line and to the west of Parson Street Station on Winterstoke Road. The houses are a mix of terraces and semi-detached, with some corner shops and other small scale commercial premises scattered within. There are some street trees, notably on Parson Street and alongside the railway line itself.

Visual Baseline

The key visual receptors around Bedminster Down Relief Line are properties on Brighton Crescent, Stanley Terrace, Argus Court, Hope Road, Honeywick Close, and Hall Street.

Severn Beach / Avonmouth Signalling

Landscape Baseline

- 9.3.12 The character of the Avonmouth landscape is primarily urban with a complex mix of docks, large scale industrial areas, some residential, and large scale roads. The landform is primarily flat with any variations generally levelled out and hidden under the large scale buildings. St Andrews Road to the north and Avonmouth Way form the main roads with large scale industrial and commercial development set off these in a broadly rectilinear pattern. The housing to the north of the railway line is primarily set out in terraces of two storey buildings. A series of high speed highway loops and large roundabouts link the M5, M49 and the A4 Portway and cut through the landscape as dominant features.

Visual Baseline

- 9.3.13 The key visual receptors around Severn Beach / Avonmouth Signallings are as follows:
- Residential properties along Portview Road and Napier Road.

Bathampton Turnback

Landscape Baseline

- 9.3.14 Bathampton Turnback is located with the Natural England NCA 107 Cotswolds, characterised by steep scarps and associated valleys with winding lanes, woodland, and smaller, irregular fields. The study area is located in the low, wide valley floor of the River Avon and alongside the Kennet and Avon Canal. Bathampton Turnback sits either within, adjacent to, or within reasonable proximity to the following designated elements.
- The track associated with the project passes through Green Belt. The eastern section of the green belt surrounding Bath is bound by the edge of Grosvenor, following the alignment of the River Avon.
 - In close proximity to the Bath WHS and nearby cultural heritage features such as Bathampton Camp SM and listed buildings including Meadow Farmhouse, the bridge over the Kennet and Avon Canal and the Railway Bridge. Sydney Gardens Registered Park and Garden is located to the south west of the project and approximately 500m from any potential works.
 - Approximately 50m from the Local Nature Reserve ("LNR") at Kensington Meadows to the west of Grosvenor Bridge and to the northern bank of the River Avon.

Visual Baseline

- 9.3.15 The key visual receptors around Bathampton Turnback are as follows:
- Residential properties on Bathampton Lane will have glimpsed views from second floor windows through mature vegetation to the railway.
 - Numerous listed buildings with three in close proximity to the works: the bridge over the Kennet and Avon Canal, the Railway Bridge and Meadow Farm.
 - Travellers on roads such as the A4 and the London Road at Bathampton.
 - Users of the tow path and nearby PRow.

9.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 9.4.1 Table 9.1 summarises the potential impacts, mitigation, and residual impacts associated with the construction and operation of the project.

Table 9.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Landscape and Views

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Removal of vegetation up to 5m either side of the railway tracks along the disused section of the railway between Portishead and Pill	Permanent change in linear planting along the railway and open up views of the railway	Change in landscape character associated with the project and change in views impacting visual receptors in the vicinity.	Where possible, maintain vegetation along the railway corridor to screen views.	Permanent change to landscape character due to loss of trackside vegetation Change in views by reducing density of planting along the railway and opening up views to the railway line.
Works such as site clearance, laying track and installing signals, lighting and structures will require plant and machinery including moving vehicles in the construction areas	Temporary deterioration in the landscape and views	Change in landscape character associated with the project and change in views impacting visual receptors in the vicinity.	Good construction practice	It is unlikely that all plant and machinery will be completely screened during the construction phase resulting in views of the construction works.
Temporary installation of site compound, lighting, haul routes and working areas, as well as site clearance and earthworks in order to facilitate the works in the construction areas	Temporary deterioration in the landscape and views	Change in landscape character associated with the project and change in views impacting visual receptors in the vicinity.	Temporary hoardings and consideration of appropriate location of site compound. Early replacement planting to provide screening during construction.	Replacement planting will require time to grow and provide effective mitigation
Minor permanent diversions of the Cyclepath and	Change in view and view to construction activities	Change in views impacting users of the cycle paths	Appropriate diversion routes	Subject to diversion route. Cyclepath to be narrowed under structures. May seek minor

Table 9.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Landscape and Views

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
footpaths along disused section.				changes in alignment. Changes potentially not significant.
Operation activities				
New Portishead station and approaches	Introduction of new building on the outskirts of Portishead	Townscape and views from nearby residential and commercial properties and PRow.	Location of station carefully considered. New planting to screen and soften building. Scale and vernacular carefully considered.	Not possible to screen view of new building completely.
New track and trains along the disused section	Views of the new train services along previously disused corridor	Landscape character and views of the trains from property, PRow and open space.	New planting and bunds to screen where appropriate and space allows	The track will continue to be largely obscured by existing vegetation. Glimpsed views of the trains.
New pedestrian bridge	Introduction of new elevated features	Landscape and views of the new bridge in residential area near Trinity School.	Paint the structure in a neutral shade. New planting along the zigzag access.	Views of the upper part of the structures which is too tall to screen.
Vertical elements such as lighting columns, signals and fencing	Introduction of new features into the landscape.	Change in landscape character associated with the project and change in views impacting visual receptors in the vicinity.	Minimise visual clutter and impact. Selection of a suitable palette to reduce clutter. New planting to screen and soften elements.	Not possible to eliminate completely view of vertical elements.
Refurbished platform at Pill station	Activity around the station	Views from residential property near the station	Location of station carefully considered. New planting to screen and soften refurbished platform. Scale	Not possible to completely eliminate view of new building.

Table 9.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Landscape and Views

Aspect of the Project	Impact	Receptors	Potential Mitigation	Residual Impact
			and vernacular carefully considered.	
New car park and pedestrian route to Pill station	Change in land use at car park and new signs to station	Travellers and pedestrians	Good design of the car park and signposting to the station	New features in an urban setting
Lighting	Increase light pollution at night. Observe columns and luminaries during the daytime.	Townscape and visual receptors in the vicinity of the Portishead and Pill stations.	Minimise visual impact and selection of suitable palette to reduce clutter. Design lighting to minimise light spill.	Not possible to eliminate completely night-time spill from lighting
New emergency access to Pill Tunnel and platform for emergency vehicles.	Change in landscape character and views.	Landscape character and sense of tranquillity associated with the outskirts of Pill. Change in views from visual receptors in the vicinity.	Sympathetic design of the new access. New planting to screen views where appropriate and space allows.	Not possible to eliminate views completely.
New planting and soft landscape management regime	Introduction of new planting	Change in landscape character associated with the project and change in views impacting visual receptors in the vicinity.	Planting must be appropriate to site and its context	Benefit through screening the railway

Cumulative Impacts of MetroWest Phase 1

- 9.4.2 The minor works to raise the track along the Portbury Freight Line within the Avon Gorge Woodlands SAC will not change the landscape quality or views. The new signal may have a local effect on landscape quality and views, albeit within the context of an existing railway, depending on the screening effect of the surrounding woodland. Any vegetation removal to improve access for maintenance and emergencies may also impact on landscape quality and views from sensitive receptors.
- 9.4.3 The new section of double tracking between Bower Ashton and Ashton Gate is unlikely to change the landscape character and views from nearby receptors given that the new track will be laid within the context of an existing railway, the original railway was built with two tracks, and given the screening effect of the surrounding buildings.
- 9.4.4 During the operational phase the new half hourly passenger service will result in an increase in the number of passing trains. This may change the landscape character and sense of tranquillity associated with the countryside, and views from sensitive receptors such as the conservation areas, numerous listed buildings and PRoW. While mitigation measures such as minimising vegetation clearance and providing new planting to screen views where appropriate and space allows, it may not be possible to eliminate views of the works completely.
- 9.4.5 The environmental assessment of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, will be undertaken by Network Rail as part of their GRIP process. The results will be reviewed as part of the cumulative impacts assessment for the Portishead Branch Line (MetroWest Phase 1) Project. However, given the distance between the projects and the small scale of the works at each of the three sites, it is considered that there will be no cumulative effects associated with the development of these projects.
- 9.4.6 The additional services on existing operational railway lines as part of MetroWest Phase 1 from hourly to half hourly services is unlikely to affect the landscape character or views from nearby receptors. Consequently, the landscape and visual impact of additional services on the existing operating lines for MetroWest Phase 1 have been scoped out of the cumulative impacts assessment for the Portishead Branch Line (MetroWest Phase 1) Project, as the impacts are not considered to be significant.

9.5 Methodology

Guidance and Best Practice

- 9.5.1 The LVIA for the Portishead Branch Line (MetroWest Phase 1) Project will follow the procedures set out in *Guidelines for Landscape and Visual Assessment* ("GLVIA") 3rd Edition. GLVIA is an industry standard which has been produced under the joint auspices of the Landscape Institute ("LI") and the Institute of Environmental Management and Assessment ("IEMA").
- 9.5.2 Construction and operational impacts will be assessed against both landscape character and visual receptors.
- 9.5.3 Landscape impacts will be assessed through firstly establishing the landscape character, which will provide the baseline. The next step will be to assess the impact (or change) of the project on the landscape and to what extent it will affect the various elements and features which together make up the landscape character, both of the site and what influences those changes may have on the surrounding landscape. The assessment of the effects will seek to identify what the changes are likely to be, and how they would 'fit', or otherwise, into the existing landscape character. In doing so, the relative sensitivity of the landscape to the introduction of the project will be considered. Landscapes which already

contain features and elements similar to those that would be introduced by the project are generally considered to be less sensitive.

- 9.5.4 The visual impact assessment will relate to the change in view from particular viewpoints described as visual receptors such as private residential, commercial/industrial and public properties, publicly accessible areas such as parks and gardens and public rights of way, designated features and other features from where views of the site are afforded, such as roads. Where appropriate, visual receptors which are physically close together and therefore where their views are considered to be broadly similar, and which are of a similar sensitivity, will be grouped together. The assessment will describe the extent of the difference between the existing view and the view with the project in place. The sensitivity of the receptors will be considered in order to assess the magnitude and significance of visual effects.

Definition of the Study Area

- 9.5.5 The study area for the LVIA of the project will be determined by the visual envelope which will define the areas from which the project will be visible and affect the character of the surrounding landscape. The zone of theoretical visibility ("ZTV") has been prepared and is presented in the Baseline Report. The ZTV will be refined through field work to develop the visual envelope for the project. Within this area, the character of adjacent areas and features, key visual receptors and views out from and into the route will be considered. The ZTV will be prepared for the Portishead Branch Line and the Portbury Freight Line in order to assess the direct and cumulative effects of the works.

Baseline

- 9.5.6 Baseline field surveys have been undertaken involving:
- site specific character analysis, through consideration of landform, vegetation, human influence (built form and culture) and nature of views, and
 - broadly identifying visual receptors and views.
- 9.5.7 The results are presented in the Baseline Report, which has been prepared separately. Following on from this work, more detailed landscape and visual surveys will be undertaken during 2015 to assess landscape character and potential views of the project during the winter and summer seasons.

Construction Impacts for the Project

- 9.5.8 In order to assess the construction impacts for the project, the following information will need to be obtained and considered:
- location of site compounds
 - extent of the works required to facilitate construction, including working areas, haul routes and vegetation clearance
 - construction methods and required plant
 - programme and phasing of works, and
 - working hours.

Operational Impacts for the Project

- 9.5.9 In order to assess the operational impacts of the project, the following information will be obtained and considered:
- preferred option for the new station in Portishead

- replacement and new planting proposals, including management regime
- scale, layout and extent of the proposals, including vertical elements
- proposed elements, material and finishes
- proposed lighting, and
- frequency of proposed trains.

Cumulative Effects

- 9.5.10 The assessment of cumulative effects will include committed developments identified from searches of the planning portals for the NSC and BCC in the vicinity of the Portishead Branch Line.
- 9.5.11 The cumulative effects of permitted development works along the Portbury Freight Line, together with the increased services during operations will be considered in combination with the Portishead Branch Line.
- 9.5.12 The construction works for the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback are small scale in nature, will be confined to operational railway land and are unlikely to change significantly the landscape character or views from nearby receptors. While the impacts will be investigated further by Network Rail through GRIP, it is proposed that these are scoped out of the ES for the Portishead Branch Line (MetroWest Phase 1) Project.
- 9.5.13 The LVIA for additional services to be provided under MetroWest Phase 1 on the existing Severn Beach / Avonmouth and Bath lines have been scoped out of the ES for the Project, as the impact of additional services on landscape character and views are not considered to be significant.

10 Materials and Waste

10.1 Introduction

- 10.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on materials and waste impacts. This Chapter:
- describes the materials and waste impacts baseline having regard to existing information and information presented in a separate Baseline Report;
 - describes the relevant legal and policy framework which will inform the undertaking of the assessment;
 - identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
 - describes the methodology proposed to be used for the identification and assessment of likely significant material and waste effects in the Environmental Statement ("ES"); and
 - considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.
- 10.1.2 This section considers the potential environmental effects associated with the use and consumption of materials and the production and management of waste, during the construction of the Portishead Branch Line (MetroWest Phase 1) Project, in accordance with the methodology outlined in Highways Agency ("HA") Interim Advice Note ("IAN") 153/11 *Guidance on The Environmental Assessment of Material Resources*.
- 10.1.3 During the operation of the Project, the use of material resources and the generation of waste is likely to be negligible. Operational materials use and waste have therefore been scoped out of this assessment. The assessment of any environmental impacts associated with material resource use and waste, during any subsequent maintenance or renewal works, will be reported by Network Rail's Governance for Railway Investment Projects ("GRIP") GRIP 5 Designer and GRIP 6 Contractor in accordance with Network Rail's Project Consenting and Environment Assessments Procedures. In addition, it has been assumed that any rolling stock, using the proposed alignment, will be maintained at existing railway depots outside of the project boundary (i.e. in accordance with the rail operating company's existing Environmental Management Systems).
- 10.1.4 The use of materials including the management of waste, may also give rise to other impacts which might include, for example, detrimental impacts on geology and soils, air quality, water quality and increased noise. However, these impacts will also occur from other activities and operations on the project site(s) and are not solely associated with materials and waste. Whilst it is not the purpose of this topic to provide a detailed assessment of these impacts, an attempt has been made to ensure that where they do occur, there is appropriate cross-topic coverage.

10.2 Legal and Policy Framework

- 10.2.1 Council Directive 85/337/EEC *on the assessment of the effects of certain public and private projects on the environment* (as amended) requires that the characteristics of the project must have regard to the use of natural resources and the production of waste. Furthermore, the ES should *inter alia* include a description of the likely significant effects of the proposed project on the environment resulting from: the use of natural resources; and the emission of pollutants, the creation of nuisances and the elimination of waste.

- 10.2.2 The use and consumption of material resources and the production and management of waste are subject to a complex framework of legislative and policy instruments at both the national and local level. In addition to material and waste-specific policies, legislation and guidance, there is also the legislative framework for sustainable development which must be considered in assessing the environmental impacts / effects of material resource use and waste.
- 10.2.3 The key legislative and policy instruments influencing the consideration of the environmental assessment of material resources and waste are identified below. The key aspects of the legislative and policy framework will be reported during subsequent stages of assessment.
- 10.2.4 The National Policy Statement for National Networks ("NPS") advises on waste management in the context of national network nationally significant infrastructure projects ("NSIP") at paragraphs 5.39 - 5.45. It records that sustainable waste management is implemented through the "waste hierarchy": prevention; preparing for re-use; recycling; other recovery, including energy recovery; and disposal. Applicants are advised that they should set out the arrangements proposed for managing any waste produced, including information on proposed waste recovery and disposal system for all waste generated by the development. Applicants should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that the alternative is the best overall environmental outcome. The considerations relevant to the decision of the Secretary of State ("SoS") are described.

Legislative and policy framework for sustainable development:

- Climate Change Act 2008 - which established a framework to develop an economically credible emissions reduction path that included committing the UK to reducing emissions by at least 80% in 2050 from 1990 levels.
- Network Rail Sustainable Development Strategy 2013 - 2024 - which sets out Network Rail's sustainable development vision and strategic objectives (outcomes, outputs and activities). It also reviews the fundamental principles of a sustainable business and looks at where Network Rail will focus their efforts - key priorities. It also sets out the key outcomes they are seeking up to 2024.

Legislative and policy framework for material resource use and waste management:

- Revised EU Waste Framework Directive (2008/98/EC) - which provides the legislative framework for the collection, transport, recovery and disposal of waste, and includes a common definition of 'waste'. It also establishes major principles such as an obligation to handle waste in a way that does not have a negative impact on the environment or human health and an applying the waste hierarchy.
- Waste Management Plan for England 2013 - which sets out the obligations for England which have been transposed from the revised EU Waste Framework Directive (2008/98/EC). These obligations include amongst others: ensuring that by 2020 that at least 70% by weight of construction and demolition waste is subjected to material recovery.
- National Planning Policy for Waste 2014 - which requires local planning authorities to ensure that: the likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities; and the handling of waste arising from the construction and operation of development maximises reuse / recovery opportunities, and minimises off-site disposal.

- The Environmental Permitting (England and Wales) Regulations 2010 (as amended) - which require site operators to obtain an environmental permits, or exemption from permitting, for certain activities involving the use, treatment, disposal, waste or storing of waste.
- The Waste (England and Wales) (Amendment) Regulations 2012 - which requires that waste collection authorities must collect waste paper, metal, plastic and glass separately. It also imposes a duty on waste collection authorities when making arrangements for the collection of such waste, to ensure that those arrangements are by way of separate collection.
- The Waste (England and Wales) Regulations 2011 (as amended) - which require producers of waste to confirm that they have applied the waste management hierarchy when transferring waste and to include a declaration on their waste transfer note or consignment note.
- The Hazardous Waste (England and Wales) Regulations 2005 (as amended) - which require sites to be registered with the Environment Agency if producing or holding greater than or equal to 500 kg of hazardous waste in any 12-month period; classify waste to check if it is hazardous; separate and store hazardous waste safely; and check that waste carriers are registered and waste sites are permitted.
- Environmental Protection Act 1990 (Section 34) - which imposes a duty of care on the producers of waste to ensure that all waste is stored, transported, treated and disposed of safely without harming the environment in accordance with Waste Duty of Care requirements.
- West of England Partnership authorities - Local Development Framework documents (including: Core Strategies, Local Plans, Waste Core Strategy and Supplementary Planning Guidance) - which will specify any development control policies, influencing the use of material resources and the generation and management of waste, that are relevant to the construction of the Project.

10.3 Baseline Conditions

Existing Material Resource Use and Waste Generation

- 10.3.1 The railway between Portishead and Pill is not in operational use and therefore any existing use of materials or waste generation is negligible. The use of material resources and the generation of waste during the operation of the existing Portbury Freight Line is also likely to be negligible.
- 10.3.2 The condition of materials along the disused section of track was assessed during Network Rail's GRIP 2. The GRIP 2 MetroWest Phase 1 Feasibility Report, Appendix H *Trackbed Investigation Interpretative Report* (URS, 2014) states that that the condition of the existing railway trackbed throughout the three miles of redundant track, situated between Portbury Dock Junction and Portishead is not suitable for the passage of traffic without complete renewal of the trackbed. The former ballast material is degraded, undersized and in many places has been contaminated with clayey cohesive fines. The investigation also reports that the existing ballast material is likely to be classified as hazardous or non-hazardous waste depending on the concentration of heavy metals (arsenic, copper, chromium, lead, nickel and zinc) present at any given location.
- 10.3.3 The GRIP 2 MetroWest Phase 1 Feasibility Report, Appendix E *Environmental Appraisal* (URS, 2014) suggests that existing ballast from the disused track may be reusable as engineering fill in the proposed works. The redundant three miles of disused rail cannot be reused, due to its age, but there is potential for all metal components such as track clips and bull head rail to be recycled.

Material Resources

Climate Change

- 10.3.4 The Intergovernmental Panel on Climate Change (IPCC, 2013²³) states that "*continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions*".
- 10.3.5 All new embodied carbon emissions, arising from the use of material resources, are therefore likely to contribute to a significant negative environmental effect (IEMA, 2010²⁴).

Natural Resources (Aggregates²⁵)

- 10.3.6 Defra (2011²⁶) identifies aggregates as being at risk of future scarcity for the UK construction and civil engineering sector. The NPPF requires mineral planning authorities to maintain a minimum land bank of seven years for sand and gravel and a minimum land bank of ten years for crushed rock. This is used to determine whether there is a shortage or surplus of supply in a given minerals planning area. The South West Aggregates Working Party Annual Report 2010²⁷ confirms that the South West's available land bank for sand and gravel is approximately 11 years, whereas for crushed rock, the last publicly available land bank figure was 45 years. These data therefore suggest that there is a limited supply of sand and gravel in the region but substantial reserves of crushed rock²⁸.

Waste Management

- 10.3.7 The available waste management infrastructure in the West of England has been ascertained through an outline review of the Environment Agency's *South West Inputs and Capacity 2012* data²⁹. These data suggest that the West of England Unitary areas had the following waste management facilities and capacities at the end of 2012:
- non-hazardous landfill (1,458,970 m³);
 - inert landfill (4,700,000 m³);
 - animal carcasses, clinical and hazardous waste incineration (19,000 t/annum);
 - waste transfer (hazardous waste; household waste, industrial, commercial waste; clinical; civic amenity site; non-biodegradable) (868,000 t/annum); and
 - waste treatment (physico-chemical, chemical, composting, biological) (1,108,000 t/annum).
- 10.3.8 These data suggest that there are no specific constraints with regards to inert and non-hazardous waste infrastructure in the West of England Unitary areas. However there appears to be limited treatment and disposal infrastructure for hazardous waste.

²³ Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013: The Physical Science Basis - Summary for Policymakers http://www.climatechange2013.org/images/uploads/WGIAR5-SPM_Approved27Sep2013.pdf

²⁴ IEMA (2010) Climate Change Mitigation & EIA www.iema.net/system/files/climate20change20mitigation20and20eia.pdf

²⁵ Chosen as a surrogate indicator of regional natural resources

²⁶ Defra (2011) 'Review of the Future Resource Risks Faced by Business and an Assessment of Future Viability' <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=17161>

²⁷ The South West Aggregates Working part, Annual Report 2010 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/201196/SWRAWP_Report_10_Final_WEB.pdf

²⁸ Landbanks are affected by planning permissions granted and the rate of working at existing sites. These numbers were accurate at the time of the report, but are likely to have changed in the interim as new planning permissions are granted and as existing reserves are worked.

²⁹ Environment Agency's 'South West Inputs and Capacity 2012' <http://www.environment-agency.gov.uk/research/library/data/150326.aspx>

- 10.3.9 During the GRIP 3 and 4 studies to be undertaken in 2015-2016, consideration will be given to the options for disposing of waste from the disused section of the Project. This may include re-using the existing ballast within the railway corridor, on-site remediation, transporting rail specific waste streams (e.g. track, sleepers, and ballast) to one of Network Rail's recycling centres, and disposing of wastes to landfill.

10.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 10.4.1 Based on the Network Rail Option Selection Report - GRIP 3 Portishead Reopening, (NR 2010) and BRE SMARTWaste benchmarking data for railway projects³⁰, the key materials used, and wastes generated during the construction of the Project are likely to be similar to those detailed in Table 10.1 below.

Table 10.1. Estimated Material Use and Waste Generation during the Construction Phase (Track and Stations)

Materials required for the project	Wastes arising from the project
<i>Estimated Material Use and Waste Generation during the Construction Phase (Track and Stations)</i>	
<ul style="list-style-type: none"> • Sand blanket material; • Geo-textile matting; • Concrete sleepers; • Long welded rail; • Top ballasting; • Bottom stone; • Asphalt; • Binders; • Bricks; • Concrete; • Floor coverings; • Furniture; • Insulation; • Metals; • Oils; • Plastics; • Tiles and Ceramics; • Timber. 	<ul style="list-style-type: none"> • Vegetation and scrub removal (non-hazardous); • Drainage ditch and dykes materials (hazardous or non-hazardous); • Existing ballast (hazardous or non-hazardous)³¹; • Excavation spoil (hazardous or non-hazardous); • Existing bullhead track (non-hazardous); • Asphalt (hazardous or non-hazardous); • Binders (inert); • Bricks (inert); • Canteen/office/ad hoc waste (non-hazardous); • Concrete (inert); • Electrical equipment (hazardous or non-hazardous); • Floor coverings (soft) (non-hazardous); • Furniture (non-hazardous); • Gypsum (non-hazardous); • Insulation (non-hazardous); • Aqueous liquids (non-hazardous); • Metals (non-hazardous); • Mixed (non-hazardous); • Hydraulic oils (hazardous); • Packaging (non-hazardous); • Plastics (non-hazardous); • Soils (hazardous, non-hazardous or inert); • Tiles and ceramics (inert); • Timber (non-hazardous).

³⁰ BRE SMARTWaste Summary Data <http://www.wrap.org.uk/smartwaste-summary-data>

³¹ The MetroWest Phase 1 Feasibility Report Appendix H 'Trackbed Investigation Interpretative Report' states that the existing ballast material is likely to be classified as hazardous or non-hazardous waste depending on the concentration of heavy metals (arsenic, copper, chromium, lead, nickel and zinc) present at a given location (NR and URS, 2014).

- 10.4.2 IAN 153/11 states that *“significant environmental impacts are likely to arise from those materials which are used in the largest quantities or are high in embodied carbon, wastes which arise in the largest quantities, which have hazardous properties or comprise a large proportion of the value of the project”*.
- 10.4.3 The construction cost range for the Project of £58.2 million (Preliminary Business Case, September 2014) is greater than the £300,000 threshold proposed in IAN 153/11³². Therefore, it is assumed that the potential exists for environmental impacts and effects from the use of materials and the generation of waste. However, little information is available at this stage regarding the precise material requirements and waste quantities associated with the Project and hence an accurate assessment cannot be made at the scoping stage, as to whether the potential effects are likely to be significant. Further assessment will be undertaken during GRIP 3 and 4 to understand the impacts and effects associated with constructing the Project and to provide a quantitative assessment.
- 10.4.4 Table 10.2 summarises the potential impacts, mitigation and residual impacts associated with the construction of the Project.

³² IAN 153/11 states that *“For projects with an estimated cost greater than £300,000 it has been assumed for the purposes of this Standard that the potential does exist for environmental impacts and effects resulting from the use of materials and the generation of waste”*. For projects in England with a value greater than £300,000, an assessment must be undertaken to at least the simple level of assessment.

Table 10.2. Potential Impacts, Mitigation and Residual Impacts of the Project on Materials and Waste

Aspect of Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Increased use of “material resources”.	Depletion of natural resources; Embodied carbon emissions; Transport related carbon emissions.	UK policies and plans. Natural resources.	Reduce materials consumption by optimising the use of materials in the build and encouraging materials efficient design. Maximise the use of existing site infrastructure/materials (e.g. structures, track, ballast, etc.) with suitable residual performance life. Employ carbon profiling techniques to identify opportunities to avoid and / or reduce embodied carbon emissions through design. Specify long-life performance materials to improve durability, minimise maintenance, and reduce whole life cost and carbon. Specify the use of renewable or reusable materials and those with high recycled content to encourage a circular economy and ensure	Potential impact of more than local significance in relation to the use of natural resources; and from new carbon emissions associated with the manufacture and transport of materials. Scope to avoid and / or reduce embodied carbon emissions through design.

Table 10.2. Potential Impacts, Mitigation and Residual Impacts of the Project on Materials and Waste

Aspect of Project	Impact	Receptors	Potential Mitigation	Residual Impact
			<p>that components can be maintained, upgraded or replaced without creating excessive waste.</p> <p>Use ISO 14001 and BES 6001 to identify and procure responsibly sourced products and materials.</p> <p>Specify products with lower embodied carbon, i.e. materials that have lower energy demands or direct emissions in their sourcing, manufacture, installation or disposal.</p>	
Increased production, movement, transport, processing, and disposal of “waste” arisings from the construction site(s).	<p>Depletion/use of available waste management capacity.</p> <p>Transport related carbon emissions.</p> <p>Pollution caused by inappropriate waste management.</p>	<p>UK policies and plans.</p> <p>Waste management infrastructure.</p> <p>Water, air, soil, plants or animals.</p>	<p>Waste should be minimised through design; landfill should be avoided by following the waste hierarchy.</p> <p>Production of a Site Waste Management Plan (“SWMP”) including Network Rail’s targets for materials and waste.</p>	<p>Potential impact (by type and quantity) of more than local significance in relation to the receiving waste management infrastructure.</p> <p>Scope to design out waste, reduce transport related carbon emissions and the likelihood of pollution incidents.</p>

Table 10.2. Potential Impacts, Mitigation and Residual Impacts of the Project on Materials and Waste

Aspect of Project	Impact	Receptors	Potential Mitigation	Residual Impact
			Ensure that all waste is stored, transported, treated, reprocessed, used and disposed of safely without endangering human health or harming the environment.	

Cumulative Impacts of MetroWest Phase 1

- 10.4.5 The minor works required along the Portbury Freight Line will require materials and generate waste. While the volumes are expected to be modest, these will be considered in combination with the Portishead Freight Line, during GRIP 3 and GRIP 4 and including in the ES.
- 10.4.6 The potential impacts, mitigation and residual impacts of the other minor associated works required to construct the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback, are likely to be similar to those identified in Table 10.2 above. However, these works are located within the operating railway land, are small scale in geographic extent, and are very small in terms of magnitude. These works will be undertaken as part of Network Rail's permitted development rights.

10.5 Methodology

Guidance and Best Practice

- 10.5.1 The approach to the assessment of the Project on materials and waste will be based on the following guidance and best practice from government and professional bodies.
- HA IAN 153/11 Guidance on The Environmental Assessment of Material Resources;
 - Published carbon emissions factors and carbon calculators³³;
 - Buildings Research Establishment (BRE) BES 6001, Responsible Sourcing of Construction Products;
 - WRAP, Designing out Waste: A Design Team Guide for Civil Engineering;
 - CL:AIRE, The Definition of Waste: Development Industry Code of Practice;
 - WRAP SWMP Templates; and
 - Environment Agency, Working at Construction and Demolition Sites: PPG6 Pollution Prevention Guidelines.

Definition of the Study Area

- 10.5.2 The study area comprises two principal areas: (1) the use and consumption of "material resources" required for the Portishead to Parson Street Junction Branch Line; and (2) the production and management of "waste" arising as a result of undertaking these works.
- 10.5.3 Responsibility for the procurement of materials and final disposal of wastes will lie with the contractor(s) appointed to construct the Project.

Construction Impacts for the Project

- 10.5.4 The scoping assessment has identified that the potential exists for environmental impacts and effects to occur from the use and consumption of materials and the production and management of waste during the construction of the Project. Based on the findings at the scoping level, it is recommended that the Project be assessed in the first instance at the "simple level" of assessment.
- 10.5.5 IAN 153/11 states *"that the purpose of the simple assessment is to assemble data and information that is readily available to come to a better understanding of the likely environmental effects of the proposed scheme. The outcomes will inform the final design*

³³ Transport Scotland Carbon Management System Rail Infrastructure Projects Tool
(<http://www.transportscotland.gov.uk/road/sustainability/Environmental-sustainability/carbon-management-system>);

or contribute to reaching an understanding of the likely environmental effects which identify the need for any further detailed assessment".

- 10.5.6 The assessment will primarily focus on the environmental impacts and effects arising from construction in the form of: embodied carbon emissions associated with the production of materials; carbon emissions from the transport of materials; the depletion of natural resources; the generation, management of waste on site; potential impact on the available waste management infrastructure; and the alignment of the project proposals with the legislative and policy framework for sustainable development, material resources and waste.
- 10.5.7 The simple assessment is largely a desk-based exercise and for the purposes of the materials and waste topic it is mainly qualitative. During GRIP 3 and 4 studies and further highway engineering design, the following issues will be identified and assessed:
- baseline data for the project in question;
 - information about design, construction methods and techniques³⁴;
 - the materials required for the project and where information is available, the quantities and provenance³⁵;
 - the anticipated waste arisings from the project, and where information is available, the quantities and type (e.g. inert, non-hazardous, hazardous) and any additional information about wastes forecast to be produced³⁶;
 - the alignment of the project proposals with the regulatory and policy context, and stated project objectives;
 - the results of any consultation (i.e. with the Environment Agency and Local Planning Authorities);
 - the impacts / effects that will arise from the issues identified and whether these are likely to be significant; and
 - a conclusion about whether this level of assessment is sufficient to understand the impacts / effects of the project or whether detailed assessment is necessary, and the identification of any mitigation measures.
- 10.5.8 The method of assessment will ultimately depend on the level of detail on the project design at the time of the assessment. Where detailed information about the types and quantities of materials and waste is available (i.e. in the form of a detailed bill of quantities for example), the simple assessment be carried forward to the 'detailed level' of assessment.
- 10.5.9 IAN 153/11 states that *"the objective of the detailed assessment is to gain an in-depth appreciation of the environmental consequences of the use and consumption of materials and the production and management of waste associated with the project (both adverse and beneficial) to inform project decisions on whether the project proceeds in its proposed configuration, taking account of the key issues identified in the assessment."*

³⁴ Including the cut and fill balance; materials arising on site that likely to be recycled and re-used within the Scheme to replace materials sourced from off site.

³⁵ The geographical sources of imported materials (if known); are they from virgin or non-renewable sources or from recycled or secondary sources?; Do materials incorporate recycled or secondary content? Are they from sources with existing recognised certification?; Are imported materials from recycled or secondary sources regulated under the Environmental Permitting Regulations?

³⁶ The cut/fill balance; has consideration been given to the re-use of excavated materials?; has consideration been given to the re-use on site of materials generated from demolition; have recycling/recovery options been identified for materials that cannot be re-used on site?; will waste be stored on site prior to re-use or removal from site? Will waste be treated or processed on site prior to re-use or removal from site?

- 10.5.10 The detailed assessment, for materials, is based on quantifying the magnitude of change associated with a project's material requirements in absolute terms. The magnitude of the environmental impact is assigned through the use of a proxy in the shape of the embodied carbon emissions associated with specific materials or construction products (IAN 153/11).
- 10.5.11 The detailed assessment, for waste, is based on the potential environmental effects associated with waste relate primarily to the waste management methods identified and the effects that forecast waste arisings will have on the available waste management infrastructure. In this way, the assessment reflects both the relative quantities of waste produced and the position within the waste hierarchy of the chosen waste management methods (IAN 153/11).
- 10.5.12 The detailed assessment, if undertaken, will follow the methodology outlined in the draft DMRB Volume 11, Section 3, Part 6 Materials guidance (HD212/11) for determining the value and/or sensitivity of the identified receptors; the magnitude of impact; and the significance of effect associated with the use and consumption of materials and the production and management of waste.

Operational Impacts for the Project

- 10.5.13 The operational impacts on materials and waste are proposed to be scoped out for the reasons explained in Section 10.1.

Cumulative Effects

- 10.5.14 The assessment of cumulative effects will include committed developments identified from searches of the planning portals for NSC and BCC along the Portishead Branch Line.
- 10.5.15 The assessment of cumulative effects due to the modifications along the Portbury Freight Line, will follow the methodology outlined in Section 10.5.3 above.
- 10.5.16 It is proposed to scope out the assessment of cumulative effects for the other works required to implement the Scheme, namely the Bedminster Down Relief Line Severn Beach / Avonmouth Signalling, and Bathampton Turnback. These works are within Network Rail's operational boundary and will be implemented using their General Permitted Development rights. Further environmental assessments of these works will be undertaken by Network Rail under GRIP.

11 Noise and Vibration

11.1 Introduction

11.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on noise and vibration impacts. This Chapter:

- describes the noise and vibration impacts baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant noise and vibration effects in the Environmental Statement ("ES"); and
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

11.1.2 This chapter considers the approach to be taken to assess the impacts of construction and operation of the Portishead Branch Line (MetroWest Phase 1) Project on ambient noise and vibration. The main focus of this scoping exercise covers the re-instatement of the disused railway between Portishead and Pill, including new stations at Portishead and Pill, construction works on the Portbury Freight Line, and additional passenger services on the operational railway in the Bristol area. The project has the potential to generate noise and vibration during construction and the operation of new services. The existing noise climate needs to be considered to ensure that noise sensitive receptors are protected.

11.2 Legal and Policy Framework

11.2.1 There is no single piece of legislation or policy that covers all that is required for a noise assessment. The main documents that may need to be used or consulted are listed below.

National / regional / local policy

- The National Policy Statement for National Networks ("NPS") advises on noise and vibration in the context of national network projects that are nationally significant infrastructure projects ("NSIP") at paragraphs 5.186 - 5.200. The list of matters that should be included in the noise assessment presented in the ES is set out at paragraph 5.189. The considerations relevant to the Secretary of State's ("SoS") assessment are set out. Mitigation measures should be proportionate and reasonable.
- National Planning Policy Framework ("NPPF"), 2012. The NPPF paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by, among other things, preventing new and existing development from contributing to noise pollution. Paragraph 123 goes on to state that planning policies should aim to avoid new development leading to significant adverse noise impacts on health and quality of life, mitigate and minimise adverse noise impacts due to noise from new developments, avoid placing unreasonable restrictions on existing businesses due to changes in nearby land uses since they were established, and identify and protect areas of tranquillity.
- Noise Policy Statement for England, Defra 2010. The Government's policy on noise is set out in the *Noise Policy Statement for England* ("NPSE"). It contains the high level

vision of promoting good health and good quality of life (wellbeing) through the effective management of noise. It is supported by three aims and together they provide the necessary clarity and direction to enable decisions to be made in any particular situation, both nationally and locally, regarding what is an acceptable noise burden to place on society.

- Noise Action Plan: Railways (Including Major Railways), Defra January 2014. This Action Plan is designed to address the management of noise issues and effects from railways. It provides a summary of the impact from railway noise as determined by the strategic noise mapping undertaken in 2012. The Action Plan also describes possible mitigation measures for railway noise.

Relevant legislation

- Environmental Noise Directive 2002/49/EC and The Environmental Noise (England) Regulations 2006 (as amended). The Environmental Noise Regulations have been introduced into the UK to implement the Assessment and Management of Environmental Noise Directive 2002/49/EC. This Directive relates to the assessment and management of environmental noise in EU Member States. The production of strategic noise maps and action plans are legal requirements set out in the Environmental Noise (England) Regulations. From these noise maps certain areas alongside the major roads and railways have been identified as 'Important Areas'. These are locations where there are dwellings subject to noise levels considered high enough that further investigation should be undertaken. The investigations are the responsibility of the noise making authority and they should report possible mitigation measures at each IA.
- Land Compensation Act 1973. Part I of the Land Compensation Act provides a means by which compensation can be paid to owners of land or property which have experienced a loss in value caused by the use of public works, such as new or improved roads. Noise and vibration are two of the factors which would be considered in any claims for compensation, but the claim should consider all changes and effects, including betterment. Part II of the Act imposes a duty on authorities to undertake or make a grant in respect of the cost of undertaking noise insulation work in or to eligible buildings. This is subject to meeting certain criteria given in The Noise Insulation Regulations (see below).
- The Noise Insulation Regulations 1975 (Amended 1988). Where alterations are made to a highway, the Noise Insulation Regulations (1975) ("NIR") may apply. Specific circumstances need to be present for the Regulations to apply, and where there is an 'additional carriageway' then the authority has a duty to carry out insulation work or to make grants. For an 'altered highway', the authority has a power to carry out insulation work or to make grants.
- The Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996. The Regulations were introduced to meet a need to consider the impact of railways, tram systems and other guided transport systems upon existing residential properties along their route, and to consider the need for noise insulation measures to those properties as a result of the development of the transport system. The Regulations provide a duty to install noise insulation for dwellings badly affected by noise from the operation of a new or additional railway line or guided transport system, and powers to carry out similar works for properties affected by altered existing rail systems.

11.3 Baseline Conditions

Portishead Branch Line

- 11.3.1 The land use surrounding the options for the proposed railway station in Portishead varies from urban to residential. In the urban areas the ambient noise level is higher and the main sources are the traffic on the local roads and some noise from industrial and commercial premises. Typically levels are between 50 and 55 L_{Aeq} , dB. At the more residential locations the noise level is lower, around 50 L_{Aeq} , dB. Into the evening and in the early hours these locations have a lower ambient noise levels where the distant M5 is the only obvious noise source.
- 11.3.2 In the area between Portishead and Pill the line passes through a more rural area with isolated dwellings close to the proposed line. The background noise at these locations is still from traffic using the M5 and also to a certain extent the A369. However, the local noise climate can be influenced by other sources such as work in fields, aircraft, or local traffic. The noise level here varies between 50 and 55 L_{Aeq} , dB.
- 11.3.3 As the proposed railway line approaches the M5 and Pill, the M5 becomes the dominant noise source. Within Pill, and at the proposed station location, the M5 is still audible but the noise climate also contains contributions from local traffic and general activities from a small town. Away from the main roads within Pill and within the residential area, the levels vary between 45 and 55 L_{Aeq} , dB.
- 11.3.4 There is occasional noise from aircraft using Bristol Airport, which is located approximately seven miles to the south.
- 11.3.5 The area surrounding the M5 at this location is covered by noise maps produced by Defra as a responsibility under the Environmental Noise Directive³⁷. From this map it can be seen that noise from the M5 is likely to be audible throughout Portishead and Pill. In addition, there are several areas alongside the M5 have been marked as Important Areas, indicating that there are sensitive receptors close to the M5 that are currently experiencing high levels of noise.

Portbury Freight Line

- 11.3.6 From Pill to Parson Street Junction, where the Portbury Freight Line joins the main line between Bristol Temple Meads and Exeter, the noise climate is lower, with noise from the M5 virtually inaudible. As the route passes along the Avon Gorge, the dominant noise source is the A4 Portway, an important highway into the centre of Bristol. As the railway line continues into the industrial and commercial area at Ashton Gate, the main noise sources are from these activities, together with traffic from the A3029 and other more local roads. The daytime noise level in this area is between 50 and 60 L_{Aeq} , dB.
- 11.3.7 At all locations along the route there is occasional noise from aircraft using Bristol Airport, which is located approximately seven miles to the south.

Bedminster Down Relief Line

- 11.3.8 The Bedminster Down Relief Line is located in a residential area, with sensitive receptors (housing) located close to both to the south and the north of the line. The ambient noise climate is dominated by rail noise, with other sources including traffic on the A38, bird song and aircraft. Daytime ambient noise level was monitored as 52.5 L_{Aeq} , dB.

³⁷ Department for Environment Food and Rural Affairs (<http://services.defra.gov.uk/wps/portal/noise>)

Severn Beach / Avonmouth Signalling

- 11.3.9 The Severn Beach / Avonmouth Signalling project is located along the coast. Option 6B lies near to an existing industrial estate at Avonmouth. The closest noise sensitive receptors towards the rail line are located along Portview Road to the east of the existing track, with the closest dwellings being about 15m away. The ambient noise is dominated by road traffic noise from the M5 and local roads, railway noise from passenger and freight trains, and also industrial noise from the nearby industrial estate during the day. The daytime ambient noise levels were monitored at 56.3 L_{Aeq} dB.

Bathampton Turnback

- 11.3.10 Bathampton Turnback is located within the existing railway land on the main line between Bristol and London. The dominant noise source was from the trains, which were passing every 5 to 10 minutes. There was also noise from bird song and aircraft. Day time noise levels were monitored at two locations between 50 and 55 L_{Aeq} dB, which is typical of semi-rural areas.

11.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 11.4.1 The potential impacts are summarised in Table 11.1. This considers impacts from both construction activities of the stations and the proposed line, together with operational impacts from the use of the stations and the railway line.

Cumulative Impacts of MetroWest Phase 1

- 11.4.2 The potential cumulative impacts resulting from the Project in combination with other works associated with MetroWest Phase 1 using General Permitted Development rights are identified in Table 11.2.
- 11.4.3 No cumulative impacts during construction of the Bedminster, Severn Beach / Avonmouth Signalling and Bathampton Turnback have been identified, as these construction works are comparatively small scale and are located considerable distances from the Project.

Table 11.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Noise and Vibration

Aspect of Project	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Construction of the stations in Portishead and Pill, new road infrastructure, and the new line between Portishead and Pill.	Temporary increase in noise.	Nearby sensitive receptors, which would include dwellings and schools.	Use of Best Practicable Means (“BPM”).	Reduced impact at sensitive receptors.
Operation activities				
New rail services.	Increased noise and vibration levels as trains pass.	Nearby sensitive receptors, which would include dwellings and schools.	Use of modern track and trains. Reduced speed of the trains on the approach to Pill. Restrictions on operating hours. Noise barriers.	Reduced impact at sensitive receptors.
Changes to road traffic using the local road network to the stations.	Changes in ambient noise due to traffic flow.	Nearby sensitive receptors, which would include dwellings and schools.	Provision of parking near the stations. Parking restrictions in the residential areas of Portishead and Pill. Increased bus services and cycle routes to the stations.	Reduced impact at sensitive receptors.
Operation of the new stations, including announcements, idling trains, fixed plant.	Increased ambient noise levels around stations during operating hours	Nearby sensitive receptors, which would include dwellings and schools.	Careful station design. Use of announcements only at certain times of the day. Fixed plant facing away from sensitive receptors and use of quiet equipment.	Reduced impact at sensitive receptors.

Table 11.2. Potential Cumulative Impacts, Mitigation and Residual Impacts on Noise and Vibration

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Operation activities</i>				
Modal shift from highway traffic to the railway.	Changes in ambient noise levels depending on changes to traffic flows.	Receptors along the main highway commuter routes to Bristol and along the railway.	Modal shift is a positive benefit of the project.	Potential to reduce noise.
Additional services on the Portbury Freight Line	Increase in noise along the Portbury Freight Line.	Receptors along the Portbury Freight Line.	Reduced speed, noise barriers, operating restrictions, new track.	Reduced or removed impact.
Increase in noise (e.g. idling, accelerating, and horns) from trains using the Bathampton Turnback.	Increase in ambient noise	Receptors close to the Bathampton Turnback.	Noise barriers	Low increase in ambient noise
Increase in noise (e.g. idling, accelerating, and horns) from trains using the Bedminster Down Relief Line.	Slight increase in ambient noise	Receptors close to the Bedminster Down Relief Line.	Noise barriers, operating restrictions.	No change in noise level.
Increase in noise as a result of the use of the new signals at Avonmouth.	No impact from the use of signals.	Receptors close to the new signals.	None required.	No impact from the use of signals.

11.5 Methodology

Guidance and Best Practice

11.5.1 The noise and vibration assessment will be based on guidance and best practice published by government and professional bodies:

- Design Manual for Roads and Bridges ("DMRB") Volume 11 Section 3 Part 7 (HD213/11), Noise and Vibration
- Department of Transport Calculation of Road Traffic Noise 1988
- Department of Transport Calculation of Railway Noise 1995
- British Standard 4142:2014 Methods for rating and assessing industrial and commercial sound
- British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise)

Definition of the Study Area

11.5.2 The study area for a noise assessment will be dictated by the impact under investigation, but would normally be a set distance from the activities proposed. For the construction of the stations and the new railway line, the impacts are likely to extend up to 300m from the construction site, but this will depend upon the existing background noise level. However, typically a construction assessment will only consider the closest sensitive receptors.

11.5.3 For operational noise from the railway line, the study area would be 300m on either side of the railway line. The study area for the assessment of traffic noise associated with movements to and from Portishead and Pill stations and the cumulative impact of modal shift from vehicle to train would be determined by the affected roads identified in the traffic model.

Baseline Surveys

11.5.4 Baseline noise surveys have been undertaken along the Portishead Branch Line (MetroWest Phase 1) Project and are presented in the Baseline Report. Some additional surveys may be considered at sensitive locations.

Construction Impacts for the Project

- 11.5.5 The impact from construction activities will be examined by comparing the predicted noise from construction against the existing background noise level at nearby sensitive receptors following BS5228. This existing background level would be determined from a noise survey at appropriate times of the day. In determining potential impacts, such factors as duration of construction activities would also need to be considered. The level of vibration from various activities can be predicted using BS5228 and compared against published criteria for buildings.

Operational Impacts for the Project

- 11.5.6 The operational impacts from the railway line will be determined by predicting the noise levels from the given number of proposed trains. The methodology allows for type of track and type of train (including speed) to be considered in predicting the noise from the operation of the railway line. This predicted level is then compared with the existing noise level at sensitive receptors. In addition to impacts from the operation of the line, the noise from the operation of the stations would need to be considered by comparing predicted noise (e.g. from traffic and announcements) against the existing noise level. In order to predict the possible impacts from vibration, a location with similar characteristics (i.e. track, trains in use) to the section between Portishead to Pill will be sought and measurements undertaken there. It is understood that within Pill there are currently concerns from residents about the noise and vibration from freight trains. It is not expected that the operation of the passenger services will change and therefore the impact from the freight trains will continue.

Cumulative Effects

- 11.5.7 The assessment of cumulative effects will include committed developments identified along the Portishead Branch Line from searches of the planning portals for the NSC and BCC.
- 11.5.8 The cumulative effects from the construction of works along the Portbury Freight Line, and the additional trains for the passenger service, will be assessed in combination with the Portishead Branch Line.
- 11.5.9 The cumulative effects from the use of the Bedminster Down Relief Line and the additional services on the Severn Beach / Avonmouth line and Bristol to Bath line will be considered alongside the existing services to determine if the increase will cause a significant change in the noise level.
- 11.5.10 It is proposed to scope out the cumulative effects associated with the construction of the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback.
- 11.5.11 The Greater Bristol Area Transport Study ("GBATS") will be used to identify modal shift from road transport to train. In the event that significant changes of traffic flow are identified on the highway network, the resulting changes in noise levels will be modelled and the significance assessed.

12 Socio-economics and Economic Regeneration

12.1 Introduction

12.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on socio-economics and economic regeneration impacts. This Chapter:

- describes the socio-economics and economic regeneration baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant socio-economics and economic regeneration effects in the Environmental Statement ("ES"); and
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

12.1.2 This chapter scopes the impact of the Portishead Branch Line (MetroWest Phase 1) Project and the other components of MetroWest Phase 1 on the socio-economic profile of the region, economic regeneration, and the equality, health and wellbeing and equality of people in the catchment area for the Development Consent Order ("DCO") Application project.

12.1.3 The socio-economics and economic regeneration assessment will consider the impacts of the project and wider MetroWest Phase 1 in relation to the following topics:

- demography;
- travel patterns;
- labour market participation;
- socio-economic classification;
- employment profile; and,
- deprivation.

12.1.4 These topics all play a key role in determining the socio-economic well-being and prosperity of communities. Therefore it is not proposed that any of these topics should be scoped out of any future EIA. A full assessment will also need to demonstrate how any impacts will affect vulnerable social groups. These may include: the disabled, ethnic minorities, young people, the elderly and low income groups. The Equality Impact Assessment ("EqIA") and Health Impact Assessment ("HIA") will consider the impacts of the project in relation to the following topics:

- distribution impacts on vulnerable groups;
- access and egress;
- station design;

- geographical location of the project; and
- human health.

12.1.5 These topics all influence the benefits and opportunities for the project to affect vulnerable groups and impact on human health.

12.2 Legislation and Policy Framework

12.2.1 National planning policy, such as the National Policy Statement on National Networks ("NPS"), the NPPF and the White Paper *Local Growth: Realising Every Place's Potential* (HM Government, 2010) highlight sustainable economic growth as a key objective. The delivery of transport infrastructure is presented as a key mechanism for achieving this objective. Improving the transport network is highlighted as integral to improving accessibility to jobs and markets for employees, businesses and consumers alike. In particular, the NPS sets out the Government's vision and strategic objectives for the national networks to meet the country's long-term needs, supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system: "*this means*:"

- *Networks with the capacity and connectivity and resilience to support the national and local economic activity and facilitate growth and create jobs.*
- *Networks which support and improve journey quality, reliability and safety.*
- *Networks which support the delivery of environmental goals and the move to a low carbon economy.*
- *Networks which join up our communities and link effectively to each other".*

12.2.2 Local planning policy such as the West of England Local Transport Plan 3, *Unlocking Our Potential: The Economic Benefits of Transport Investment in the West of England*, identifies road congestion and other transport issues as key constraints on economic growth. As per national planning policy, local policy emphasises transport infrastructure investment as an enabler of economic development and specifically discusses MetroWest Phase 1, including reopening the Portishead Branch Line, as projects that could assist with economic growth.

12.2.3 The NPS advises on health considerations in the context of nationally significant infrastructure projects ("NSIP") at paragraphs 4.79 - 4.82. Consideration should be given to direct and indirect impacts on health and where a proposed project has likely significant environmental impacts that would have an effect on human beings, the ES should identify and set out the assessment of any likely significant adverse health impacts. HIAs are normally required by policies stipulated in the local planning authority's local plan. NSC's Local Plan Written Statement 2007 does not include a policy on HIA. However, the new (draft) Core Strategy does contain this requirement and is expected to come into effect as the Core Strategy is adopted and before the planning process for this project has concluded. Consequently, it is likely that an HIA will be required for the ES.

12.2.4 EqlAs are undertaken to assess the compliance of policies, plans and programmes with the following legislation:

- Equality Act 2010
- Race Relations Act (RRA) 1976 amended 2000
- Disability Discrimination Act (DDA) 1995 amended 2010
- Sex Discrimination Act (SDA) 1975 as amended

12.3 Baseline Conditions

- 12.3.1 The demographic profile in Portishead is characterised by a rapidly growing population with a high and increasing proportion of working age residents.
- 12.3.2 Vulnerable groups such as ethnic minorities, low-income and disabled residents are under-represented in the area. The majority of severely disabled people are over the age of retirement. There are more short hour carers than long hour carers. The overall health of the local community is considered to be good to very good.
- 12.3.3 There are high levels of car ownership, with above-average levels of commuting undertaken by private motor vehicles.
- 12.3.4 Labour market participation is high, with low levels of unemployment and benefits claimants. The highest proportion of unemployed is the 50-74 age group, followed by the 16-25 age group. The proportions of those who are in full or part time employment is higher in the rest of the region and the number of people who have never worked in the area is small for the region.
- 12.3.5 There is a skilled and qualified population with above-average levels of education attainment and a concentration of employees at the high-value end of the occupational structure. As a consequence, residents typically earn above-average wages and are concentrated in the upper-end of the social grading classification.
- 12.3.6 The employment profile shows immediate and wider context area residents are generally over-represented in high-value sectors including banking finance and insurance, transport and communications and manufacturing. In contrast, the employment profile shows context area employees are less likely to be concentrated in managerial or professional positions within these sectors, suggesting a discrepancy between jobs desired and employment opportunities locally.
- 12.3.7 The generally positive socio-economic trends outlined above are translated into relatively low levels of aggregate deprivation across the West of England. That said, some pockets of extreme deprivation are still prevalent, particularly in inner-city Bristol and Weston-Super-Mare.
- 12.3.8 The baseline situation summarised above portrays generally positive socio-economic conditions for the immediate and wider context area. However, it should be noted that for some socio-economic indicators (most noticeably, education, skills and occupational structure) the town of Portishead and the West of England as a whole performed better than Pill. Therefore there is an ongoing need for economic growth and regeneration in these context areas, a principle supported by the local and national planning policy objectives.

12.4 Potential Impacts, Mitigation and Residual Impacts Portishead Branch Line (MetroWest Phase 1) Project

- 12.4.1 MetroWest Phase 1 and the Portishead Branch Line (MetroWest Phase 1) Project are expected to result in positive socio-economic impacts (see Table 12.1). As a result, it is proposed that no mitigation measures will need to be identified at this stage. Therefore, it is anticipated that the residual impacts will reflect the construction and operational impacts outlined below.

Table 12.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Socio-economic

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Employment	Job creation	Labour market	In tendering stage, require bidders to demonstrate equal opportunity policies and encourage bidders to recruit locally.	Temporary, positive impact
Construction noise and dust	Increased noise and dust levels	Local residence, businesses, schools and public facilities	Good housekeeping on construction sites. See separate chapters on air quality and noise.	Temporary increases in noise and dust.
Temporary closure of crossings	Reduced pedestrian access	Pedestrians (disabled and low income) and cyclists	Public Rights of way ("PRoW") will be diverted via the most convenient route. Informal crossings over the railway line will be closed.	Temporary increase in journey times.
Operation activities				
(Ticketing and) passenger welfare services	Direct job creation at station	Labour market	n/a	Permanent small number of jobs created
New railway service 17 mins Portishead to Bristol Temple Meads	Reduced journey times	Commuters	n/a	Shorter journey time compared to car

Table 12.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Socio-economicse

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
Modal shift of commuter traffic from highway to railway	<p>Reduced highway congestion</p> <p>Potential to improve air quality and reduce traffic noise</p> <p>Potential to reduce traffic accidents</p> <p>Potential to reduce driver stress</p>	<p>Highway users</p> <p>Pedestrians and cyclists</p> <p>Local residences, businesses, schools and public facilities along affected roads</p>	n/a	Permanent, positive impact on congestion, travellers and air quality and noise along highways into Bristol
Mass transit to Bristol city centre and connections	Improved accessibility	Commuters, labour market, businesses	n/a	Permanent, positive impact on transport routes
Unlock development potential in Portishead by improving transport to employment centres	Increased value of development land	Developers, land owners	n/a	Long-term, positive impact on house building sector
Improved connectivity with the south west	Inward investment	Developers, labour market, businesses	n/a	Long-term, positive impact
MetroWest included in transport plans	Contribution to policy aspirations	Wider economy and society	n/a	Compliance with transport plans
Fare structure	Affordability of travel	Commuters, young people, elderly people, disabled people, people with caring responsibilities and people of low income	N/A	Impact not known at this stage

Table 12.1. Potential Impacts, Mitigation and Residual Impacts for the Project on Socio-economicse

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
Encourage walking and cycling to the stations	Increased physical exercise	Commuters, rail users	N/A	Provide opportunity for commuters to combine journey with exercise
New train operations Station activity	Reduced air quality (see Chapter 5)	Local residences, businesses, schools and public facilities	Design station. Maintain carriages regularly. Permanent vegetation screening along rail corridor.	Permanent but small change in air quality
New train operations Station activity	Increased noise and vibration (see Chapter 11)	Local residence, businesses, schools and public facilities	Design station. Maintain carriages regularly. Permanent vegetation screening along rail corridor.	Permanent increase in disturbance
Design of access and station layout	Potential difficulties for disabled access Large gap between platform and rail carriage Low security	Elderly people, disabled people, people with caring responsibilities, expectant mothers and new parents, women travellers.	Design access and egress to stations to take account of mobility, security, lighting, discourage anti-social behaviour, etc. Comply with Network Rail diversity and equality policy.	Good design to make the railway safe and comfortable for a wide range of travellers
Ticketing	Lack of options for purchasing tickets	Elderly people, disabled people and people with caring responsibilities	Greater flexibility for purchasing tickets to accommodate those unable to purchase them in the conventional ways	Improve accessibility of service for vulnerable groups

Cumulative Impacts of MetroWest Phase 1

- 12.4.2 MetroWest Phase 1 is part of a wider set of major transport schemes proposed throughout the West of England, which aim to facilitate economic growth and regeneration. The major projects include three bus rapid transit schemes which will take the following routes:
- Ashton Vale to Temple Meads;
 - South Bristol Link; and
 - North Fringe to Hengrove Package.
- 12.4.3 These schemes, in addition to MetroWest Phase 1, are critical to delivering the proposed key employment sites at:
- Bristol Temple Quarter Enterprise Zone;
 - Filton Enterprise Area;
 - Emerson's Green Enterprise Area;
 - Bath City Riverside Enterprise Area;
 - Junction 21 Enterprise Area; and
 - Avonmouth Severnside Enterprise Area.
- 12.4.4 At present, it is estimated that these employment sites will accommodate between 66,000 and 71,000 jobs for the region. The various transport schemes proposed will help to secure these jobs by providing the enabling infrastructure that supports development at these sites.
- 12.4.5 MetroWest Phase 1 could lead to a number of positive transport economic impacts, including the following:
- Direct access to rail services for residents in Portishead and Pill, with consequent reductions to journey times and costs.
 - Improved accessibility to the wider rail network, via interchange at Bristol Temple Meads.
 - Possibility of reduced traffic and congestion on the A369 and M5 Junction 19, benefitting businesses locally and nationally.
- 12.4.6 It is anticipated that such transport economic impacts could be monetised by transport practitioners following WebTAG-style appraisal of the MetroWest Phase 1 proposals.
- 12.4.7 Improved accessibility to a range of locations may also safeguard existing economic activity or provide a catalyst for intensified economic activity in the range of locations that will be served by the MetroWest Phase 1 proposals as well.
- 12.4.8 The proposals have the potential to assist businesses, developers/land owners and employees throughout the defined context areas, via a range of wider regeneration impacts:
- increase in development land values in proximity to new or improved routes;
 - improve the reputation of affected locations, improving local image and attracting additional inward investment.
 - create regenerated communities where people want to live, work and visit.
- 12.4.9 Finally, the proposals have the potential to have a positive influence or contribution towards various national and local planning policy aspirations:

- promoting the drive towards sustainable economic growth; and
- reduction in carbon emissions.

12.4.10 It is expected that the only potential negative cumulative effect of the project and MetroWest Phase 1 on equality and health, will be in respect of the health of those on site during construction in terms of effects of construction activities on local air quality and an increase in noise levels. The mitigation for these effects will be the same as above.

12.4.11 The effect of an extra train service into Bristol Temple Meads is considered likely to have a neutral effect on health. This is due to the rail line and Bristol Temple Meads station is already a busy rail line and station and the increase rail stock is considered to be negligible compared to the current usage of rail carriages. In terms of equality, the service will give vulnerable groups in Bristol an off-road option for travelling to Portishead and Pill, which may be beneficial to them, especially as a larger proportion of the population of Bristol fall within the vulnerable groups.

12.4.12 A summary of the potential cumulative impacts, mitigation and residual impacts is presented in Table 12.2.

Table 12.2. Potential Cumulative Impacts, Mitigation and Residual Impacts on Socio-economics

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Construction activities</i>				
Various activities	Increased noise and vibration	Site operatives	See Chapter 11	Temporary increase in noise during construction
<i>Operation activities</i>				
Modal shift	Reduced air quality, increased noise and vibration along the railway corridors	Local residence, businesses, schools and public facilities	N/A	Permanent, positive impact on congestion, travellers and air quality and noise along highways into Bristol
Additional services	Increase public transport options in the Bristol area	Young people, elderly people, disabled people, people with caring responsibilities and people of low income	N/A	Permanent improvement in services

12.5 Methodology

Guidance and Best Practice

Socio-economics and Regeneration

12.5.1 Although there is no standard guidance for undertaking the socio-economic element of an EIA, the methodology employed for this assessment will follow the wider guidance frameworks set by the following documentation:

- The Green Book: Appraisal and Evaluation in Central Government (HM Treasury, 2003);
- Evaluation Group on Regional and Urban Programmes (EGRUP) and subsequent The 3R's Guidance (Office of the Deputy Prime Minister, 2004);
- Measuring the Economic Impact of an Intervention or Investment (Office for National Statistics, 2010);
- Guidance for Using Additionality Benchmarks in Appraisal (Department for Business, Innovation and Skills ("BIS"), 2009);
- Statutory Guidance on Local Economic Assessments (CLG, 2010).

Equality Impact Assessment

12.5.2 The methodology employed for this assessment will follow the wider guidance frameworks set by the following documentation:

- Equality impact assessment guidance (Equality and Human Rights Commission, 2009)
- Equality Impact assessments: How to do them (Transport for London, 2004)
- ERDF Equality impact assessment guidance and forms (European Union, 2012)

Health Impact Assessment

12.5.3 The methodology conducted for the Health Impact Assessment will follow the guidance set out by the following documents:

- Health Impact Assessment: Main concepts and suggested approach (European Centre for Health Policy (EHP), 1999)
- European Policy Health Impact Assessment: A guide (IMPACT, 2004)
- Health Impact Assessment: Supplementary Planning Document (South Cambridgeshire District Council, 2011)

12.5.4 The following guidance integrates equality and health impact assessment.

- Health Inequality Monitoring (World Health Organization (WHO), 2013)
- Promoting Equity through the Practice of Health Impact Assessment (The Ader School of Professional Psychology, Human Impact Partners, PolicyLink, The Program on Health, Equity, and Sustainability, 2013)

Definition of the Study Area

12.5.5 The study area is divided into a number of distinct components relating to the immediate and wider context areas. The immediate context areas focus on the towns of Portishead and Pill, as these settlements will be most affected by the Portishead Branch Line (MetroWest Phase 1) Project. The wider context area covers the West of England region (defined as the four local authorities North Somerset, City of Bristol, Bath and North East Somerset and South Gloucestershire). This reflects the fact that MetroWest Phase 1 will

route through the entire region and is therefore likely to have wider impacts on these areas.

12.5.6 In light of the socio-economic context outlined above and in the Baseline Report, the project could impact on various socio-economic receptors, including local residents, the labour market, employees and businesses in the defined context areas.

12.5.7 The study area for the equality and health assessments is focused on the towns of Portishead and Pill, as the population centres most likely to be affected by the project. The project could impact on various health and vulnerable receptors. These include the health of local residents, visitors and employees in Portishead and Pill, and vulnerable groups which may be disproportionately impacted by the project.

General Approach

12.5.8 In line with the guidance, the social/health/regeneration assessment will follow a three stage process:

- Stage One will establish the baseline situation for the context area. This has already been completed as part of the Baseline Report.
- Stage Two will consider the likely nature and magnitude of impact on various receptors and, where possible, establish whether the impact is adverse or beneficial.
- Stage Three will consider the likely significance of the effect.

13 Soils, Agriculture, Land Use and Assets

13.1 Introduction

- 13.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on soils, agriculture, land use and assets impacts. This Chapter:
- describes the soils, agriculture, land use and assets baseline having regard to existing information and information presented in a separate Baseline Report;
 - describes the relevant legal and policy framework which will inform the undertaking of the assessment;
 - identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
 - describes the methodology proposed to be used for the identification and assessment of likely significant soils, agriculture, land use and assets effects in the Environmental Statement ("ES");
 - considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.
- 13.1.2 This section considers the impact of Portishead Branch Line (MetroWest Phase 1) Project on soils, agriculture, land use and assets. The focus of the scoping study is on the section of the railway between Portishead and Pill where 5 km of disused railway are to be reopened. The reopening of the Portishead to Pill line will affect several farms between Sheepway and The Portbury Hundred (A396). The topics considered are agricultural land use and farm structures, soils, agricultural land quality and the severance of farmland.
- 13.1.3 Between Pill and Parson Street Junction and on the other lines affected by MetroWest Phase 1 the railways are already in operation and so there will be no direct impact on adjacent soils and farmland, severance, and land use (blight).

13.2 Legislation and Policy Framework

- 13.2.1 The following documents contain the published policy and best practice guidelines for the protection of agricultural land and farming:
- National Policy Statement on National Networks (2014) ("NPS") which advises on land use considerations relevant to nationally significant infrastructure projects ("NSIP") that are national networks at paragraphs 5.162 - 5.185. Applicants should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate. Applicants should identify any effects, and seek to minimise impacts, on soil quality and, where possible, development should be on previously developed (brown field) sites provided that they are not of high environmental value. Considerations relevant to the determination of the application for a Development Consent Order ("DCO") in respect of a national networks NSIP are described.
 - National Planning Policy Framework (NPPF, 2012). Under Section 11 *Conserving and enhancing the natural environment*, the planning system should contribute to and enhance the natural and local environment including the protection of soils and

planning authorities should take account of the benefits of the best and most versatile land, defined as agricultural land grades 1, 2 and 3a, in considering development.

- Natural England's Technical Information Note 049 (TIN049), Agricultural Land Classification: on protecting the best and most versatile agricultural land.
- The North Somerset Replacement Local Plan (2007), Chapter 6, Rural Development.
- Defra's First Soil Action Plan for England 2001-2006 and draft Soil Strategy for England (March 2008).
- Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009).

13.3 Baseline Conditions

Rural Land Use

13.3.1 The main rural land uses between Portishead and Pill are summarised below.

- Portishead to Sheepway: Pasture to the south of the railway line. To the north there is The Park, where footpaths pass through ungrazed wet grassland.
- Sheepway to Station Road: Agricultural land on either side of the line and a fishing lake to the north.
- Station Road to Portbury Dock Road: Two fields of pasture to the south of the line and scrub and woodland bordering the remainder.
- Portbury Dock Road to the M5: Farmland south of the line and dockland to the north.
- M5 to Pill: Farmland to the south of the line and scrub and wetland to the north.

Farm Structures

13.3.2 Only two farms have internal tracks with at-grade crossings of the disused line between Portishead and Pill. These are between Sheepway and The Portbury Hundred. Other farms will be unaffected by the reopening of the line as they either farm on only one side of the track or use road crossings.

Soils and Land Quality

13.3.3 The British Geological Survey's Geology of Britain Viewer shows the low ground to consist of marine alluvial deposits of clay and silt. The higher ground of Sheepway and between the M5 and Pill is composed of Mercia Mudstone overlain by drift deposits of Head and terrace gravels.

13.3.4 The only soil map of the area is the 1:250,000 scale Soil Map of South West England published by the Soil Survey of England and Wales in 1983. This is accompanied by the Regional Bulletin, *Soils and their use in South West England*. The marine alluvium is shown as the Newchurch association of waterlogged calcareous clayey and silty soils. The higher ground has the Whimple 1 association of loamy over clayey soils.

13.3.5 The Agricultural Land Classification maps available on Defra's MAGIC website show the alluvial soils to be Grade 4 (poor quality agricultural land) and the higher ground to be Grade 2 (very good quality agricultural land).

Assets

13.3.6 A major oil pipeline serving Portbury Dock crosses the disused railway section south of Sheepway. Works in the vicinity of the oil pipeline may require consent under Section 16 of the Land Powers (Defence) Act 1958.

- 13.3.7 A wastewater pumping station operated by Wessex Water is located near to the disused railway.
- 13.3.8 Some fishing ponds are located near the eastern portal of Pill Tunnel. In the past, drainage from Pill Tunnel has affected water quality in the fishing lakes. Network Rail has installed settlement and pollution control to reduce the discharge of fines to the lake from drainage water.

13.4 Potential Impacts, Mitigation and Residual Impacts

Portishead Branch Line (MetroWest Phase 1) Project

- 13.4.1 A summary of the potential impacts, mitigation and residual impacts is presented in Table 13.1 below. Provided these mitigation measures are put in place, the residual impact on agriculture should not be significant.

Table 13.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Soils, Agriculture, Land Use and Assets

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Construction activities</i>				
Temporary use of adjoining land for access, compounds, plant and equipment, etc.	Disturbance to agricultural land	Soil and grassland	Remediation of compaction and drainage and re-sowing of grass	None
Closure of farm crossings	Severance of farm activities	Severed fields / livestock / livelihood	Provision of temporary access, as required	None
Fencing off the construction site	Risk of livestock straying onto line	Farm livestock	Fence working areas	None
Accidental risks to assets on adjoining land	Damage to the asset and result loss of power, telecoms, or oil spillage	Utility infrastructure including the oil pipeline	Identify all assets crossing and close to construction sites Good construction practices to avoid damaging assets	None
Permanent land-take for the Pill Tunnel emergency access	Change in land use	Land required for access	Minimise land-take	Negligible
<i>Operation activities</i>				
Permanent closure of at grade crossings for operations and H&S	Closure of farm crossings	Severed fields	Provision of permanent alternative accesses	None
Pollution of drainage from the tunnels	Quality of receiving waters	Receiving waters including fishing ponds by Pill	Drainage design including pollution control on outfalls	Negligible
Train service	Risk of livestock straying onto line	Farm livestock	Fence the line	None

Cumulative Impacts of MetroWest Phase 1

- 13.4.2 As the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback do not affect agricultural land, there will be no cumulative effects on soils and agricultural land use.

13.5 Methodology

Guidance and Best Practice

- 13.5.1 The assessment on land use and agricultural land will follow the Highways Agency's Design Manual for Roads and Bridges ("DMRB"), Volume 11, Section 3, Part 6 on agriculture, which assesses the effects on agricultural land from land-take, the type of husbandry, severance and major accommodation works for access, water supply, and drainage.

Definition of the Study Area

- 13.5.2 The study area for the agricultural assessment comprises farm units beside the disused railway line between Portishead and Pill that could be affected by severance or temporary land-take for construction.
- 13.5.3 For community assets, the study area extends to 250m either side of the railway line.

Construction Impacts for the Project

- 13.5.4 Construction work will largely be within the boundary of the railway. Any disturbance to agricultural land will be of small extent and temporary in nature. Livestock may be at risk of straying onto the line. Three at-grade farm crossings between Sheepway and The Portbury Hundred will be closed when construction work begins.
- 13.5.5 Closure of the three farm crossings will be permanent and mitigation will be required to replace partially the closures. Proposals for mitigation will be discussed with the affected farmers. If an agreement on mitigation is reached between North Somerset Council ("NSC") and affected farmers, it is proposed to scope out further assessment. If agreement is not reached, the assessment of the impact on new severance on farm operations will be based on professional judgement of a suitably qualified agricultural consultant.
- 13.5.6 There may be some indirect impact on the land and livestock due to dust deposition and construction noise. The air quality and noise assessment will be reviewed by a suitably qualified agricultural consultant who will reach a professional judgement on whether these impacts are likely to affect farm operations significantly. The risk of animals straying onto the line will be mitigated by providing livestock fencing and is proposed to be scoped out of the ES.
- 13.5.7 At present no consideration has been given to the need for temporary land-take for construction. If it is decided that such temporary land-take is required, for example, for the temporary storage of stockpiles of materials and waste, tracking materials and waste to and from the construction railway corridor, and other activities, then a qualitative assessment of impacts on the land will be undertaken by a suitably qualified agriculturalist. This may include the risk of soil compaction, accidental spillages of hydrocarbons, or pollution from contaminated ballast on agricultural land quality.

Operational Impacts for the Project

- 13.5.8 As there will be no operational impacts on farmland and the viability of farm units it is proposed to scope out the assessment of operational impacts of the Project on agriculture.

Cumulative Effects

- 13.5.9 The cumulative effects associated with other committed development along the disused section of the railway between Portishead and Pill will be assessed based on a review of planning applications on the NSC planning portal and their likely in combination effects with the Project.
- 13.5.10 There will be no cumulative effects arising from the Project in combination with the other components of MetroWest Phase 1, given that the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback will all be located within Network Rail land, and are small projects located in urban areas (Bedminster and Avonmouth) and at considerable distance from the disused section of the Project. Consequently, it is proposed to scope out the assessment of cumulative effects for the other MetroWest Phase 1 works.

14 Transport, Access and Non-Motorised Users

14.1 Introduction

14.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on transport, access and non-motorised users impacts. This Chapter:

- describes the transport, access and non-motorised users baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant transport, access and non-motorised users effects in the Environmental Statement ("ES"); and
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

14.1.2 This chapter provides details about the scope of the full Transport Assessment ("TA") to be submitted in support of the Development Consent Order ("DCO") for the implementation of Portishead Branch Line (MetroWest Phase 1) Project. The TA will be a standalone document, and a summary of it will be presented in the ES.

14.1.3 Formal agreement on the scope of the TA will be sought from the client team and stakeholders in advance of the preparation of the TA and particular attention will be given to the definition of the extent of any necessary survey work.

14.1.4 MetroWest Phase 1 is providing a rail branch line which will change transport patterns, these changes will be reported in the TA. Most of the construction activity will be associated with the Portishead Branch Line (MetroWest Phase 1) Project, which may impact local road networks in Pill and Portishead. The remaining works associated with MetroWest Phase 1, namely, the Portbury Freight Line (except for Ashton Gate Level Crossing and Barons Close Pedestrian Crossing which form part of the Portishead Branch Line Project), Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, are small scale and likely to be of short construction duration and would not create transport impacts.

14.2 Policy and Legislative Framework

14.2.1 The legal and policy framework within which the SoS will determine Development Consent order ("DCO") applications for transportation projects is set out in Chapter 4. The National Policy Statement for National Networks (2014) ("NPS") advises on the assessment of impacts on transport networks within ESs for nationally significant infrastructure project ("NSIP") applications at paragraphs 5.201 - 5.218. Applicants are advised to have regard to the policy set out in local plans, to consult the relevant highway authority and local planning authority, as appropriate, and to consider reasonable opportunities to support other transport modes in developing infrastructure. As part of this, the applicant should provide evidence that they have used reasonable endeavours to address any existing

severance issues that act as a barrier to non-motorised users. For rail developments subject to environmental impact assessment ("EIA") that are likely to have significant environmental impacts arising from impacts on transport networks, the ES should describe those impacts and mitigating commitments. In all other cases the applicant's assessment should include a proportionate assessment of the transport impacts on other networks as part of the application. Considerations to be taken into account by the Secretary of State ("SoS") in determination of an application for a DCO are described.

14.3 Baseline Conditions

- 14.3.1 The strategic highway network provided by the M5 traverses from north to south to the west of Bristol. Junctions 18a and 18 in Shirehampton on the north side of the River Avon connect to the A4 into Bristol. Junction 19 Gordano connects with the A369 between Portishead and the centre of Bristol along the south side of the River Avon. The A369 Portishead to Bristol corridor suffers congestion and journey time reliability problems. The B3128 and B3130 provide more circuitous routes into Bristol via the A370 from Long Ashton and the Park and Ride to the south west of Bristol. South of Portishead, the B3124 links Portishead with Clevedon and other settlements along the North Somerset coast whilst the unclassified Clapton Lane provides a further link to Nailsea.
- 14.3.2 The Portishead railway line was closed in 1964 under the Beeching cuts, although the line was used for freight trains serving heavy industry in Portishead until 1985. In 2002 a major part of the line was reopened between Royal Portbury Dock and Bristol as a freight only line ("the Portbury Freight Line").
- 14.3.3 There are numerous Public Rights of Ways ("PRoWs") including bridlepaths, footpaths and cyclepaths within 500m of the Scheme. Two PRoW are of particular significance. Bridleway (LA 15/21/20) and Sustrans Route 26 use part of the disused railway line. There is a tow path on the west shore of the River Avon which is also used for maintenance access to the Portbury Freight Line.
- 14.3.4 Due to their scale and location on the rail network the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback scheme components are not likely to have a transport impact to the local road network.

14.4 Potential Impacts, Mitigation and Residual Impacts Portishead Branch Line (MetroWest Phase 1) Project

- 14.4.1 Table 12.1 summarises the potential impacts and mitigation arising from the project.

Cumulative Impacts of MetroWest Phase 1

- 14.4.2 Table 14.2 provides a summary of the wider impacts of MetroWest Phase 1 outside the DCO application area.

Table 14.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Transport, Access and NMUs

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Construction of stations	Potential changes in traffic management arrangements	Local highway users, and residents / business in the area	Unknown at this stage	Unknown at this stage
Line construction	Potential changes in traffic management and access arrangements	Users of existing PROWs near the station	Unknown at this stage	Unknown at this stage
Operation activities				
Walk/cycle demand to access Portishead station	Changes in uses of foot/cycle paths	Users, and residents / business in the area	Improvements to routes	Unknown at this stage
Vehicular demand (bus, taxi, car) to access Portishead station car park	Changes in travel demand in Portishead, abstraction from other routes / modes	Local highway users, and residents / business in the area	Traffic management solutions to be considered	Unknown at this stage
Walk/cycle demand to access Pill station	Changes in uses of foot/cycle paths	Users, and residents / business in the area	Improvements to routes	Unknown at this stage
Vehicular demand (bus, taxi, car) to access Pill to use the station	Changes in travel demand in Pill, abstraction from other routes / modes	Local highway users, and residents / business in the area	Traffic management solutions to be considered	Unknown at this stage
Increased use of Ashton Gate level crossing	Increased traffic congestion Safety issues	Local highway users, and residents / business in the area	Consider schemes such as re-routing traffic/new crossings. The safety issues would be considered as part of the GRIP 3 work	Unknown at this stage

Table 14.2. Potential Cumulative Impacts, Mitigation and Residual Impacts on Transport, Access and NMUs

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Construction activities</i>				
Construction of scheme components outside the DCO scheme extent	Potential changes in traffic management and access arrangements	Transport users in and around Bedminster, Avonmouth, and Bathampton affected by construction (to be determined when the construction management plan is progressed).	Unknown at this stage	Unknown at this stage
<i>Operation activities</i>				
Increased use of level crossings on the Severn Beach line	Increased traffic congestion Safety issues	Local highway users, and residents / business in the area	Consider schemes such as re-routing traffic/new crossings. The safety issues will be considered as part of the GRIP 3 work	Unknown at this stage
Possible local vehicular demand associated scheme	Traffic congestion	Local highway users, and residents / business in the area	Traffic management solutions to be considered	Unknown at this stage

14.5 Methodology

General Approach

- 14.5.1 In the National Planning Policy Framework (NPPF, 2012), paragraph 32 sets out all developments that generate significant amounts of transport movement should be supported by a TA. In identifying the need for a TA, the scale and level of detail should be established early in the development management process. This may include:
- Information about the proposed development, site layout including the proposed transport access and layout across all modes of transport;
 - Information about neighbouring uses, amenity and character, existing functional classification of the nearby highway network;
 - Data about the existing public transport provision including the provision and frequency of services and the proposed public transport changes;
 - A qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from the development and in the vicinity of the site;
 - An assessment of trips from all directly relevant committed development in the area ;
 - Data about current traffic flows on links and at junctions within the study and the identification of critical links and junctions;
 - An analysis of injury accident records in the most recent three or five year period;
 - An assessment of the likely associated environmental impacts of transport related to the development (such as air quality management areas);
 - Measures to improve the accessibility of the location (such as footway and cycleway links);
 - Description of parking facilities in the area and the parking strategy of the development;
 - Ways of improving sustainability by reducing the need to travel; and
 - Measures to mitigate the residual impacts of the development.
- 14.5.2 The TA will be further informed by Network Rail's MetroWest Phase 1 GRIP 3 work and the transport modelling and assessment work supporting the Outline Business Case. A detailed TA Scoping Note has been prepared for the purpose of aiding formal scoping meetings with the relevant highway authorities, being North Somerset Highways and Bristol City Highways.

Existing Conditions

Existing Land Uses

- 14.5.3 A review of existing land uses has been undertaken, and this will be reviewed and presented for the TA. This is to give context to the potential trip generation that will form later sections of the TA.

Committed Development

- 14.5.4 NPPF indicates an assessment of trips from all directly relevant committed development in the area (essentially development that there is a reasonable degree of certainty will proceed within the next three years) should be undertaken. A review will be undertaken

with North Somerset Council ("NSC") regarding likely committed developments in the vicinity of the proposed Portishead and Pill stations.

Existing Highway Network and Flows

- 14.5.5 The TA will provide an overview of the highway hierarchy that serves Portishead and Pill. The focus is to understand the importance of the function that each link plays and understand the highway layout and characteristics. This will be underpinned by an analysis of traffic count flow data.

Existing Parking Conditions

- 14.5.6 An assessment of existing parking conditions around the proposed station locations will be undertaken. This is particularly important given the proposals for a charging regime which could have a detrimental impact on neighbouring streets. As a result, it is important to understand both the provision of parking, including any Traffic Regulation Orders ("TRO"), and the level of parking across the day.

Existing Accidents

- 14.5.7 Historical accident data will be collated for a five year period for the locations surrounding the preferred station option. An analysis of the data by severity and cause will be undertaken to determine whether the data show evidence of any accident clusters and the possible contributory effects such as highway layout. The analysis will also examine any accidents involving vulnerable users such as pedestrians and cyclists.

Existing Public Transport Provision

- 14.5.8 The baseline review of public transport services will look at both existing commercially operated and council funded public transport services. The focus of the review within the TA is to look at the extent to which the proposed station sites can be easily accessed by services using existing stops. This will also consider the extent of cross ticketing arrangements such as Plus Bus which could facilitate integrated public transport journeys.

Existing Pedestrian and Cycling Networks

- 14.5.9 In assessing the baseline conditions, the proposed methodology will be to assess the extent and quality of pedestrian links to and from the station locations within the standard 400m threshold. The TA will also assess the extent of rights of ways in the area and the potential for community severance. For cycling provision, a standard 5km threshold will apply.

Assessment of Impacts

Trip Generation and Assignment

- 14.5.10 To inform the trip generation, assignment and distribution, outputs from both the Greater Bristol Area Transport Study ("GBATS") and the Rail Demand Model ("RDM") will be used.
- 14.5.11 GBATS is the multi-modal model for the greater Bristol area which has been developed to be compliant with, and has been used to assess, a number of schemes in the area that have been given funding approval by the DfT. GBATS produces matrices of trips and journey data (time, cost and distance) for three time periods (AM peak, inter-peak and PM peak hours) and several modes (car, bus, rail and bus rapid transit) also subdivided by user class (commuting, other home based trips and business journeys) and income level of travellers.
- 14.5.12 The RDM is a combination of bespoke spreadsheet models and rail data to assess rail enhancements offered by MetroWest Phase 1. There are three main elements as follows:

- trips at new stations (on existing and re-opened lines) - trips will be by foot, cycle, bus, taxi and car (parked and drop off);
 - diversion of existing car and public transport trips to new stations; and
 - changes in rail demand at existing stations from new or amended services (including suppression of demand by extra station calls).
- 14.5.13 The models will be used to provide details of the trip generation at the stations. The models are being developed to forecast trip generation in 2021 (a proxy for the project opening year) and 2036 (the design year taken as 15 years after opening). The methodology will be based on the wider transport model for the project and will be agreed with the client team and subsequently clearly identified and explained within the TA.
- 14.5.14 The generated vehicular trips will be assigned to the highway network and compared against existing traffic flows in order to understand the relative traffic impact arising from the proposed project.
- 14.5.15 The directional distribution at some of the access / egress points for the proposed stations will be governed by on-street restrictions (e.g. left-in, left out arrangements). Where no restrictions are in place or proposed, the directional distribution of traffic generated by the proposed development will be based on existing movements within the area. The assumptions made with regards to the arrival and departure routings will be set out in the TA.

Highway Impacts

- 14.5.16 Junction capacity will be tested through a number of scenarios which will include:
- the existing situation (Base Year 2015);
 - the opening year baseline situation without development (without project 2021);
 - the opening year baseline situation with development (with project 2021);
 - the horizon year situation without development (without project 2036); and
 - the horizon year situation with development (with project 2036).
- 14.5.17 The TA will include an assessment of the impact of the proposals in conjunction the committed development in the vicinity of the site, to take account of any new major traffic flows they may generate on the local highway networks. Areas to be included in the junctions:

Portishead junctions

- Quay Avenue, Phoenix Way and Harbour Road
- Station Road and Harbour Road
- Cabstand and High Street
- Quays Avenue, Serbert Way, and Wyndham Way
- Portbury Common, Wyndham Way, Sheepway and Portbury Hundred

Pill junctions

- Lodway, Station Road and Heywood Road
- Station Road, Monmouth Road and Back Lane

Others

- Ashton Vale Road (Ashton Gate)

- M5 Junction 19

14.5.18 Industry standard software such as JUNCTIONS8 will be used to model capacity of junctions in the local area. JUNCTIONS8 will be used to assess roundabout and priority junction capacity in terms of queues and delays. The software will be applied to any new junctions at the proposed station access/egress points. Any isolated signalised junctions will be modelled using LINSIG.

Public Transport Impacts

14.5.19 The TA will outline the interchange and the connection opportunities between existing public transport services. The focus will be on existing timetabling although it has to be recognised that commercially operated bus services can change following notification to the Traffic Commissioner. In addition, the new rail service is likely to impact on the demand for the existing commercially operated bus services particularly to Bristol.

Walking and Cycling Impacts

14.5.20 The TA will examine the impact of the project on walking and cycling routes particularly along desire lines. The focus will be ease of accessing the new station and whether further enhancement to encourage modal shift may be required. Assessments will set out compliance with the Equality Act.

Mitigation of Development Impacts

Overview

14.5.21 The TA will identify any necessary measures to mitigate the impacts of the additional traffic and person trips generated by the development proposals. The mitigation measures may include hard measures such as off-site highway works to improve junction capacity, improvements to pedestrian and cycle infrastructure, increased frequency to public transport services, and improvements to public transport infrastructure surrounding the proposed railway stations. Soft mitigation measures would be detailed within the Travel Plan.

14.5.22 In terms of the mitigation, if there are any off-site highway works to improve junction capacity, the proposed layout will be tested using the same methodology and software as outlined earlier.

Transport Implementation Strategy

14.5.23 The proposed TA will include a separate section on a Transport Implementation Strategy. Effectively this brings together all the various interventions that will be required to support the scheme proposal and to mitigate against any identified adverse impacts. The strategy will include elements such as a construction management plan and importantly, a travel plan.

Outline Travel Plan

14.5.24 An outline travel plan will be submitted as part of the mitigation proposals. The travel plan will comprise a number of elements as follows:

- mode share targets;
- travel information and marketing;
- the need for a Travel Plan Co-ordinator;
- monitoring and review mechanisms;
- draft action plans; and

- details on securing the travel plan and how it will be funded.

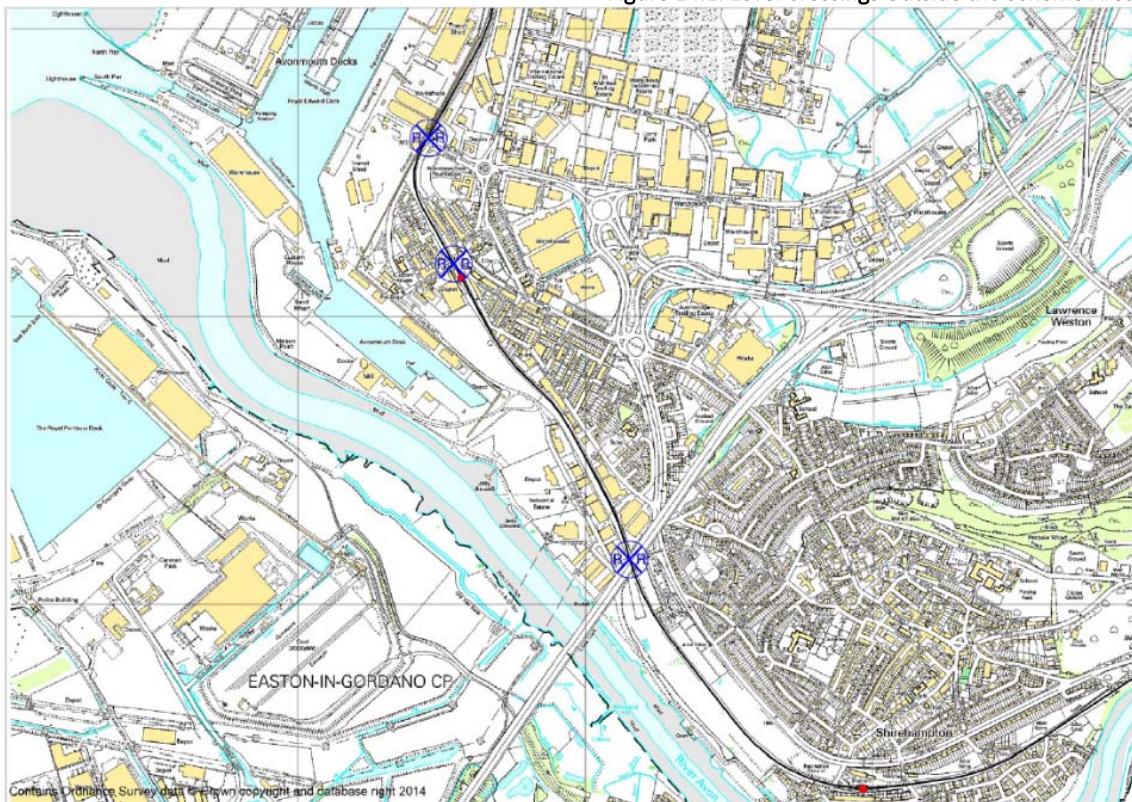
Construction Management Plan

- 14.5.25 An outline of the construction management plan will be included within the TA. There are two principal traffic related impacts associated with the works - these being personnel engaged on the building works and the delivery of materials and equipment.
- 14.5.26 In terms of the former, parking areas either on site or away from the site will need to be identified and should be timed not to impact with peak times on the local highway network. With heavy goods vehicles ("HGV"), designated routes will be required with the aim of minimising any negative impacts on the immediate neighbourhood.
- 14.5.27 Opportunities to minimise the impacts of HGVs and other construction traffic on the local residential impacts will be explored with the design team and Network Rail

Cumulative Effects

- 14.5.28 The TA will include an assessment of the cumulative impact of the proposals on the wider highway network. The highway and rail transport modelling is of sufficient geographical scope to consider the wider changes in rail passenger demand and traffic flows. The works associated with MetroWest Phase 1, but outside the Portishead Branch Line and Portbury Freight Line, namely, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback, are small scale and likely to be of short construction duration and would not create highway transport impacts.
- 14.5.29 The cumulative assessment will consider the impact of increased rail use of the level crossings outside the DCO Application Area as shown in Figure 14.1.

Figure 14.1. Level Crossings Outside the Scheme Area



- 14.5.30 The assessment of impacts will be informed by Network Rail's GRIP work. This will determine both the minimum average barrier down time together with the number of cycles associated with the MetroWest Phase 1 proposals compared to existing level crossing down times for existing passenger train movements.

- 14.5.31 A number of scenarios will test the highway impacts as follows:
- the existing situation (Base Year 2015);
 - the opening year baseline situation without the project (without project 2021);
 - the opening year baseline situation with the project (with project 2021);
 - the horizon year situation without the project (without project 2036); and
 - the horizon year situation with the project (with project 2036).
- 14.5.32 Consideration will also be given to the impacts for non-motorised users and community severance. The TA will include an assessment of the cumulative impact of the proposals in conjunction the committed development in the vicinity of the site, to take account of any new major traffic flows they may generate on the local highway network.
- 14.5.33 Industry standard software such as JUNCTIONS8 will be used to model capacity of junctions in the local area. JUNCTIONS8 will be used to assess roundabout and priority junction capacity in terms of queues and delays. Any isolated signalised junctions will be modelled using LINSIG. If any adverse impacts are identified, mitigation measures may be proposed. These will be tested using the same methodology and software as outlined above.

Reporting

Proposed TA Report Structure

- 14.5.34 On the basis of the above, the following structure is proposed for the TA.
- Section 1 Introduction - This will formally introduce the TA and its contents. It will make reference to the agreed scoping, methodologies and approach following discussion. The introduction will also outline the extent of the TA of the Portishead Branch Line (MetroWest Phase 1) project and other elements of the project that may fall outside the DCO application area.
 - Section 2 Policy Context - This section will provide detail of the relevant national and local policies. The aim of this section is to demonstrate, in so far, how the project is aligned with national and local policy objectives and will meet intended outcomes.
 - Section 3 Existing Conditions - This will outline the existing conditions of the project area. This will include an analysis of the site locations and current land uses and committed developments. Existing patterns of travel will be assessed together with an analysis of the local highway network. This will include an assessment of existing traffic flows, parking levels and traffic accident data. The section will be completed by an assessment of existing public transport provision and walking and cycling networks including count data where available.
 - Section 4 Project Proposals - The aim of this section is to outline the project proposals from a transport perspective. This will include detail of the project elements including access arrangements, changes to crossing points along the railway alignment, changes to right of ways and parking. The project proposals will also consider the proposed service frequencies and the impacts these may have.
 - Section 5 Impact Methodology - This section will outline the methodology and approach to assess the project impact. This will detail the assumptions that have been used to underpin the assessment, the calculation of trips (from both the GBATS4 and Rail Demand Model), the distribution of traffic, calculation of traffic growth and the assignment of traffic across the network.
 - Section 6 Impact Assessment - This section will analyse the impact of the project against the existing baseline and future horizon year assessment periods. This will

include the impacts on identified junctions and parking using appropriate software. Impacts in terms of accessing station sites by public transport, walking and cycling will be considered.

- Section 7 Mitigation and Assessment - The aim of this section is to consider whether mitigation is required to offset concerns identified in the previous section. If so the mitigation will be tested with appropriate software to assess if it address the concerns identified.
- Section 8 Transport Implementation Strategy - This final section summarises the various interventions required to support the project and to mitigate any identified adverse impacts. This will include a construction management plan, servicing and waste strategy and travel plans.
- Section 9 Conclusions and recommendations - The TA will conclude by reviewing the evidence and assessment contained within it together with appropriate recommendations.

Environmental Statement

- 14.5.35 Together with the TA, inputs into the ES will be required and assessments undertaken to provide a Transport Section of the document, this will be prepared in accordance with the *Guidelines for the Environmental Assessment of Road Traffic* (IEMA, 1993).
- 14.5.36 It is anticipated that the opening year and future baseline years may need to be assessed in terms of traffic-related air quality and noise. If necessary the requirement will be to convert the peak hour flows into daily Annual Average Daily Traffic ("AADT") and Annual Average Weekly Traffic ("AAWT") 18 hour flows to provide the impact assessment for these outputs. The approach for the air quality and noise assessments are discussed in Chapters 5 and 11.

15 Water Resources, Drainage and Flood Risk

15.1 Introduction

15.1.1 The Portishead Branch Line (MetroWest Phase 1) Project has the potential to give rise to likely significant effects on water resources, drainage and flood risk impacts. This Chapter:

- describes the water resources, drainage and flood risk baseline having regard to existing information and information presented in a separate Baseline Report;
- describes the relevant legal and policy framework which will inform the undertaking of the assessment;
- identifies the potential impacts that could result from the Project, the mitigation that is likely to be proposed and the nature of likely residual impacts;
- describes the methodology proposed to be used for the identification and assessment of likely significant water resources, drainage and flood risk effects in the Environmental Statement ("ES");
- considers the potential effects that it is proposed to scope out of the assessment and describes those projects in respect of which cumulative impact assessment is proposed.

15.1.2 This topic covers water quality and water quantity relating to surface water features such as rivers, streams, ponds, lakes, estuaries and coastal waters, and to groundwater bodies. Groundwater is also considered with respect to its interaction with surface water resources. Water quantity considers water as a resource (e.g. availability for consumption and dilution of discharges). The physical impacts upon surface water features (e.g. river morphology) will also be considered.

15.1.3 Flood risk will be covered in a separate flood risk assessment ("FRA"). The FRA will summarise existing flood risk within the development area and constraints arising from flood risk considerations for the project. The FRA will be undertaken following consultation meetings with the Environment Agency and other stakeholders to establish design constraints relating to flood risk, appropriate risk assessment methods and assessment criteria, and information available to support the baseline FRA (e.g. Environment Agency flood maps and hydraulic model results). The baseline FRA will also draw from other readily available information such as the National Planning Policy Framework (NPPF, 2012), Strategic Flood Risk Assessments, and Shoreline Management Plans.

15.1.4 The environmental assessment will focus on the Portishead Branch Line (MetroWest Phase 1) Project. The potential impacts of the Portbury Freight Line, Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling, and Bathampton Turnback will be considered as part of the cumulative effects assessment.

15.1.5 To date baseline data have been collected through desk based research and through consultation with the Environment Agency. The results are presented in the Baseline Report and a summary is presented below.

15.2 Legislation and Policy Framework

Legislation

Water Framework Directive (2000/60/EC)

15.2.1 The Water Framework Directive ("WFD") has been transposed into English law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

The WFD introduced a new system for monitoring and classifying the quality of surface and groundwaters. The Directive requires that Environmental Objectives are set for all surface waters and groundwater so that management measures are put in place to achieve Good Ecological Potential/Status by a defined date.

The Floods Directive (2007/60/EC)

- 15.2.2 The Floods Directive is implemented in England by the Flood Risk Regulations 2009, which aim to provide a consistent approach to managing flood risk across Europe. The approach is based on a six year cycle of planning (to be consistent with the WFD). The Regulations outline the duties of the Environment Agency and Lead Local Flood Authorities in relation to flood risk management activities and planning.

Water Resources Act 1991

- 15.2.3 The Water Resources Act (as amended) governs the quality and quantity of water. It sets out the functions of the Environment Agency. Part II of the Act provides the general structure for the management of water resources. Part III then explains the standards expected for controlled waters and what is considered as water pollution. Part IV provides information on mitigation through flood defence. Controlled waters are defined in section 104 of the Act and Main Rivers in Section 113.

Land Drainage Act 1991

- 15.2.4 The Land Drainage Act 1991 (as amended 1994) requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The Act also sets out the restrictions and consents required for development, within, over, under or adjacent to watercourses.

Water Act 2003

- 15.2.5 The Water Act 2003 amends the Water Resources Act 1991 and the Water Industry Act 1991 to make provision in connection with land drainage and flood defence and amends the Reservoirs Act 1975 to make provision about contaminated land in so far as it relates to the pollution of controlled waters. The Water Act sets out the framework for abstraction licensing, regulates impoundments, increases competition in water supply and includes measures for drought management and flood defence works in England and Wales.

Flood and Water Management Act 2010

- 15.2.6 Part 1 of the Act gives the Environment Agency a strategic overview of the management of flood and coastal erosion risk in England. It also gives upper tier local authorities in England responsibility for preparing and putting in place strategies for managing flood risk from groundwater, surface water and ordinary watercourses in their areas. The Environment Agency, local authorities and other bodies are given duties and powers that relate to these responsibilities directly by this Act, and by way of amendments made by this Act to the Water Resources Act 1991 and the Land Drainage Act 1991. Part 2 includes provisions on sustainable drainage, reservoirs, special administration, provision of infrastructure, temporary bans on non-essential uses of water, civil sanctions, and incidental flooding of land, flood resistant repairs to property, compulsory works orders and agreements on new drainage systems.

Environmental Permitting (England and Wales) Regulations 2010

- 15.2.7 The Environmental Permitting (England and Wales) Regulations 2010 (as amended) provide for the regulation of specified installations and controls over emissions to the environment. The Regulations replace those parts of the Water Resources Act 1991 that relate to the regulation of discharges to controlled waters (including groundwater). Under

the Regulations, groundwater activities relate to inputs of pollutants to groundwater. The Regulations also replace the Groundwater Regulations 2009 which in turn recently replaced the Groundwater Regulations 1998.

National / Regional / Local Policy

- 15.2.8 The National Policy Statement on National Networks (2014) ("NPS") advises on the assessment of the effects of nationally significant infrastructure projects ("NSIP") on the water environment at paragraphs 5.219 - 5.231 and on flood risk at paragraphs 5.90 - 5.115. Advice to applicants on the content of assessments where a development is likely to have significant adverse effects on the water environment requires provision of information on the existing quality of waters affected by the proposed project, existing water resources affected by the proposed project and the impacts of the proposed project on water resources, existing physical characteristics of the water environment and any impact of physical modifications to these characteristics, any impacts of the proposed project on water bodies or protected areas under the WFD and source protection zones ("SPZ") around possible groundwater abstractions, and any cumulative effects. Advice on the approach to flood risk assessment, which is required to accompany applications for projects in Flood Zones two and three with medium and high probability of river and sea flooding, is given to applicants. Reference is also made to planning guidance in the NPPF. The NPS advises on the considerations to be taken into account by the Examining Authority and the SoS in determining applications for DCOs.
- 15.2.9 The NPPF and its accompanying *Technical Guidance; Flood Risk and Coastal Change Planning Practice Guidance* (C&LG, 2014) provide advice to planning authorities in relation to flood risk and development. The NPPF replaces Planning Policy Statement 25, *Development and Flood Risk*. The accompanying technical guidance outlines the considerations for developments in relation to flood risk by ensuring that inappropriate development in areas at risk of flooding is avoided. This is achieved by undertaking a sequential test which directs development away from areas at highest risk and aims to locate new development in Flood Zone 1 (low probability). A site specific flood risk assessment is carried out which documents the sequential test and demonstrates how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now, and taking climate change into account.
- 15.2.10 The Environment Agency is the statutory body responsible for the protection and management of groundwater resources in England. Groundwater protection: Principles and practice (commonly referred to as "GP3") sets out the aims and objectives for groundwater, technical approaches to its management and protection and outlines the approach to the application of relevant legislation.

15.3 Baseline Conditions

Portishead Branch Line and Portbury Freight Line

- 15.3.1 The main features of the surface water environment along the Portishead Branch Line are the River Avon and several watercourses and drains which form tributaries of the Avon. The named watercourses include Portbury Drain, New Cut Drain, Drove Rhyne Drain, Easton-in-Gordano Stream, Markham Brook, Longmoor Brook, Ashton Brook and Colliter's Brook. Most of the tributaries of these watercourses are un-named. The project passes through the floodplain of these watercourses.
- 15.3.2 Downstream of Pill the River Avon forms part of the Severn Estuary Special Area of Conservation ("SAC"), Special Protection Area ("SPA"), Ramsar site and Site of Special Scientific Interest ("SSSI"). The tidal nature of the lower reaches of the Avon, along with its size and capacity to provide dilution of pollutants, is such that any pollution event is unlikely to cause a significant change in water quality. Similarly changes to the drainage

regime of the tributaries of the River Avon are likely to be negligible compared to the flows in the tidal River Avon. Thus impacts of water quality changes on the River Avon have been scoped out of further assessment. Flood risk aspects pertaining to the Avon will be covered in the baseline FRA.

- 15.3.3 The aquifers within the study area range from Principal Aquifer to Secondary B Aquifer as classified by the Environment Agency. The superficial deposits (where they occur) are classified as Secondary A and Secondary undifferentiated. There are no SPZs within 2km of the Portishead Branch Line.
- 15.3.4 Water management in the area is undertaken by the Environment Agency, North Somerset Internal Drainage Board ("IDB") and North Somerset Council ("NSC"). Public water supplies are provided by Bristol Water plc and the sewerage undertaker for the area is Wessex Water.
- 15.3.5 While the baseline FRA will be completed following a consultation meeting with the Environment Agency and other stakeholders, readily available information identifies that:
- the disused railway line between Portishead and Pill is partly within the fluvial/tidal floodplain, although there are some defences from tidal flooding (both natural and man-made);
 - parts of the disused railway alignment are within the fluvial 30-year return period flood extent (i.e. probably considered to be within Flood Zone 3b);
 - agreements will be required with the Environment Agency and other stakeholders regarding the Flood Risk Vulnerability classifications and how these may impact the Project;
 - the disused railway and proposed Portishead and Pill stations are not directly affected by River Avon flooding, although high flood/tide levels in the River Avon may exacerbate fluvial flood risk by tide-locking of watercourses;
 - there are localised areas of surface water flood risk in the vicinity of the disused railway; and
 - there may be some potential for groundwater flooding.
- 15.3.6 Flood risk is projected to increase in the future as a result of sea level rise and climate change. The dominant increase in flood risk for the project is considered to be tidal flood risk resulting from increased sea levels. However, the Draft Severn Estuary Shoreline Management Plan Review ("SMP2") considers tide defences in the vicinity of the project will be improved in the future to keep pace with increased tidal flood risk. Fluvial and surface water flood risk are expected to increase as a result of increased extreme rainfall depths, with increased fluvial and surface water flooding extents. Increased sea levels will increase the risk of tide locking of inland watercourses and drainage systems.

Bedminster Down Relief Line

- 15.3.7 The Bedminster Down Relief Line passes over a watercourse called The Malago, which is culverted for the majority of its length and enters the River Avon in the centre of Bristol. This watercourse, which is designated as Main River, is not classified under the WFD. The River Avon at Avonmouth is classified under the WFD as being a heavily modified estuarine waterbody with Good Ecological Potential. The River Avon enters the Severn Estuary which is also a heavily modified estuarine waterbody. The Severn Lower has a classification of Moderate Ecological Potential and Good chemical quality. The Avonmouth Docks are also considered to be a part of the Severn Lower waterbody.
- 15.3.8 The Bedminster Down Relief Line crosses the floodplain associated with The Malago, with land to the north and south of the railway line being located within Flood Zone 2 (Medium

risk). However the railway is raised above the floodplain on an embankment in the location of the project.

- 15.3.9 No information is available at present on the existing drainage arrangements and outfalls from the operational railway to surface or groundwaters. The site is located within the Bristol Triassic Groundwater body and under the WFD is considered to have Good qualitative quality and Poor chemical quality. There are no SPZs or abstraction licences within the vicinity of the railway line in this location.

Severn Beach / Avonmouth Signalling

- 15.3.10 The two proposed locations for the Severn Beach / Avonmouth Signalling (MetroWest Phase 1) Project are located entirely within operational railway land and at some distance from the nearest watercourse, the River Avon. Option 6B requires a signal at Avonmouth station. Option 5B requires a signal somewhere between Avonmouth and Severn Beach, with the proposed location to be determined during GRIP 3. The preferred option will be determined during GRIP 3.
- 15.3.11 No information is available at present on the existing drainage arrangements and outfalls from the operational railway to surface or groundwaters. The proposed Avonmouth signal locations (Option 6B) are located within or close to Flood Zone 3 (highest risk). However the area is afforded protection from overbanking of the River Avon by flood defences. The site is located within the Bristol Triassic Groundwater body and under the WFD is considered to have Good qualitative quality and Poor chemical quality. There are no SPZs or abstraction licences within the vicinity of the proposed signal locations.

Bathampton Turnback

- 15.3.12 The Bathampton Turnback (MetroWest Phase 1) Project is located entirely within operational railway land. The River Avon lies to the north and the Kennet and Avon Canal to the south. The main flood risk is associated with overbanking of the River Avon onto its floodplain, with Flood Risk Zones 3 (highest) and 2 in the Avon Valley. Flood Risk zone 2 lies along the northern boundary of railway land in the vicinity of the Bathampton Turnback (MetroWest Phase 1) Project. The railway lies on an embankment across the floodplain, which provides some degree of flood protection. No information is available at present on the existing drainage arrangements and outfalls from the operational railway to surface or groundwaters.

15.4 Potential Impacts, Mitigation and Residual Impacts

- 15.4.1 **Portishead Branch Line (MetroWest Phase 1) Project**
- 15.4.2 Table 15.1 identifies the potential impacts for the project, potential mitigation measures and residual impacts.

Table 15.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Water, Drainage, and Flood Risk

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
Construction activities				
Pollution from site works runoff / sediment / spillage	Pollution of water resources Harm to aquatic habitats	Watercourses and other surface water features. Groundwater	Provision of settlement traps for temporary drainage. Site management to prevent spills etc. To be covered by a Construction Environmental Management Plan (“CEMP”).	Negligible to minor
Water resources use during construction (e.g. for concrete batching)	Local depletion of groundwater / surface waters	Rivers/ Groundwater	Early consultation with water supply companies and EA as required. Water use minimisation to be adopted during construction	Negligible to minor (dependent on sensitivity of resource and nature of water requirements)
Works on, in or nearby watercourses including temporary and permanent diversions	Risk of spillages, damage to the banks of watercourses, sedimentation and reduction of flow capacity	Watercourses and other surface water features Flood risk	Identify appropriate measures for work in, over, nearby watercourses. Use Pollution Prevention Guidance (“PPG”) and consult with the Environment Agency Obtain appropriate Land Drainage consents	Negligible to minor

Table 15.1. Potential Impacts, Mitigation and Residual Impacts of the Project on Water, Drainage, and Flood Risk

Aspect	Impact	Receptors	Potential Mitigation	Residual Impact
<i>Operation activities</i>				
Drainage from rail network, stations or associated development activities (e.g. car parks)	Pollution of surface and groundwaters	Watercourses and other surface water features. Groundwater	Use sustainable drainage measures where significant risks are identified	Negligible to minor
Physical changes to surface water features (e.g. new culverts, diversions).	Changes to conveyance of flows, including flood waters	Watercourses and other surface water features.	Agree necessary changes with the Environment Agency and IDB. Obtain appropriate Land Drainage Consents Incorporate enhancements (e.g. biodiversity enhancements such as mammal passes) and measures to address flood risk (e.g. flow controls)	Minor to significant
Water resources use during operation	Abstraction of water resources	Watercourses and other surface water features. Groundwater	Secure appropriate agreements with water suppliers	Negligible
Potential impacts from rail/station/ other asset maintenance activities	Risk of pollution of water resources	Watercourses and other surface water features. Groundwater	Develop and apply appropriate maintenance management tools	Negligible

Cumulative Impacts of MetroWest Phase 1

- 15.4.3 The cumulative effects will include the Portbury Freight Line, given its location along the River Avon and the short sections of the railtrack within the red line boundary for Ashton Gate Level Crossing and Barons Close Pedestrian Crossing which cross Ashton Brook and Colliter's Brook respectively and lie close to Flood Zones 2 and 3.
- 15.4.4 The construction works required for the Bedminster Down Relief Line, Severn Beach / Avonmouth Signalling and Bathampton Turnback are small scale, low magnitude, and confined within existing railway land. The environmental assessment of these works will be undertaken through Network Rail's GRIP process and the results of the environmental assessment will be reviewed as part of this EIA. However, given the nature of these works and the distances between these projects and the Portishead Branch Line, it is considered unlikely that there would be any cumulative effects during the construction of these projects on the water environment. Consequently, these works have been scoped out of the cumulative impacts assessment for Portishead Branch Line (MetroWest Phase 1) Project.
- 15.4.5 It is proposed to scope out the impact of additional train services to be provided under MetroWest Phase 1 from further assessment as it is not envisaged these changes will impact the water environment.

15.5 Methodology

Guidance and Best Practice

- 15.5.1 The assessment of impacts of the Portishead Branch Line (MetroWest Phase 1) on water resources will be based on the following guidance:
- The Department for Transport's Design Manual for Roads and Bridges ("DMRB") HD45/09 Volume 11 Section 3 Part 10, Road Drainage and the Water Environment; and
 - The Department for Transport's web-based Transport Appraisal Guidance ("WebTAG").
- 15.5.2 The identification of the nature of impacts and appropriate mitigation measures will be based upon the following guidance and best practice:
- Environment Agency Pollution Prevention Guidance Notes ("EA PPG");
 - CIRIA guidance (e.g. *The potential for water pollution from Railways C 643*).

Definition of the Study Area

- 15.5.3 For the purposes of the water environment assessment the study area is considered to be any surface water features within 250m of the Portishead Branch Line (MetroWest Phase 1) Project and Portbury Freight Line. For groundwater the study area extends to 500m from the railway. The study area for the baseline FRA will be established following consultations with the Environment Agency.

Construction Impacts for the Project

- 15.5.4 The assessment criteria adopted are largely based on the appraisal process identified in the Department for Transport's WebTAG and the derived environmental assessment approach in the Highways Agency's DMRB. Although the guidance applies to appraisal of road transport strategies and plans, the concepts adopted are applicable for other large linear transport developments. WebTAG specifically covers water environment appraisal under Unit A3.10, and similarly the DMRB covers environmental assessment for *Road Drainage and the Water Environment* in Volume 11 Section 3, Part 10: HD45/09 (referred

to herein as HD45/09). The criteria provided in the guidance to undertake a qualitative assessment will be applied to the Project, as the quantitative assessment criteria provided in this guidance is only relevant to road schemes.

- 15.5.5 Consultations will be undertaken with the Environment Agency and other stakeholders to identify constraints relating to temporary flood risk during construction (e.g. location of temporary stockpiles and site compound, temporary diversion of watercourses), appropriate flood risk assessment methods and assessment criteria, and information available to support the temporary flood risk assessment (e.g. Environment Agency flood maps and hydraulic model results).

Operational Impacts for the Project

- 15.5.6 The assessment of operational impacts will also be undertaken adopting the criteria derived from WebTAG and DMRB. The assessment will take into account the nature and management of the railway operations and will include discussions with Network Rail and rail operators regarding best practice. Consultation will be undertaken with the Environment Agency, the water utilities and other stakeholders as required to ensure that potential impacts during operations are properly identified. For example, consultations with Wessex Water will be required to ensure the sewage from the proposed development (e.g. at stations) can be accommodated within the existing sewerage system and the proposed design does not impact operation of the sewerage system.
- 15.5.7 Consultations will be undertaken with the Environment Agency and other stakeholders to identify operational constraints relating to flood risk, appropriate flood risk assessment methods and assessment criteria, and information available to support the baseline flood risk assessment (e.g. Environment Agency flood maps and hydraulic model results).

Cumulative Effects

- 15.5.8 The potential impacts related to the construction and operation of the Portishead Branch Line (MetroWest Phase 1) Project may have a cumulative effect when considered in combination with other (nearby) developments projects. The cumulative assessment will assess the scale and significance of these impacts and identify mitigation measures that may be required.
- 15.5.9 The cumulative effects of the works to the Portbury Freight Line will be considered further, based on discussions with the Environment Agency.
- 15.5.10 Other elements of MetroWest Phase 1, namely Bedminster Down Relief Line (MetroWest Phase 1), Severn Beach / Avonmouth Signalling (MetroWest Phase 1) and Bathampton Turnback (MetroWest Phase 1) have been scoped out of the water assessment and are therefore not included in the cumulative assessment. Any local drainage issues will be assessed by Network Rail through GRIP.
- 15.5.11 It is proposed to scope out the impact of additional train services to be provided under MetroWest Phase 1 from further assessment as it is not envisaged these changes will impact the water environment.

16 Environmental Statement

16.1.1 The information required to be provided by the applicant will be presented in an Environmental Statement ("ES"), which will be submitted to the Planning Inspectorate together with the Development Consent Order ("DCO") Application. The contents of the ES will be compliant with Schedule 4 of the EIA Regulations and best practice guidance published by the Department for Transport, the Planning Inspectorate, and professional organisations. The ES would most likely be prepared in four volumes:

- Volume 1: Non technical summary
- Volume 2: The Main Report - illustrated in the text box below.
- Volume 3: A book of figures
- Volume 4: Supporting technical appendices

Environmental Statement Main Report

Chapter 1:	Introduction
Chapter 2:	Description of the study area
Chapter 3:	Description of the project
Chapter 4:	Alternatives
Chapter 5:	Approach to the environmental assessment
Chapter 6:	Planning framework
Chapter 7:	Air quality – Chapters 7 to 18 subdivided as follows:
	Introduction
	Study area
	Legal and planning framework
	Approach to the assessment
	Baseline conditions
	Impact assessment and significance of effects
	Outline mitigation measures
	Residual impacts
	Difficulties encountered in compiling the ES
	Summary
Chapter 8:	Carbon
Chapter 9:	Cultural heritage
Chapter 10:	Ecology and biodiversity
Chapter 11:	Geology, hydrogeology, ground conditions and contaminated land
Chapter 12:	Landscape and visual impact
Chapter 13:	Materials and waste
Chapter 14:	Noise and vibration
Chapter 15:	Socio-economics and economic regeneration
Chapter 16:	Soils and agriculture
Chapter 17:	Transport, access and non-motorised users
Chapter 18:	Water resources, drainage and flood risk
Chapter 19:	Cumulative impact assessment
Chapter 20:	Outline environmental management plan
Chapter 21:	Conclusions
	Glossary
	References

17 Glossary

Term	Meaning
Aggregates	A broad category of coarse particulate material used in construction, including sand, gravel, crushed stone, slag, recycled concrete and geosynthetic aggregates. Aggregates are a component of composite materials such as concrete and asphalt concrete; the aggregate serves as reinforcement to add strength to the overall composite material.
Air Quality Management Area	Local planning authorities are required to designate Air Quality Management Areas (AQMA) where there is a risk that the air quality objectives will not be met by the deadlines determined in the legislation and prepare a Local Air Quality Management Plan to improve air quality.
Air Quality Strategy	Contains standards, objectives and measures for improving ambient air quality.
Alluvium	Unconsolidated clay, silt, and sand deposited by freshwater typically in the lower reaches of a river valley, often producing fertile soil.
Annual Average Daily Traffic	The total volume of vehicle traffic on a motorway or road for a year divided by 365 days.
Annual Survey of Hours and Earnings	Annual Survey of Hours and Earnings provides data on levels, distribution and make-up of earnings and hours worked for UK employees by sex and full-time/part-time status in all industries and occupations.
Approximated Social Grade	The approximated social grade is a socio-economic classification system produced by the Office for National Statistics (“ONS”), based on six categories (A, B, C1, C2, D and E). It applies to every Household Reference Persons (“HRP”) aged 16 to 64.
Asbestos	A naturally occurring mineral that is hazardous to human health.
Assessment	A process by which information about effects of a proposed plan, project or intervention is collected, assessed and used to inform decision-making.
Ballast	Track ballast forms the trackbed upon which railway sleepers are laid. It is used to bear the load from the railroad sleepers, to facilitate drainage of water, and also to keep down vegetation that might interfere with the track structure. This also serves to hold the track in place as the trains roll by. It is typically made of crushed stone.

Term	Meaning
Best Practicable Means	Best practicable means refers to the permitted use of a methodology, approach or equipment having regard to the current state of technical knowledge, the local conditions and circumstances, the financial implications, the means to be employed, compatibility with any duty imposed by law, and compatible with safety and safe working conditions.
Best Practice	A method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark.
Biodiversity	The variety of life forms, the different plants animals and micro-organisms, the genes they contain and the ecosystems they form. Considered at three levels: genetic, species and ecosystem diversity.
Biodiversity Action Plan	Plans that provide actions for targets for the conservation and enhancement of endangered and/or declining species and habitats. BAPs are prepared at different geographical scales – national, regional and local areas - or for the interests of the overseeing organisation such as Highways England’s BAP for their land holdings.
Bridleway	A right of way that the general public can travel on foot and on horse.
Bristol Central Area Plan	The Bristol Central Area Plan is one of the suite of documents that make up the Bristol Local Plan and sets out policies for development in central Bristol.
Business Register and Employment Survey	Business Register and Employment Survey (“BRES”) is the official source of employee and employment estimates by detailed geography and industry. The survey collects employment information from businesses across the whole of the UK economy for each site that they operate. This allows the ONS to produce employee and employment estimates by detailed geography and industry split by full-time/part-time workers and whether the business is public/private.
Byway	A track or path that is a public highway.
Catchment	A drainage/basin area within which precipitation drains into a river system and eventually into the sea; or the population region which is served by a city, town, or village.
Civic Amenity Site	A facility where the public can dispose of household waste and also often containing recycling points. Civic amenity sites are run by the local authority in a given area.
Claimant Count Register	The Claimant Count Register captures those individuals claiming Job Seekers Allowance (“JSA”) at a point in time. This register provides an indicator or proxy for workforce trends.
Climate Change	A large-scale, long-term shift in the planet's weather patterns or average temperatures.

Term	Meaning
Clinical Waste	Wastes arising from medical practice including instruments, swabs and dressing, and human and animal tissue, body fluids, excretions, drugs, etc.
Commercial Waste	Waste arising from premises that are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding household and industrial waste (as defined in Environmental Protection Act 1990, Section 75).
Compensation	Measures taken to offset or compensate for residual adverse effects that cannot be mitigated at the affected site, or for which mitigation cannot entirely be eliminated.
Conservation Areas	An area designated by local planning authorities for its architectural value and subject to statutory protection under the Planning Act 1990. Development within such areas, and affecting the settings of them, are subject to stringent planning controls.
Construction Environmental Management Plan	A plan developed prior to any construction works commence on site, the primary purpose which is to guide environmental management of implementation of the project, as required by the Overseeing Organisation.
Consultation	A process by which regulatory authorities, statutory and non-statutory bodies, and the general public are approached for information and opinions regarding a development proposal.
Consultation Draft (Planning context)	A Consultation Draft is often the name referred to a first or second draft of a planning document published for consultation.
Core Strategy (Planning context)	A Core Strategy is one of a suite of documents that makes up part of the Local Plan and sets out the overall approach for planning development in an authority
Cultural Heritage	Encompasses the qualities and attributes of places that have aesthetic, historic, scientific or social value for past, present or future generations. The cultural heritage resource includes archaeology, historic structures, historic landscapes (including designed parks and gardens) and historic townscapes. This resource can include environmental evidence such as palaeo-environmental material.
Cultural Heritage Designations	Notable sites, areas, buildings or structures protected by planning or other laws. Can be applied at Local, Regional and National and International level. This can include scheduled monuments, listed buildings, locally listed buildings, conservation areas, registered battlefields, registered historic parks and gardens and world heritage sites.
Culvert	A covered channel or pipe designed to prevent the obstruction of a watercourse or drainage path by an artificial construction.
Cumulative Impacts	Combined impacts resulting from multiple related sources.

Term	Meaning
Defence of Britain assets	A cultural heritage asset, such as an archaeological site, which was created to defend the country from foreign invasion.
Definitive Map	Is a legal document maintained by local authorities that records where right of ways are located.
Delivery Strategy (Planning context)	Identifies the means of delivering a Council's vision, objectives and spatial strategy for different parts of the authority.
Design Manual for Roads and Bridges	Design Manual for Roads and Bridges (DMRB) is a series of documents that provide standards, advice notes and other guidance relating to the design, assessment and operation of strategic roads in the UK.
Designations	Notable sites, areas, buildings or structures protected by planning or other laws. Designations can be applied at the international, national, regional and local level.
Desk-Based Study/ Assessment/ Exercise	A review of secondary information/resources i.e. studies of historical maps and written text.
Determination Date (Planning context)	Date given for when a decision will be made on a planning application.
Development Consent Order	This is the means of obtaining permission for developments, such as energy, transport, water and waste schemes that are categorised as Nationally Significant Infrastructure Projects under the Planning Act 2008.
Economic Activity	Economic activity is an indicator of labour market participation, capturing all individuals who are either in employment or unemployed but actively seeking employment.
Effect	Term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the impact to the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria. For example, land clearing during construction results in habitat loss (impact), the effect of which is the significance of the habitat loss on the ecological resource.
Embodied Carbon	The embodied carbon of a building is the CO ₂ produced during the manufacture of materials, their transport and assembly on site, maintenance and replacement, disassembly and decomposition.
Emerging Plans (Planning context)	Draft documents that have not been formally adopted.
Enhancement	A measure that is over and above what is required to mitigate the adverse effects of a project.

Term	Meaning
Enterprise Zone	An area in which government incentives such as tax concessions and simplified planning permissions are offered to encourage business investment.
Environment	Our physical surroundings, including land, air and water.
Environmental Assessment	A method and a process by which information about environmental effects is collected, assessed and used to inform decision-making. Assessment processes include Strategic Environmental Assessment, Assessment of Implications on European Sites and environmental impact assessment.
Environmental Impact Assessment	A statutory process by which certain planned projects must be assessed through an environmental impact assessment (EIA) before a formal decision to proceed can be made. Involves the collection and consideration of environmental information, which fulfils the assessment requirements of Directive 85/337/EEC (as amended), including the publication of an Environmental Statement.
Environmental Scoping Report	A report documenting the process of identifying the content and extent of the Environmental Information to be submitted to the Competent Authority under the EIA procedure.
Environmental Statement	A document produced to support a planning application for development that is subject to Environmental Impact Assessment, which sets out the likely impacts on the environment arising from the proposed development.
Equalities Impact Assessment	A process designed to ensure that a policy, project or scheme does not discriminate against any disadvantaged or vulnerable people.
Examination (Planning context)	This is the process [in the context of planning] through which a local authority's development plan is considered by an independent planning inspector, appointed by the Secretary of State, and involves testing the document to see if it is 'sound' and meets the requirements of the relevant legislation. Soundness is tested by considering whether the document is justified, effective and consistent with national policy.
Flood Zone 2	Medium probability flood zone with land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%-0.1%) in a year.
Flood Zone 3a	High probability flood zone with land assessed having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from sea (>0.5%) in any year.
Flood Zone 3b	Functional floodplain with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood.

Term	Meaning
Forest of Avon	The Forest of Avon is one of 12 Community Forests in England. The initiative intends to form an asset for local people to enjoy and benefit from, as well as off-setting climate change.
GBATS	GBATS (Greater Bristol Area Transport Study model) is a strategic transport demand model of the greater Bristol area and includes both highways and public transport.
Geology	The scientific study of the origin, history, and structure of the earth.
Geological Strata	In geology and related fields, a stratum (plural: strata) is a layer of sedimentary rock or soil with internally consistent characteristics that distinguish it from other layers.
Green Belt	This is a policy and designation designed to prevent urban sprawl by maintaining the openness of land and preventing inappropriate development that would conflict with this purpose, unless very special circumstances can be demonstrated that the benefits from development would outweigh the harm caused.
Greenhouse Effect	Natural process by which the atmosphere traps some of the sun's energy, warming the earth enough to support life.
Greenhouse Gas Emissions	Emissions of gases which trap heat in the atmosphere. The primary greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide, and ozone.
Green Infrastructure	A network of natural and semi-natural features that provide an ecological framework for social, economic and environmental health.
GRIP	Governance for Railway Investment Projects ("GRIP") is the Network Rail process to manage and control projects which enhance or renew the national rail network.
Hazardous Waste	Waste is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. Hazardous wastes are wastes that are toxic, ignitable, reactive or corrosive.
[a] Hearing (Planning context)	[In the context of planning] A hearing is part of the Examination process that a local authority's development plan goes through and involves an independently appointed planning inspector inquiring into and leading a discussion with the local planning authority and other invited participants on issues affecting the plan.
Heavy Metals	Refers to any metallic chemical element that has a relatively high density and is toxic or poisonous at low concentrations. Examples of heavy metals include mercury, cadmium, arsenic, chromium, thallium and lead.

Term	Meaning
Historic Environment Record	A database developed and maintained by the local planning authorities to locate and detail archaeological sites, historic structures, artefact find spots and historic landscape areas. The data are based on a variety of sources, including, but not exclusive to, historic maps, historic archaeological work, documentary research and chance finds.
Historic Landscape Characterisation	Historic Landscape Characterisation (“HLC”) is a programme initiated by English Heritage to increase understanding of the wider designed landscape, beyond that of the planned parkland of the country estate. The HLC programme does not restrict itself to historic buildings, ornamental landscapes and purely "archaeological" features, but embraces other man made features such as hedges and managed woodland, historic field patterns, managed watercourses and areas of modern development. It is a useful tool for historical environment research and informs planning decisions.
Household Waste	Waste from domestic properties including waste from caravans, residential homes and premises forming part of an educational establishment and part of a hospital or nursing home.
Husbandry	The care, cultivation, and breeding of crops and animals.
Hydrocarbons	Compounds that contain only carbon atoms and hydrogen atoms obtained from crude oil by fractional distillation.
Hydrogeology	The branch of geology that deals with the occurrence, distribution, and effect of ground water.
Impact	Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).
[Highway] Improvement	The doing of any act under powers conferred by Part V of the Highways Act 1980 (as amended).
Indices of Multiple Deprivation	The Index of Multiple Deprivation (“IMD”) is a government-run qualitative study into various areas of deprivation and disadvantage, based on criteria relating to Income, employment, health deprivation and disability, education skills and training, barriers to housing and services, crime and living environment.
Industrial Waste	Waste from a factory (within the meaning of the Factories Act 1961) or from any premises used for, or in connection with provision of public transport; public supply of gas, water, electricity or sewerage services; or provision to the public of postal or communication services.
Inert Waste	Waste that does not undergo any significant physical, chemical or biological transformations; also it does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health.

Term	Meaning
Infrastructure	Refers to the fundamental facilities and systems serving a country, city, or area, including the services and facilities necessary for its economy to function. It typically characterises technical structures such as roads, railways, bridges, tunnels, water supply, sewers, electrical grids and telecommunications etc.
Infrastructure Planning Commission	The Infrastructure Planning Commission was a non-departmental public body responsible for examining proposed nationally significant infrastructure projects until its functions were transferred to the Planning Inspectorate in 2012.
JUNCTIONS (8 & 9)	JUNCTIONS is software that assesses the design and operation of junctions and roundabouts.
LA10,T	Acoustic nomenclature indicating that the value is exceeded for 10% of the period (T) of interest. This is normally used to describe road traffic noise.
LA90,T	Acoustic nomenclature indicating that the value is exceeded for 90% of the period (T) of interest. This is normally used to describe the background noise level.
LAeq,T	Acoustic nomenclature indicating that a value is expressed in terms of the Equivalent Continuous Sound Pressure Level, the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
LAmax	The maximum sound level is the highest time-weighted sound level measured during a period.
Landscape	Human perception of the land contained by knowledge, cultural associations and identity with a place. Guidelines for Landscape and Visual Impact Assessment: Third Edition define landscape as “an area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors”.
Landscape Character	The distinct and recognisable pattern of elements that occur consistently in a particular type of landscape, and how this is perceived by people. Character reflects combinations of geology, landform, soils, vegetation, land use and settlement pattern, inferring a sense of place.
Landscape Character Area	Landscape Character Areas are broadly similar areas of land defined by unique combination of landscape, biodiversity, geodiversity and cultural and economic activity. Their boundaries follow natural lines in the landscape rather than administrative boundaries.
LINSIG	LINSIG is software that assesses the design and operation of signal controlled junctions.

Term	Meaning
Listed Building	A structure which is protected under the Planning Act 1990 to protect its architectural and historic interest. The levels of statutory protection are set at Grade I, Grade II* and Grade II. Historic England directly handles applications and inquiries for Grade I and II* listed structures, while local planning authorities handle planning inquiries for Grade II designations.
Loamy	Soil composed of a mixture of sand, clay, silt, and organic matter.
Local Air Quality Management	All local authorities regularly review and assess air quality in their areas to determine whether or not air quality objectives are being achieved.
Local Green Space	A designation used to provide special protection against development for green areas of particular importance to local communities.
Locally Listed Buildings	Otherwise known as a 'local list' or 'local register' these are buildings, or structures, designated by the local planning authority as having some architectural, aesthetic or historic merit. They are not statutorily protected, but often have protection provided through local planning policy.
Local Nature Reserve	Places with wildlife or geological features that are of special interest locally.
Local Plan	A document which sets planning policies in a local authority area.
Local Transport Plan	A strategic document published by local authorities or a group of local authorities to maintain and improve transport in their respective areas.
Main Modifications	Changes requested by an independently appointed planning inspector, as part of the development plan examination process, that materially affect the documents policies in order to make a submitted Local Plan sound and legally compliant.
Main River	Defined in the Water Resources Act 1991 [section 113] as a watercourse shown as such on a main river map. Main river maps are held by Defra.
Major Development	Definition as set out in the Town and Country Planning (Development Management Procedure) (England) Order 2010, meaning development which involves one or more of the following: the winning and working of minerals or the use of land for mineral-working deposits; waste development; the provision of dwelling houses where the number of to be provided is 10 or more; or the development is to be carried out on a site having an area of 0.5 hectares or more; the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or development carried out on a site having an area of 1 hectare or more.

Term	Meaning
Material Considerations	This is a process in planning law in which the decision maker when assessing an application for development must consider in deciding the outcome of an application.
Mitigation	Measures intended to avoid, reduce, remedy and compensate for significant adverse environmental effects.
Nationally Significant Infrastructure Project	Major infrastructure developments in England and Wales identified in the Planning Act 2008, which require a type of consent known as a development consent order and are granted permission by the Secretary of State.
National Forest Inventory Woodland	A Forestry Commission record of the woodlands and forests of Great Britain.
National Monuments Record	The body within Historic England which develops and maintains the national database of historic environment assets, and the acquisition and conservation of historic documents.
National Nature Reserve	National nature reserves are designated by Natural England as key places for wildlife and natural features in England.
National Networks National Policy Statement	Sets out the need and government policies for nationally significant infrastructure rail and road projects for England.
National Planning Policy Framework	The National Planning Policy Framework set out the Government’s planning policies for England. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
National Planning Practice Guidance	A web based resource intended to assist practioners which brings together planning practice guidance in England.
National Policy Statements	National Policy Statements are produced by Government and include the Government’s objectives for the development of nationally significant infrastructure projects in a particular sector. They give reasons for the policy set out in the statement and include an explanation of how the policy takes account of Government policy relating to the mitigation of, and adaptation to, climate change.
Natural Area	Biogeographic zones which reflect the geological foundation, the natural systems and processes and the wildlife in different parts of England.
Natural resources (or material resources)	Stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing (e.g. aggregates).

Term	Meaning
Neighbourhood Development Plans	These are local community plans which sit within the framework of a local authority's Local Plan and provide communities with the power to set the priorities for local development in their area.
Nitrate Vulnerable Zone	A Nitrate Vulnerable Zone (NVZ) is designated where surface or groundwater exceeds prescribed water quality standard for nitrate.
Nomis	Nomis is a service offered by the Office for National Statistics (“ONS”), providing free access to the most detailed and up-to-date UK labour market statistics from official sources.
Non-Biodegradable	A substance or chemical that is non-biodegradable cannot be changed to a harmless natural state by the action of bacteria, and may therefore damage the environment.
Non-Hazardous Waste	Waste that is not classified as hazardous waste or inert waste.
Non Motorised User	A collective term to describe pedestrians, cyclists and equestrians.
Non-Registered Park and Garden	Also known as Unregistered Park and Garden, is land designated by North Somerset, which is not on the Registered Park and Garden register, but is deemed to have local value.
Non-Statutory Designations	Sites and areas designated under the local planning system but which do not have statutory protection.
North Somerset Replacement Local Plan	This is North Somerset’s adopted Local Plan which includes detailed policies for regulating development across North Somerset where they have been saved by a Secretary of State Direction. Some policies have been replaced by the adopted Core Strategy.
Occupational Structure	The occupational structure is informed by responses to the 2011 Census, and provides an aggregate distribution of occupations in society, classified according to skill level, economic function, or social status.
Ordinary Watercourse	Defined in the Flood and Water Management Act 2010 as “a watercourse that does not form part of a main river”
Ordnance Survey	Mapping agency of the British Isles.

Term	Meaning
Permitted Development Rights	The Town and Country Planning (General Permitted Development) (England) Order 2015 consolidates, for England, the Town and Country Planning (General Permitted Development) Order 1995 and the 22 instruments that have amended the 1995 Order. Under this Order, the Secretary of State grants planning permission for different types of development in specified circumstances. These permissions are usually subject to certain limitations and conditions, including in some cases a condition that a developer applies to a local planning authority for a determination as to whether their prior approval is required for certain impacts before the development can begin. The permissions granted by this Order are commonly known as permitted development rights. The Order also sets out the circumstances and the procedure (in Article 4 and Schedule 3) where a local planning authority may remove specified national permitted development rights in part of its area.
Phase 1 Habitat Survey	Recognised standard methodology for collating information on the habitat structure of a particular site.
PM ₁₀	Particulate matter smaller than about 10 micrometers.
Pollution	An increase of matter or energy to a level considered harmful to living organisms or their environment.
Planning Inspectorate	The Planning Inspectorate is an executive agency of the Department for Communities and Local Government (“DCLG”) responsible for deciding on final outcomes of planning appeals, public examination of local development plans and planning applications for nationally significant infrastructure projects.
Policy	A policy is a deliberate system of principles to guide decisions and achieve rational outcomes. It provides a statement of intent and is implemented as a procedure or protocol.

Term	Meaning
Principal and Secondary Aquifers and Unproductive strata	<p>These are designations that the Environment Agency use to identify water bearing strata from which groundwater can be extracted and reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.</p> <p>The designations may be applied both to bedrock (solid consolidated strata, such as sandstone and limestone) or to unconsolidated drift (or superficial) deposits (such as sands and gravels).</p> <p>Principal Aquifers: are layers of bedrock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.</p> <p>Secondary Aquifers: include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:</p> <p>Secondary A: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.</p> <p>Secondary B: Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.</p> <p>Unproductive Strata: These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.</p>
Principal Superficial Aquifer	<p>These are layers of drift (superficial) deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.</p>
Publication (Planning context)	<p>This is a stage in the process and a version of a Local Plan referred to when a local authority considers the plan is ready for examination. A plan at this stage will undergo its final consultation before being submitted to the Planning Inspectorate for examination.</p>
Public Rights of Way	<p>Public rights of way are paths on which the public have a legally protected right to pass and re-pass.</p>
Ramsar site	<p>Wetlands of international importance designated under the Ramsar Convention.</p>
RDM	<p>Rail Demand Model (“RDM”) is a demand transport model for the rail network used in the West of England area.</p>
Receptor	<p>A defined individual environmental feature usually associated with population, fauna and flora that has potential to be affected by a project.</p>

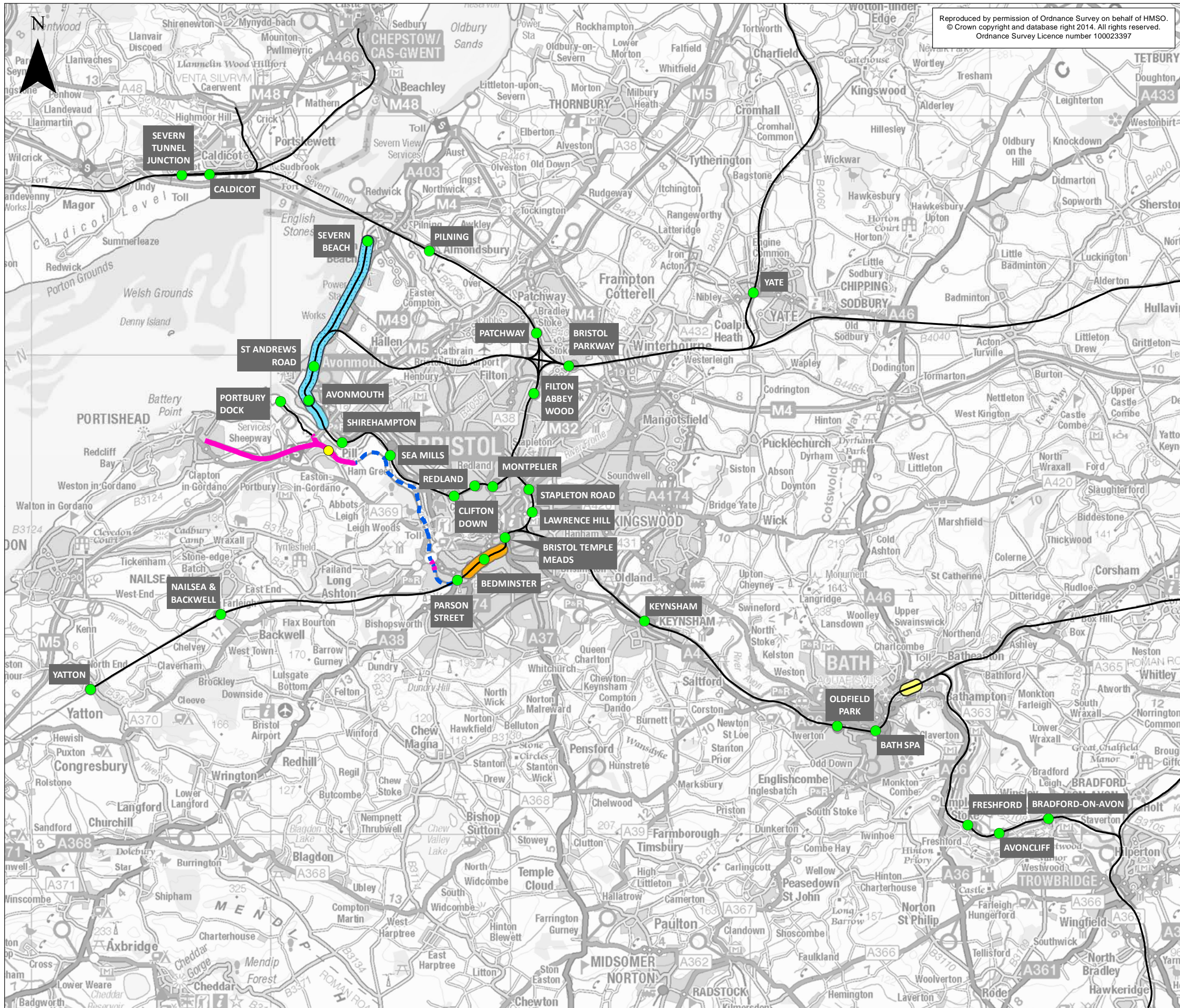
Term	Meaning
Registered Battlefields	Historic England's Register of Historic Battlefields identifies 46 important English battlefields. Its purpose is to offer them protection through the planning system. The register does not afford them statutory legal protection.
Registered Historic Parks and Gardens	The Historic England Register of Historic Parks and Gardens of special historic interest in England currently identifies, nationally, over 1,600 sites assessed to be of particular significance. The sites are graded I, II* and II, I and are subject to protection within planning policies.
Regulatory Authority	A public authority or government agency responsible for exercising autonomous authority over some area of human activity in a regulatory or supervisory capacity.
Residential Employment Profile	Based on the 2011 Census, the residential employment profile provides employee and employment estimates by detailed geography and industry for the residents of an area.
Resource	A defined but generally collective environmental feature usually associated with soil, water, air, climatic factors, landscape, material assets, including the architectural and archaeological heritage that has potential to be affected by a project.
Restricted Byway	Is a track or path that is a public highway but with specified restrictions on vehicles.
Saved Policies	These are policies in an adopted Local Plan which have been saved by a Secretary of State Direction and have not yet been replaced by new Local Plan policies.
Scheduled Monuments	Scheduling is the designation evolved specifically for sites of an archaeological character. It is the UK's oldest form of heritage protection, dating from the 1882 Ancient Monuments Act. More recently, scheduling derives its authority from the Ancient Monuments and Archaeological Areas Act of 1979. Scheduling is the selection of nationally important archaeological sites. Where development affects the physical integrity of a SM, government Consent would be a requirement.
Scenario	A defined situation or series of events.
Scoping	The process of identifying the issues to be addressed a study. Environmental scoping defines the brief for the environmental impact assessment of a proposed development. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered to be not significant.
Secretary of State	A Cabinet Minister in charge of a Government Department.
Secretary of State Direction	A mechanism through which a Secretary of State can exercise their power.

Term	Meaning
Sensitivity	The extent to which the receiving environment can accept and accommodate change without experiencing adverse effects.
Site Allocations	Site specific proposals for new development which ensure that sufficient land is available and in appropriate locations to meet the growth targets set out in the Local Plan.
Site Allocations and Development Management Policies	A document which identifies site specific proposals for new development and the policies required to manage and deliver development. In this case it refer to a document prepared by Bristol City Council.
Sites and Policies Plan	A document which identifies site specific proposals for new development and the policies required to manage and deliver development. In this case it refers to a document prepared by North Somerset Council
Site of Nature Conservation Interest	A place designated by local authorities in England of substantive local nature conservation and value.
Site of Special Scientific Interest	A conservation designation denoting a protected area in the United Kingdom. SSSIs are the basic building block of site-based nature conservation legislation and most other legal nature/geological conservation designations in Great Britain are based upon them.
Source Protection Zone	The Environment Agency has defined Source Protection Zones (SPZs) around some 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk.
Source Protection Zones – Inner Zone	Defined as the 50 day travel time from any point below the water table to the source. This source has a minimum radius of 50 metres.
Source Protection Zones – Outer Zone	Defined by a 400 day travel time from a point below the water table. The previous methodology gave an option to define SPZs as the minimum recharge area required to support 25 per cent of the protected yield. This option is no longer available in defining new SPZs and instead this zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction.
Spatial Strategy	This is a strategy included within a Local Plan or Core Strategy which details how a local authority intends to distribute and manage development and achieve the aspirations set out in its Spatial Vision
Spatial Vision	This details a local authority's aspirations and intentions for future development over a plan's life time.
Special Area of Conservation	Protected sites designated under the EC Habitats Directive. The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).

Term	Meaning
Special Protection Area	Protected sites designated under the EC Directive on the Conservation of Wild Birds. Under the Directive, Member States have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds.
Statutory designation	Any site or asset which is legally protected through legislation.
Statutory Development Plan	This is a document or suite of documents that set out the local authority's policies and proposals for development and use of land in their area, and is used by local authorities when determining planning applications to guide and inform decisions.
[environmental] Statutory Organisations	Any principal council for the area where the land is situated, Natural England, English Heritage, the Environment Agency; and any other public authority which has environmental responsibilities and which the Secretary of State considers likely to have an interest in the project.
Strategic Objectives	These are objectives set out in a Local Plan or Core Strategy which identify how the plan's Spatial Strategy and Vision will be delivered and how spatial planning issues will be addressed.
Structure Plan	A Structure Plan is a strategic land use planning document prepared by a local planning authority. Most Structure Plans and their policies have been revoked following the Localism Act 2011, unless saved by a Secretary of State Direction.
Supplementary Planning Guidance	These are documents which provide greater detail and clarity on specific issues or policies within a Local Plan.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Sustainable Urban Drainage Systems	An approach to surface water management that combines a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.
TAG	TAG (Transport Appraisal Guidance) is guidance published by the Department for Transport on the process and methodology to be followed for transport projects.
Total Catchment Zone	The area around a source within which all groundwater recharge is presumed to be discharged at the source.
Traffic Regulation Order	A legal document made by a local authority under its powers as a highway authority to support any enforceable traffic or highways measures.

Term	Meaning
Tranquillity	As defined in Guidelines for Landscape and Visual Impact Assessment: Third Edition, tranquillity relates to a sense of quiet and calm, and is an important asset of landscape.
Transport Assessment	A document that is submitted in support of planning applications that assess the transport impacts arising from new developments.
Unemployment Rate	The unemployment rate measures the number of economically active but unemployed individuals as a proportion of the population aged between 16 and 74.
Visual Amenity	As defined in ‘Guidelines for Landscape and Visual Impact Assessment’: Third Edition, visual amenity is the overall pleasantness of a view providing an attractive setting for activities of people.
Visual Receptor	A defined place from where it is possible to obtain a view of the proposals normally defined where people are likely to be rather than where they potentially could be.
Waste	Any substance or object which the holder discards or intends or is required to discard.
Waste Core Strategy	A Waste Core Strategy is one of a suite of documents that makes up part of a County Council Local Plan and sets out the overall approach for planning waste development in the authority.
Waste Local Plan	A Waste Local Plan is one of a suite of documents that makes up part of a County Council Local Plan and sets out the overall approach for planning waste development in the authority.
Watercourse	Includes all rivers and streams and all ditches, drains, cuts, culverts, dikes, sluices, sewers (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows.
Water Protection Zone	These zones will be a regulatory mechanism to address diffuse water pollution and hydro-morphological damage that will lead to failure of WFD objectives. A WPZ will be a defined geographical area in which the Environment Agency will have additional powers to protect water by using measures to manage or prohibit activities which cause or could cause damage or pollution of water. WPZs are currently being trialled in several locations in England.
World Heritage Site	A place (such as a building, city, complex, desert, forest, island, lake, monument, or mountain) that is listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being of special cultural or physical significance.
Workplace Employment Profile	Based on the BRES, the workplace employment profile provides employee and employment estimates by detailed geography and industry for the workforce in an area.

Figures



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KEY

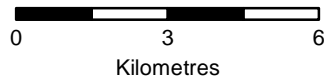
- Existing Railway Station
- Existing Railway Line

Portishead Branch Line

- DCO Indicative Red Line Boundary
- - - Network Rail Permitted Development Rights
- Pill Railway Station

Indicative Location of Other Works

- Avonmouth Signal (MetroWest Phase 1) - Option 5B
- Avonmouth Signal (MetroWest Phase 1) - Option 6B
- Bedminster Down Relief Line (MetroWest Phase 1)
- Bathampton Turnback (MetroWest Phase 1)



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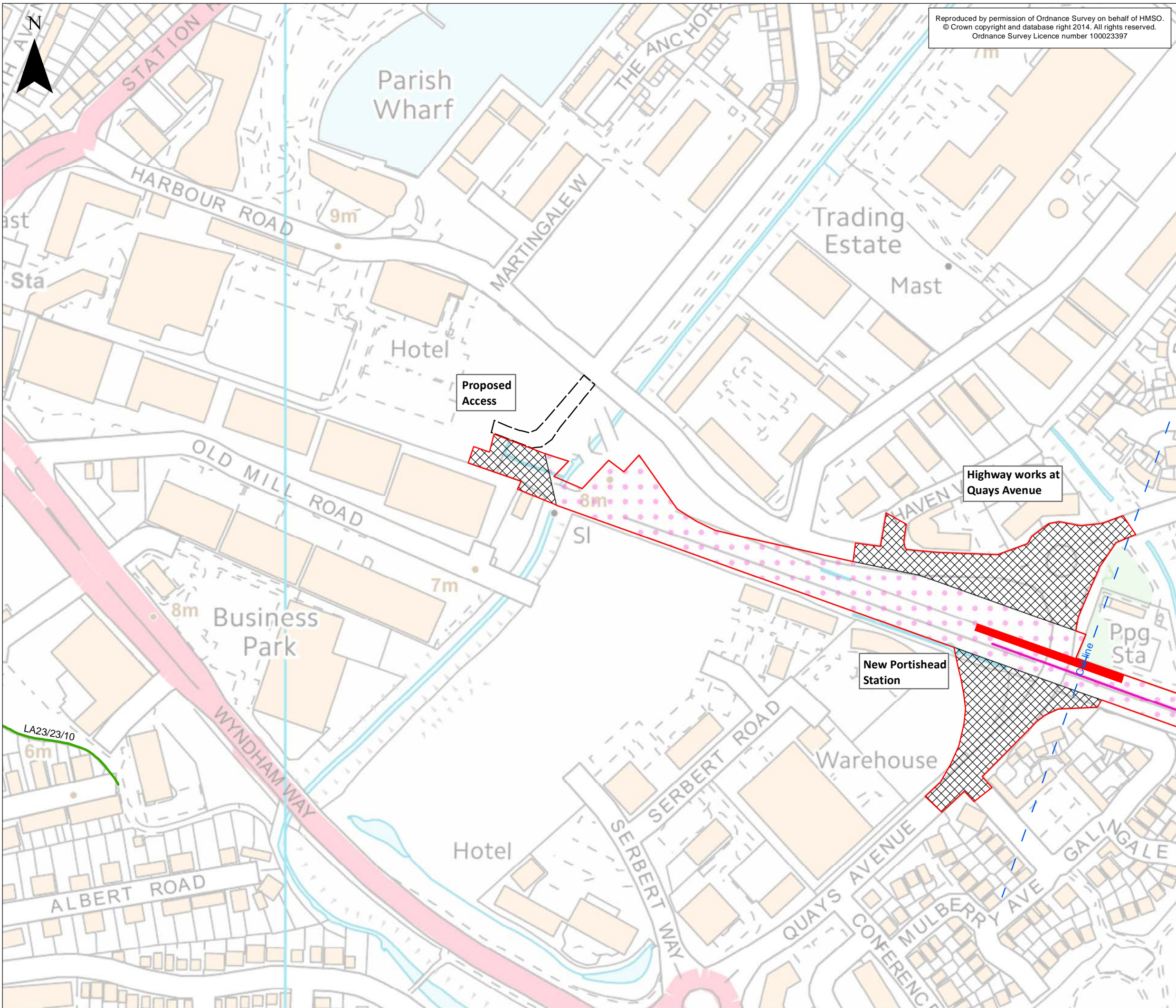
Project : Portishead Branch Line
 (MetroWest Phase 1)

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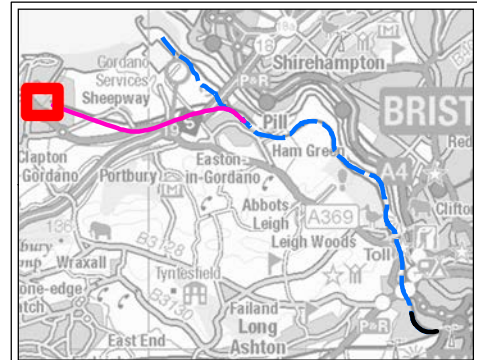
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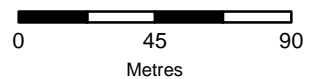
- KEY**
- DCO Indicative Red Line Boundary
 - Centreline of new railway
 - Railway Station
 - Permanent land acquisition

Land Ownership

- North Somerset Council

Environmental Features

- Footpath



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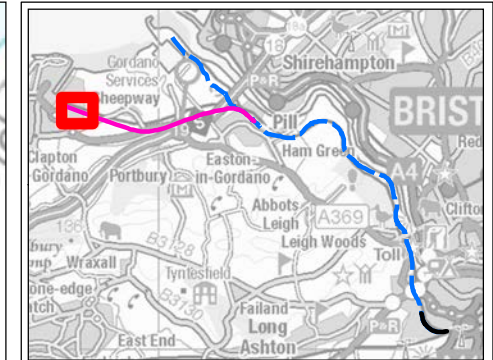
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 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 1 of 23

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Approved By : Carolyn Francis **Date:** 19/06/2015

Drawing No. : 490327-012-001 - 1 **Revision** 1

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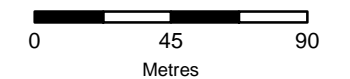
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- KEY**
- DCO Indicative Red Line Boundary
 - Centreline of new railway
 - Railway Station
 - New Pedestrian Footbridge
 - Permanent land acquisition

- Land Ownership**
- North Somerset Council

- Environmental Features**
- Sustrans cycle path



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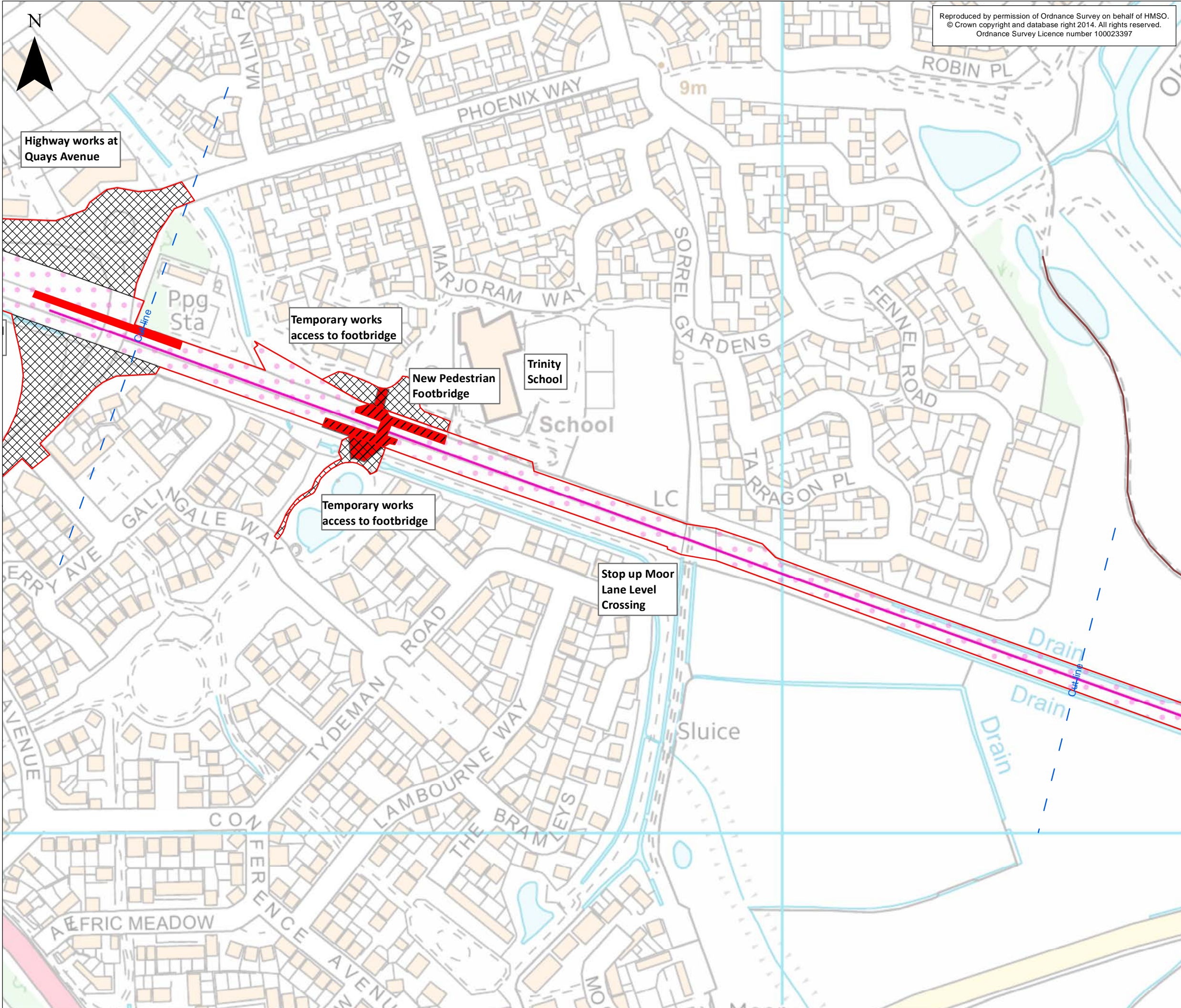
Project : Portishead Branch Line
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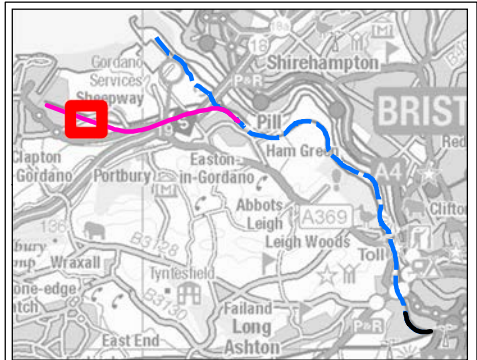
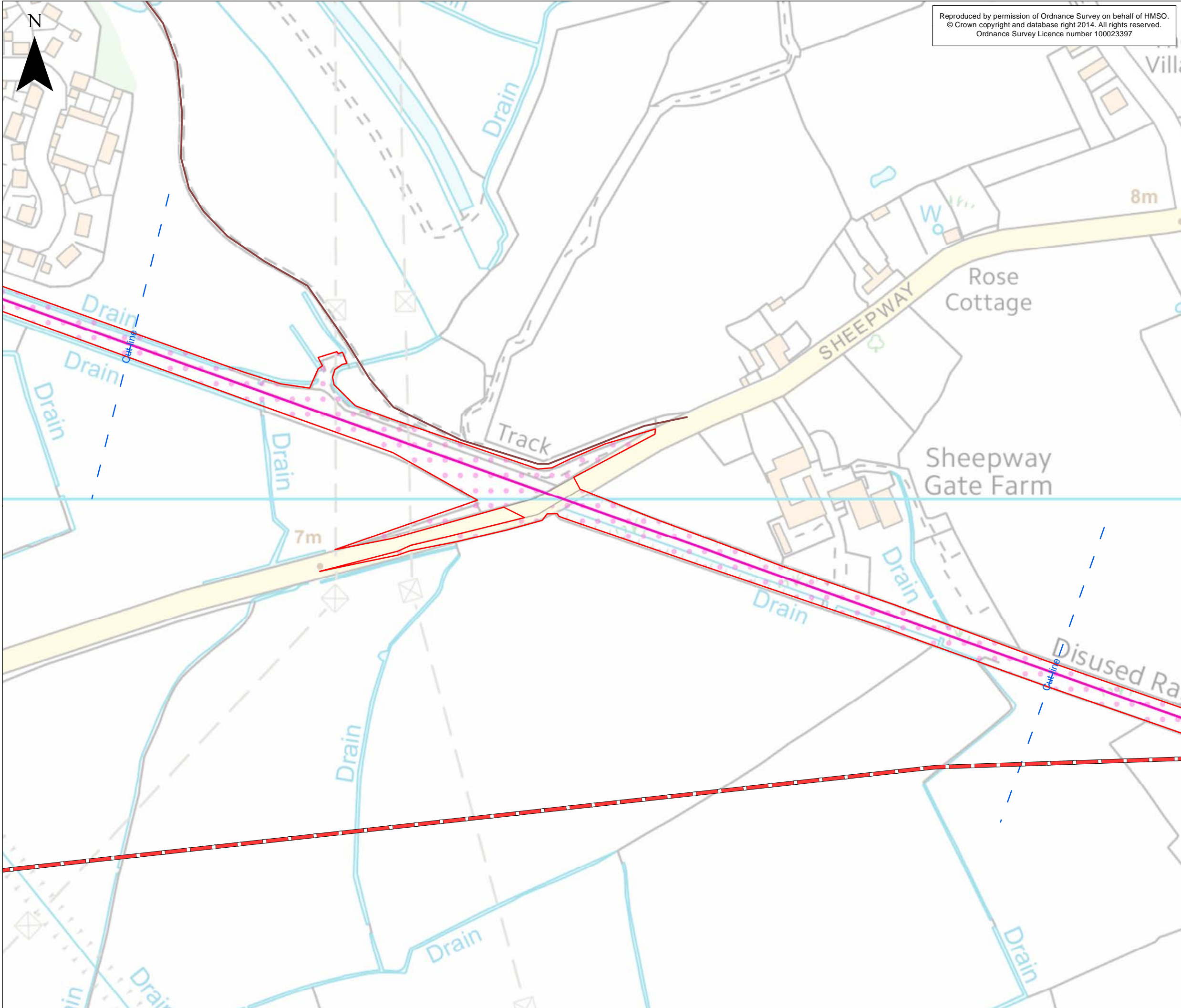
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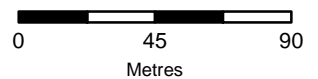
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- KEY**
- DCO Indicative Red Line Boundary
 - Centreline of new railway
 - Oil Pipeline

- Land Ownership**
- North Somerset Council

- Environmental Features**
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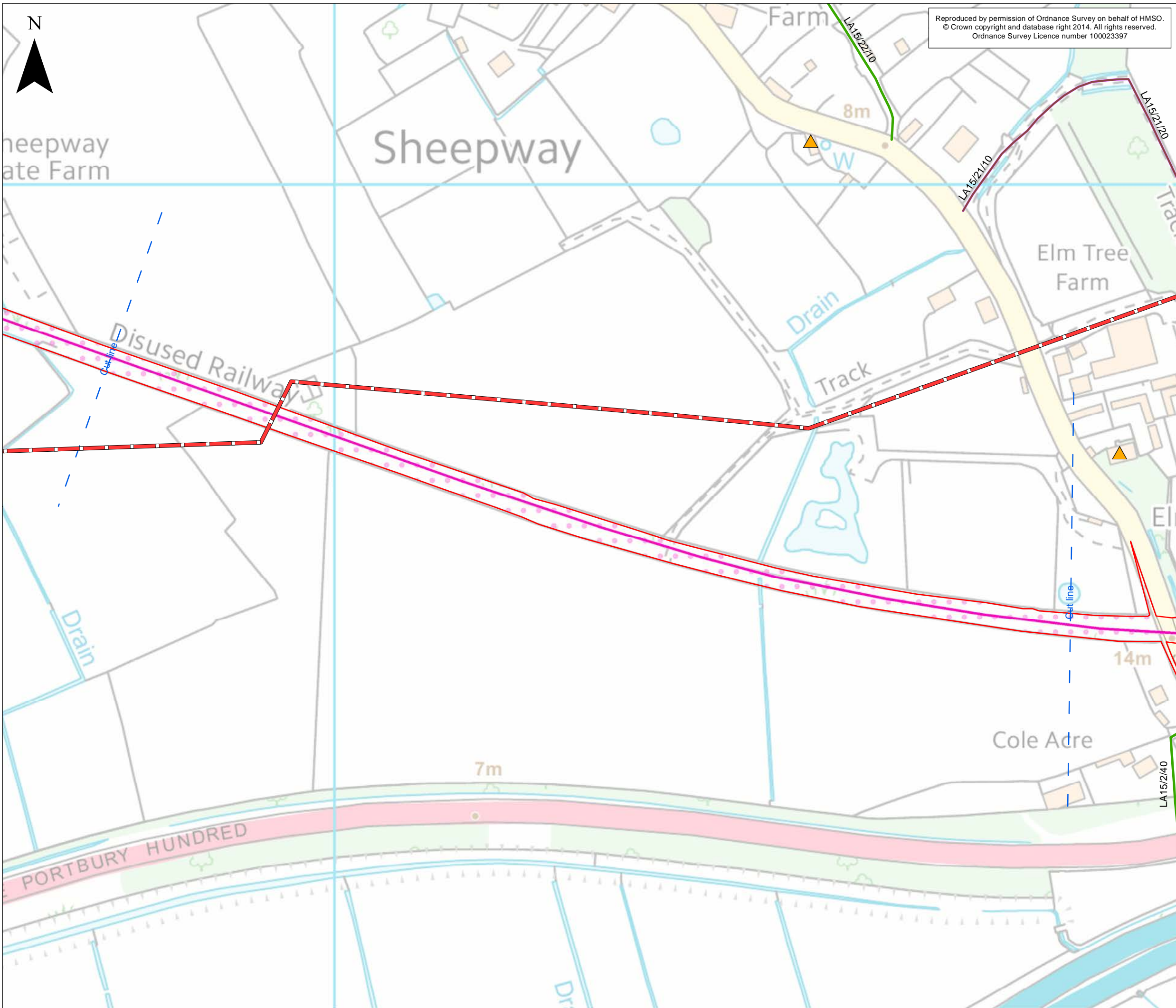
Project : Portishead Branch Line
 (MetroWest Phase 1)

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 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 3 of 23

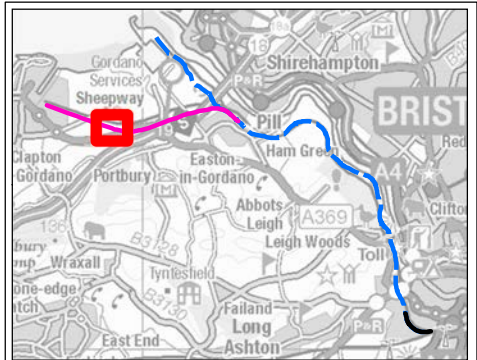
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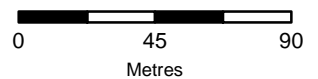
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- KEY**
- DCO Indicative Red Line Boundary
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- Land Ownership**
- North Somerset Council

- Environmental Features**
- Sustrans cycle path
 - Bridleway
 - Footpath
 - ▲ Listed Building



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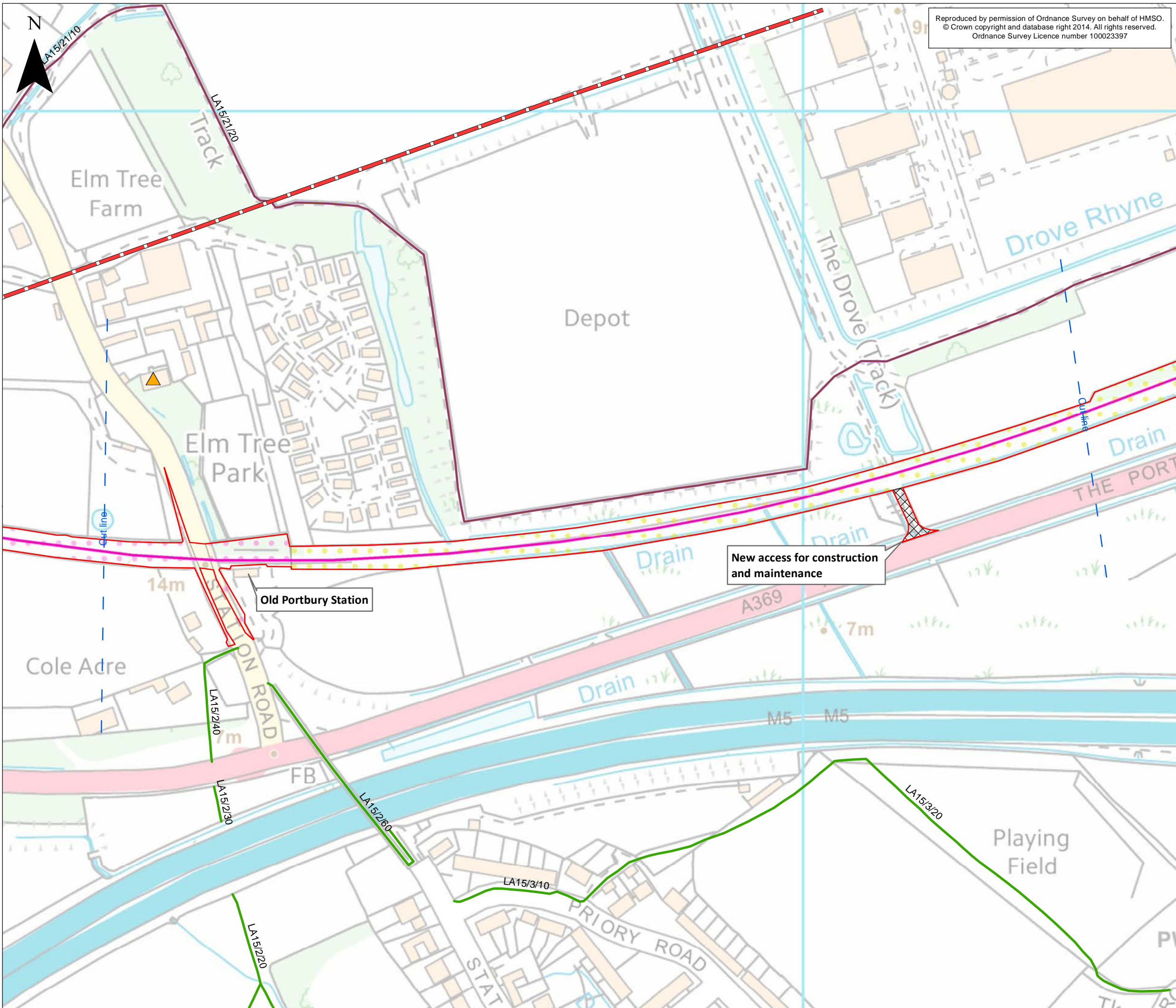
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 Scoping Sheet 4 of 23

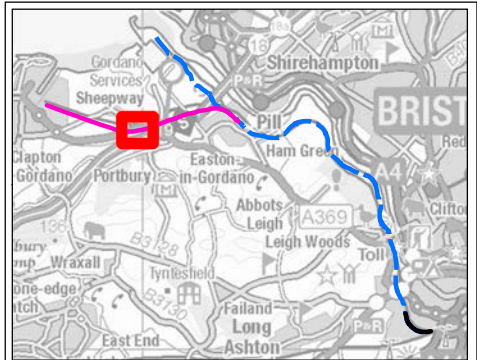
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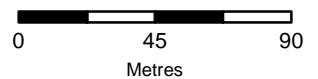


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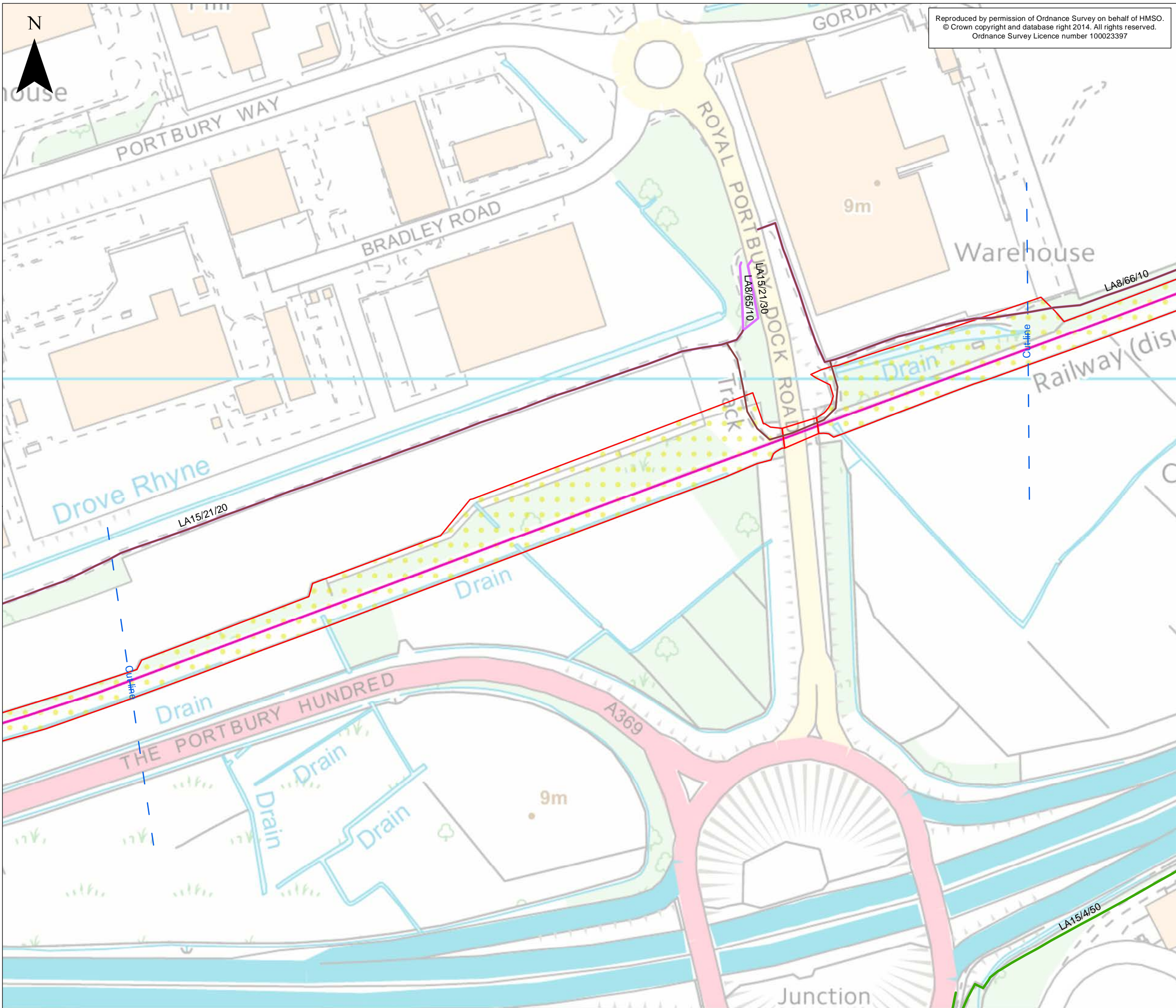
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 Scoping Sheet 5 of 23

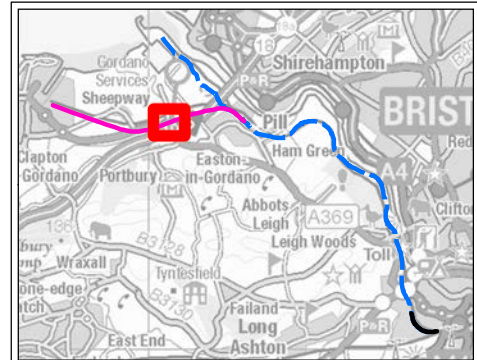
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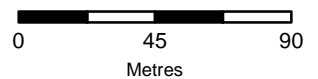
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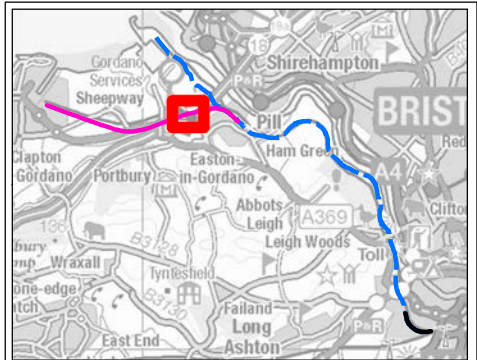
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 Scoping Sheet 6 of 23

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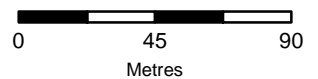
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Portishead Branch Line
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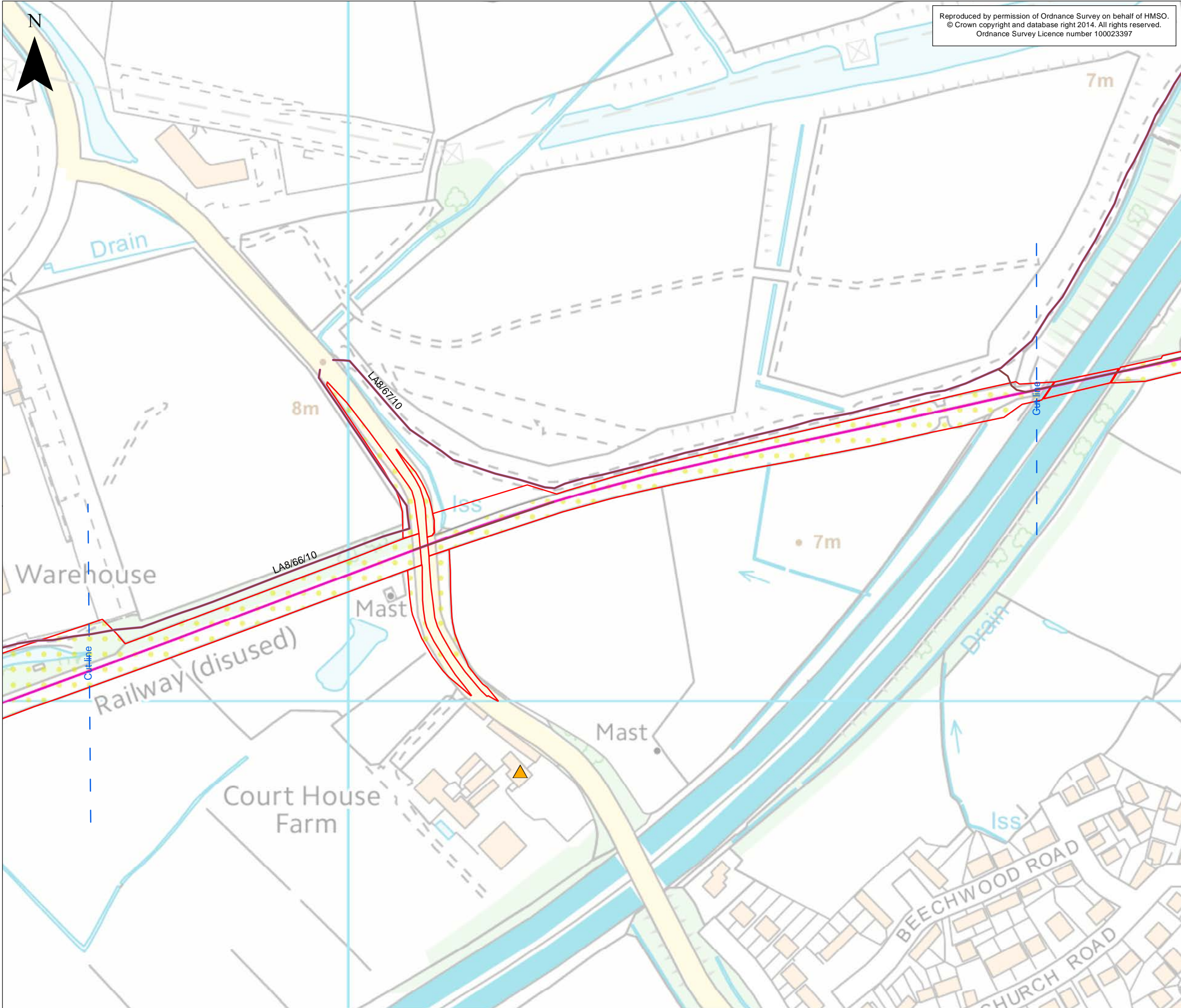
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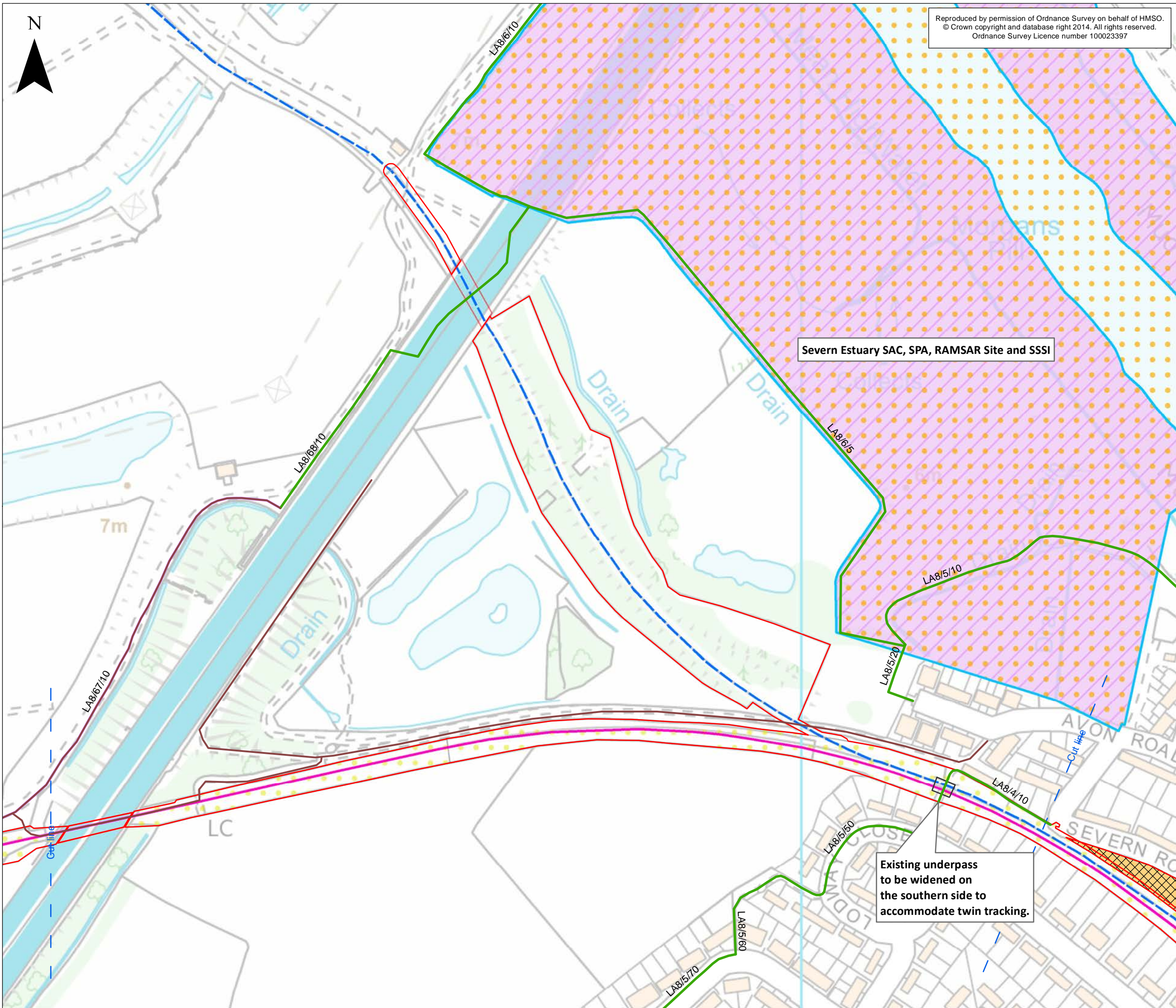
Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 7 of 23

Drawn By : A Collinson	Date: 19/06/2015
Checked By : Emily Earing	Date: 19/06/2015
Approved By : Carolyn Francis	Date: 19/06/2015

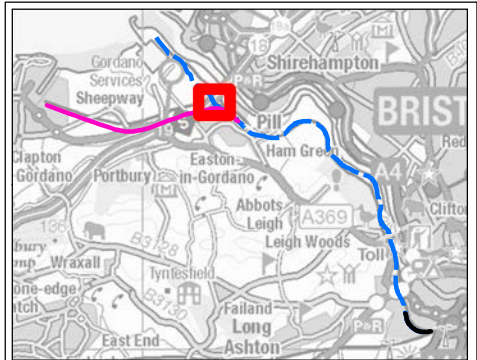
Drawing No. : 490327-012-001 - 7	Revision 1
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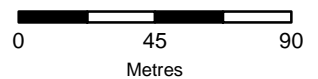
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- KEY**
- DCO Indicative Red Line Boundary
 - Portbury Freight Line Improvements
 - Centreline of new railway
 - Proposed car park
 - Permanent land acquisition
 - Rail bridge widening

- Land Ownership**
- Network Rail

- Environmental Features**
- Special Protection Area (SPA)
 - Special Area of Conservation (SAC)
 - Ramsar Site
 - Site of Special Scientific Interest (SSSI)
 - Sustrans cycle path
 - Bridleway
 - Footpath



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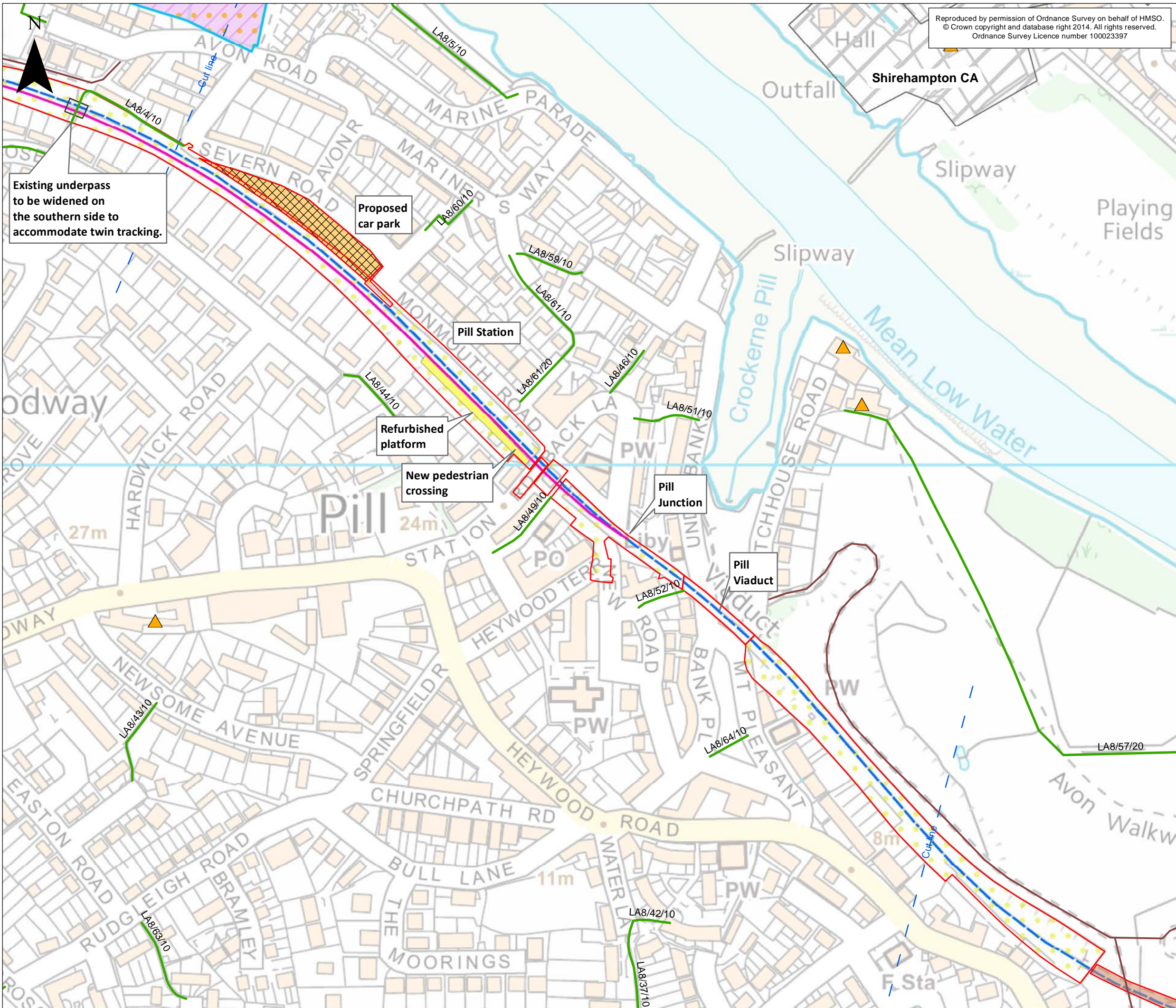
Project : Portishead Branch Line
 (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 8 of 23

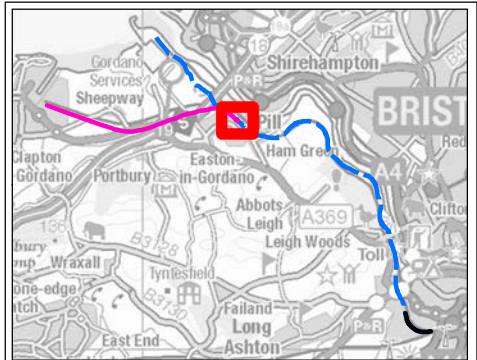
Drawn By : A Collinson **Date:** 19/06/2015
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Drawing No. : 490327-012-001 - 8 **Revision** 1

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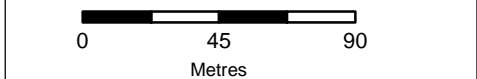
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- KEY**
- DCO Indicative Red Line Boundary
 - Portbury Freight Line Improvements
 - Centreline of new railway
 - Proposed car park
 - Proposed refurbished platform
 - Permanent land acquisition
 - Rail bridge widening

- Land Ownership**
- Network Rail

- Environmental Features**
- Special Protection Area (SPA)
 - Special Area of Conservation (SAC)
 - Ramsar Site
 - Site of Special Scientific Interest (SSSI)
 - Conservation Area (CA)
 - Sustrans cycle path
 - Footpath
 - ▲ Listed Building



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Project : Portishead Branch Line
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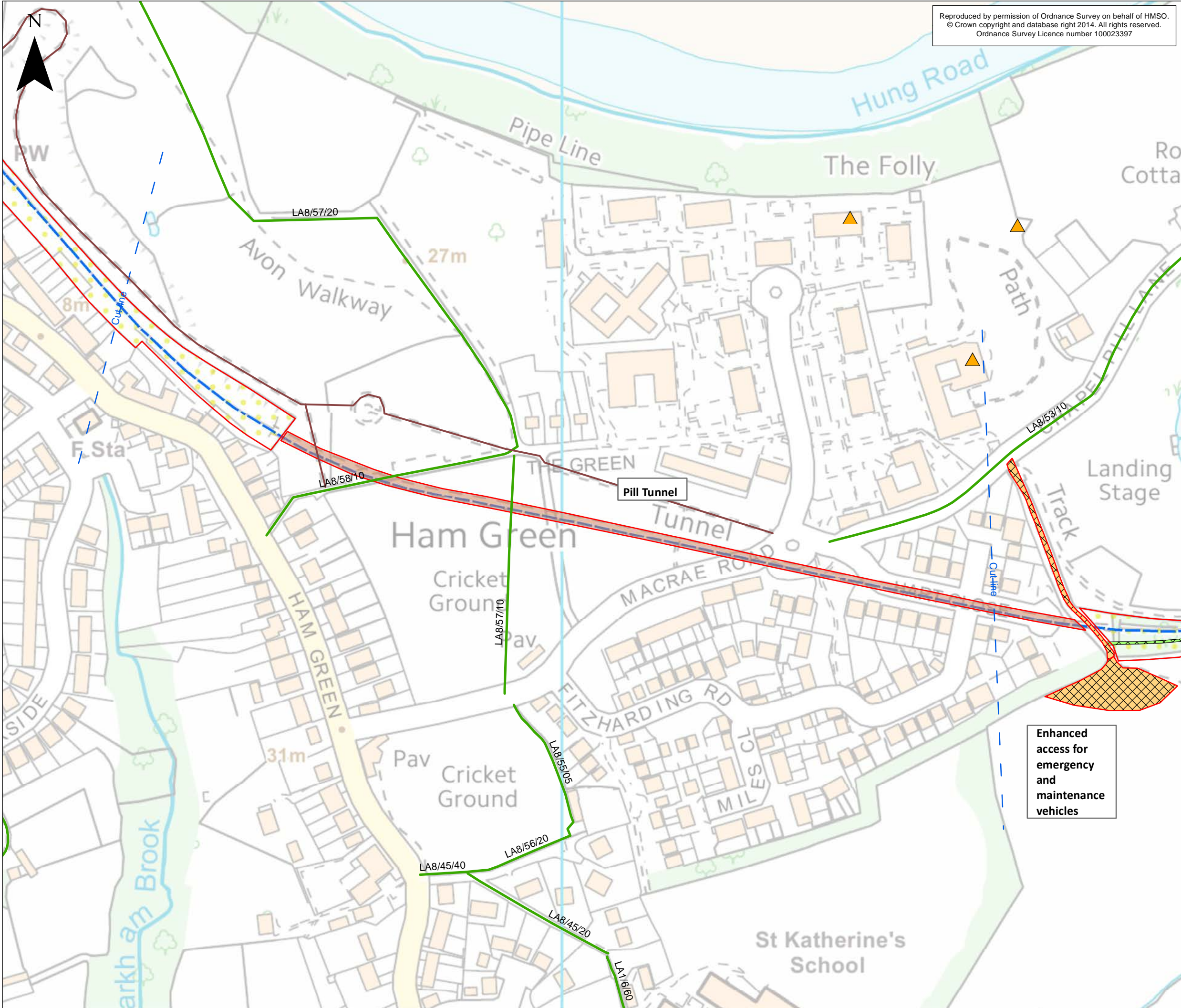
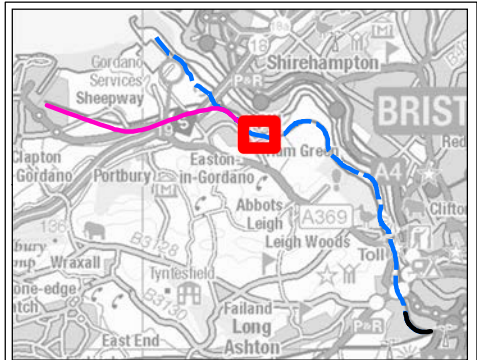
Drawing :
 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 9 of 23

Drawn By : A Collinson **Date:** 19/06/2015
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Drawing No. : 490327-012-001 - 9 **Revision** 1

Drawing Scale : 1:2,500 @ A3

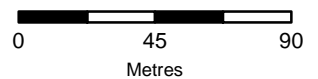
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- KEY**
- DCO Indicative Red Line Boundary
 - Portbury Freight Line Improvements
 - New pedestrian access
 - New vehicular access
 - Permanent land acquisition

- Land Ownership**
- Network Rail

- Environmental Features**
- Sustrans cycle path
 - Footpath
 - ▲ Listed Building



Enhanced access for emergency and maintenance vehicles

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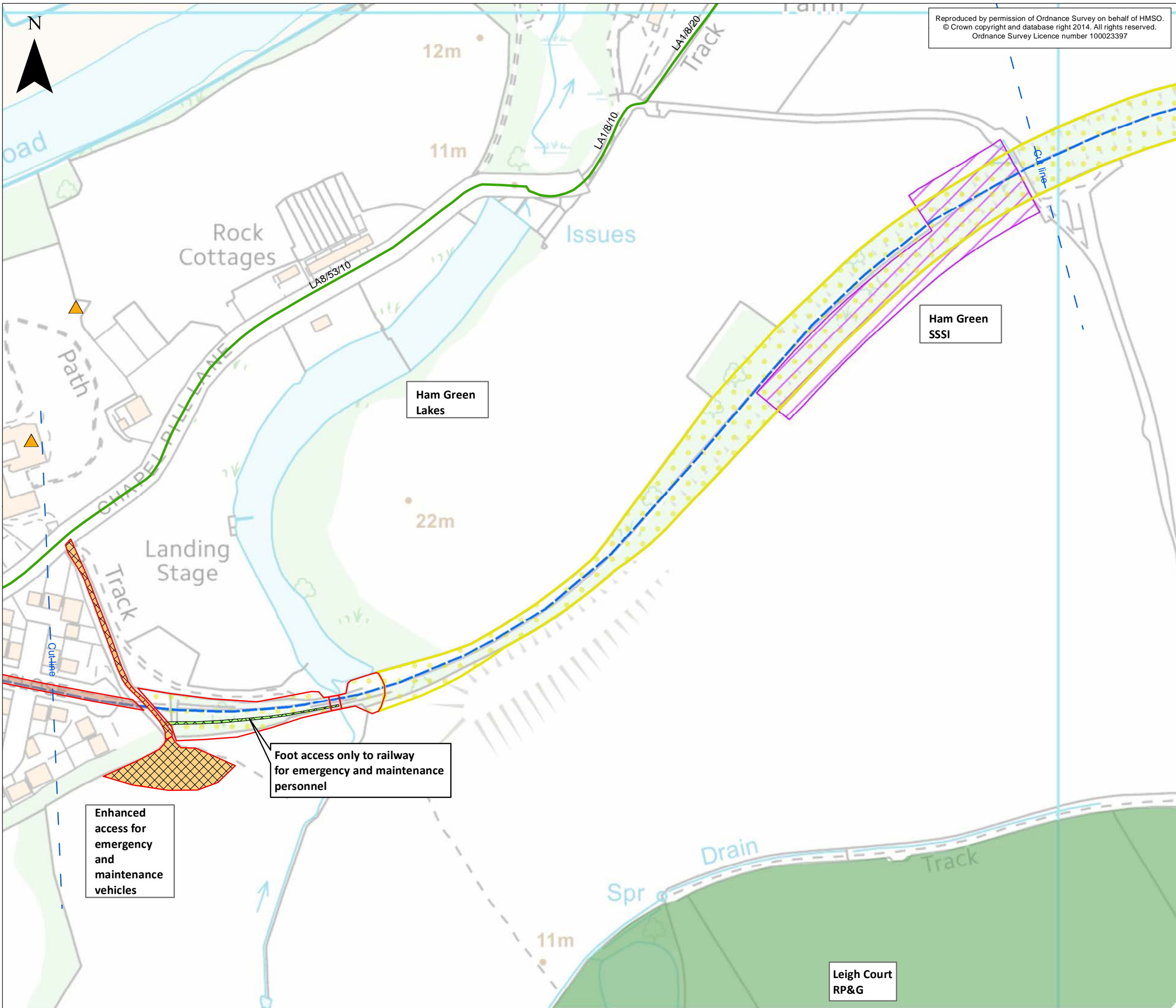
Project : Portishead Branch Line (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for Scoping Sheet 10 of 23

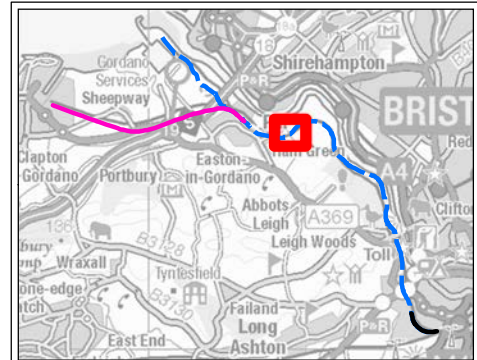
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Drawing No. : 490327-012-001 - 10 **Revision** 1

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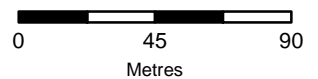
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- KEY**
- Network Rail Permitted Development Rights
 - DCO Indicative Red Line Boundary
 - Portbury Freight Line Improvements
 - New pedestrian access
 - New vehicular access
 - Permanent land acquisition

- Land Ownership**
- Network Rail

- Environmental Features**
- Site of Special Scientific Interest (SSSI)
 - Registered Park & Garden (RP&G)
 - Footpath
 - ▲ Listed Building



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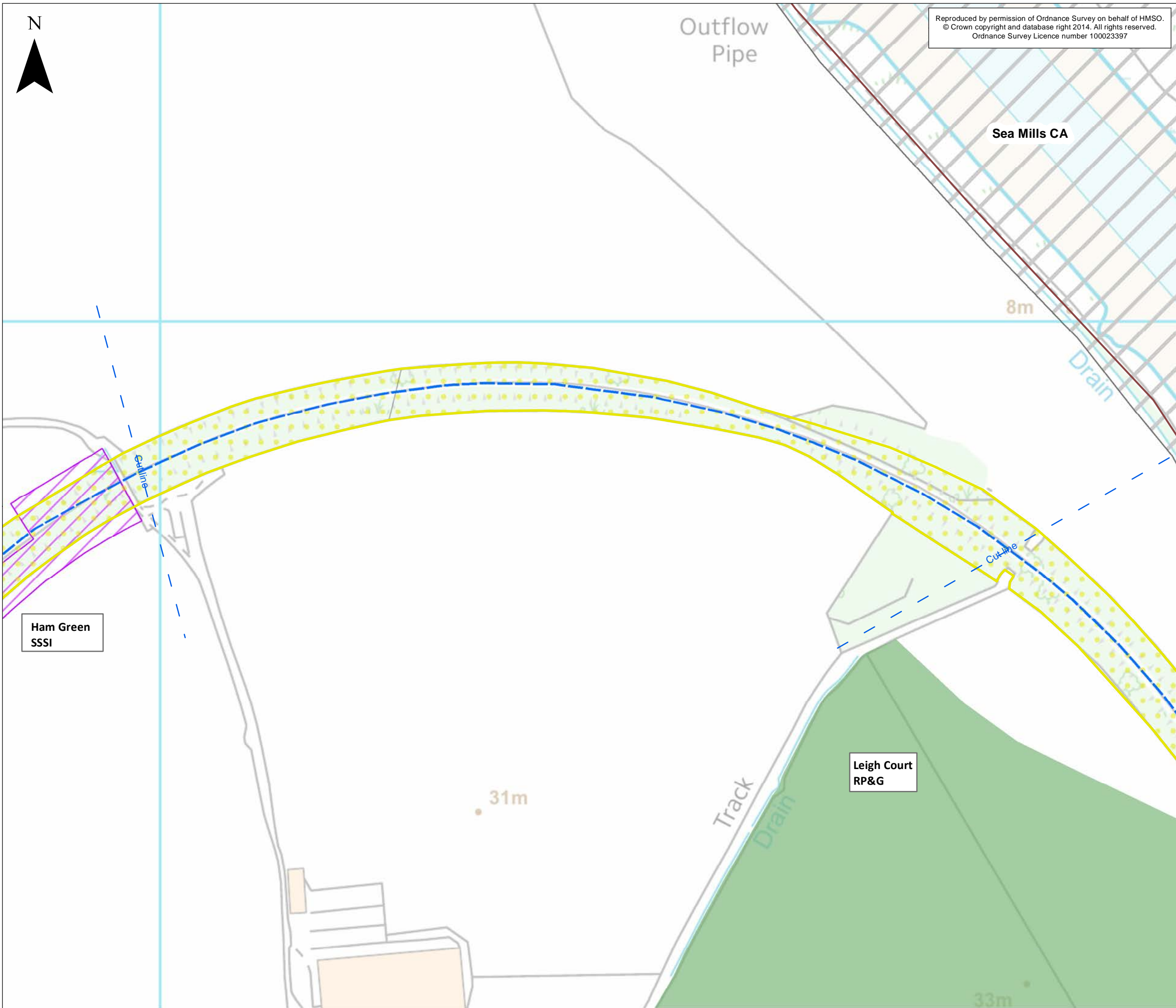
Project : Portishead Branch Line (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for Scoping Sheet 11 of 23

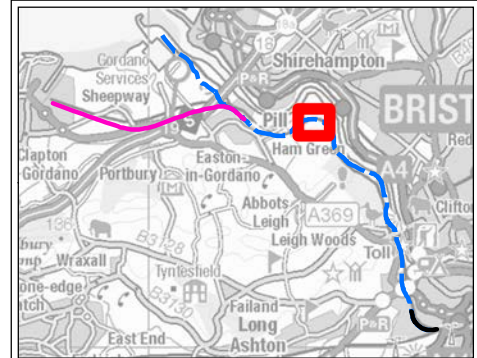
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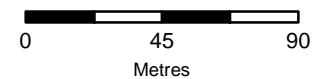
- Network Rail Permitted Development Rights
- Portbury Freight Line Improvements

Land Ownership

- Network Rail

Environmental Features

- Site of Special Scientific Interest (SSSI)
- Registered Park & Garden (RP&G)
- Conservation Area (CA)
- Sustrans cycle path



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Project :

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 (MetroWest Phase 1)

Drawing :

Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 12 of 23

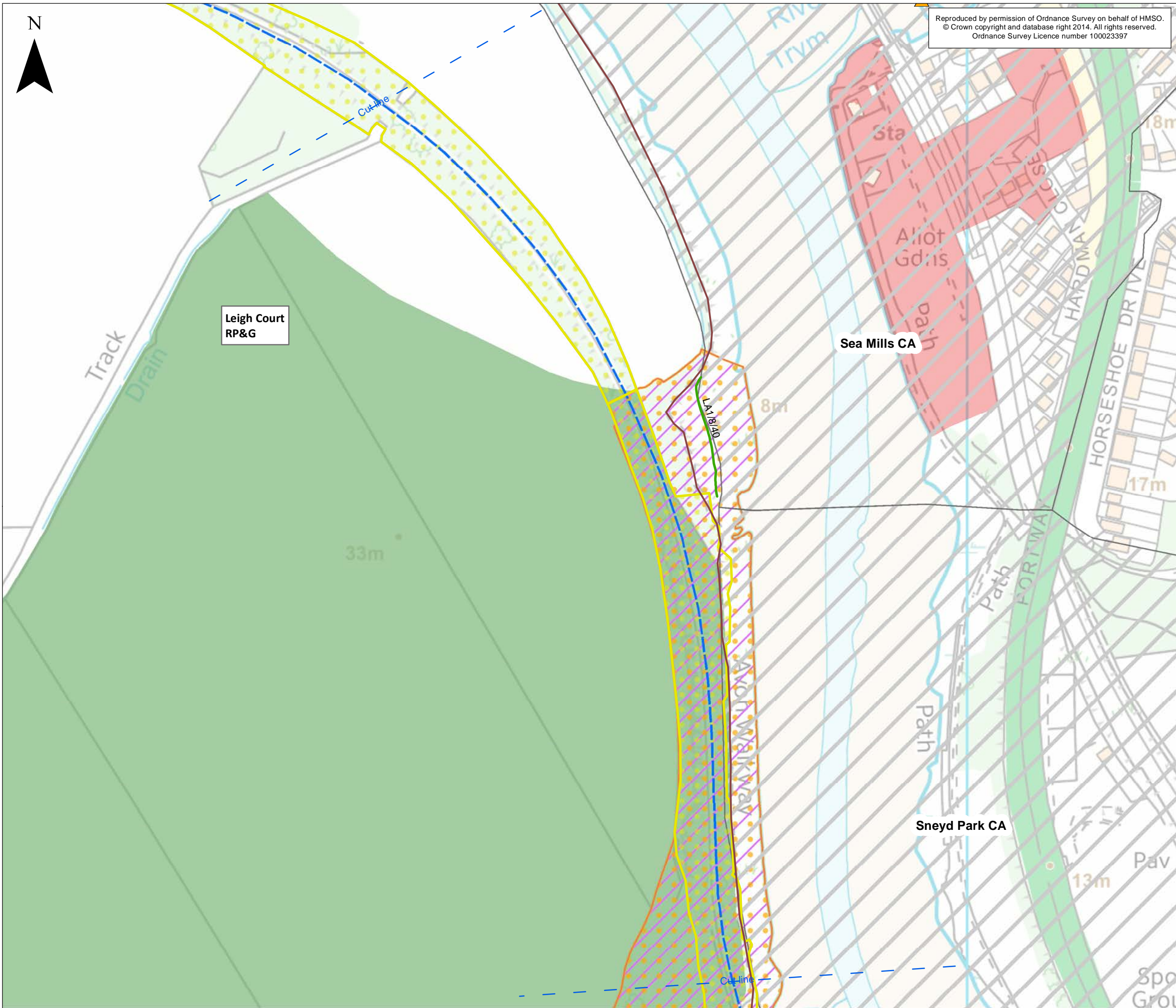
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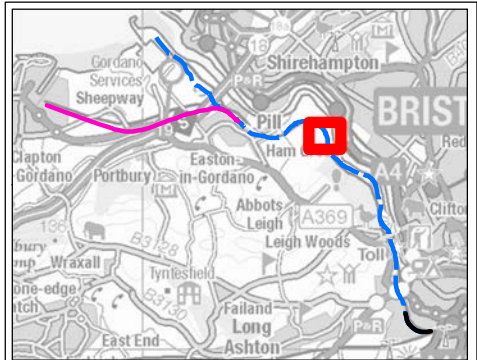
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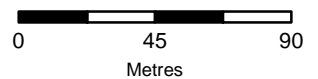
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- Land Ownership**
- Network Rail

- Environmental Features**
- Special Area of Conservation
 - Site of Special Scientific Interest (SSSI)
 - Registered Park & Garden (RP&G)
 - Conservation Area (CA)
 - Sustrans cycle path
 - Footpath
 - Scheduled Monument (SM)
 - ▲ Listed Building



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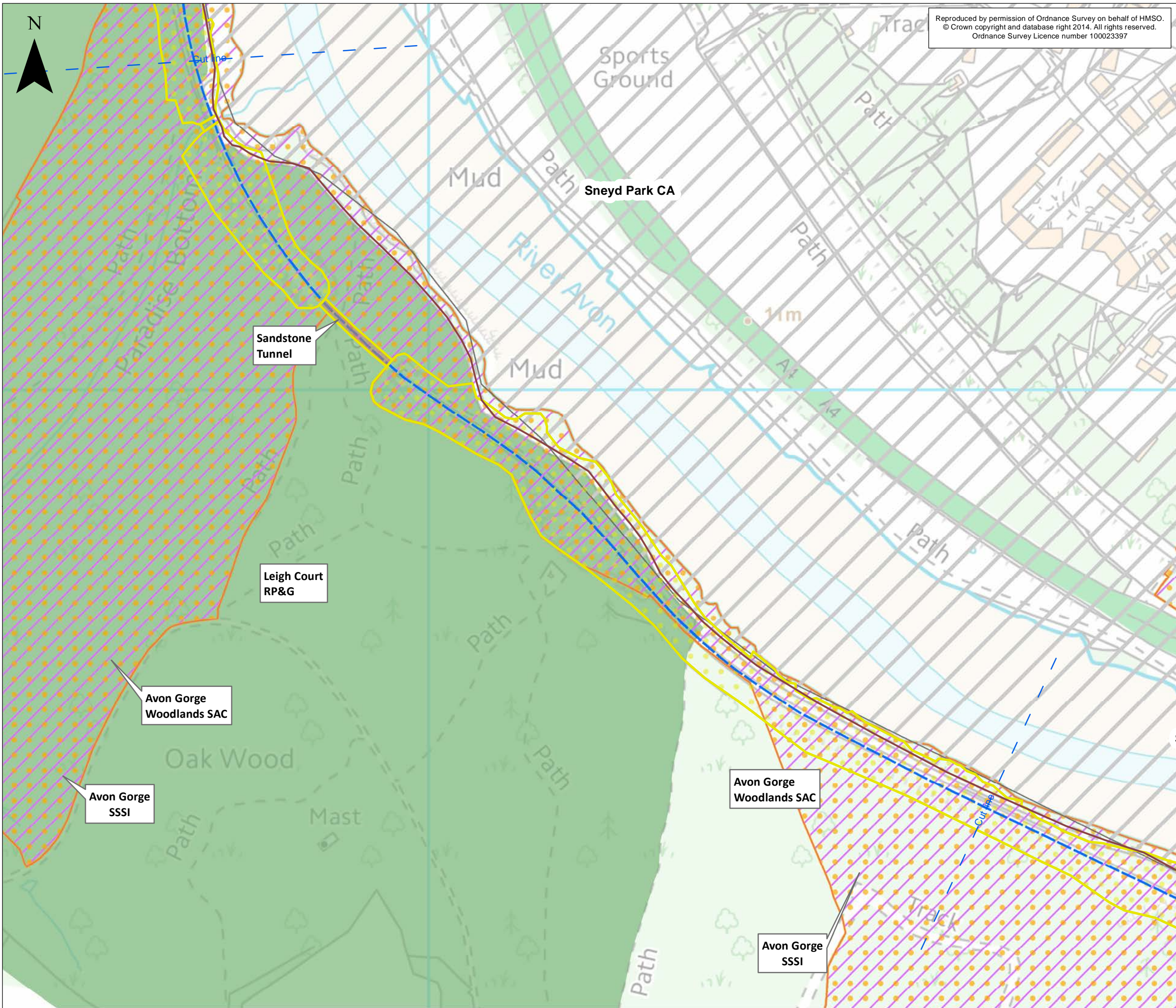
Project : **Portishead Branch Line (MetroWest Phase 1)**

Drawing : **Figure 2.1: Indicative Red Line Plan for Scoping Sheet 13 of 23**

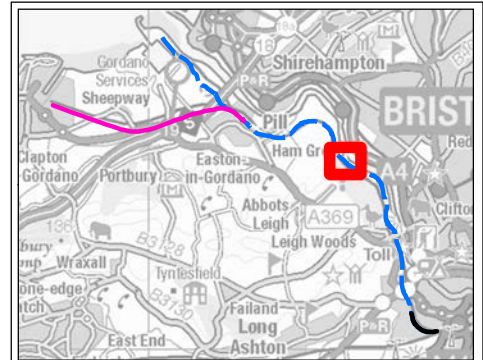
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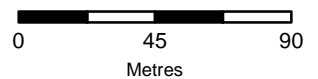
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- Land Ownership**
- Network Rail

- Environmental Features**
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 - Site of Special Scientific Interest (SSSI)
 - Registered Park & Garden (RP&G)
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 - Sustrans cycle path



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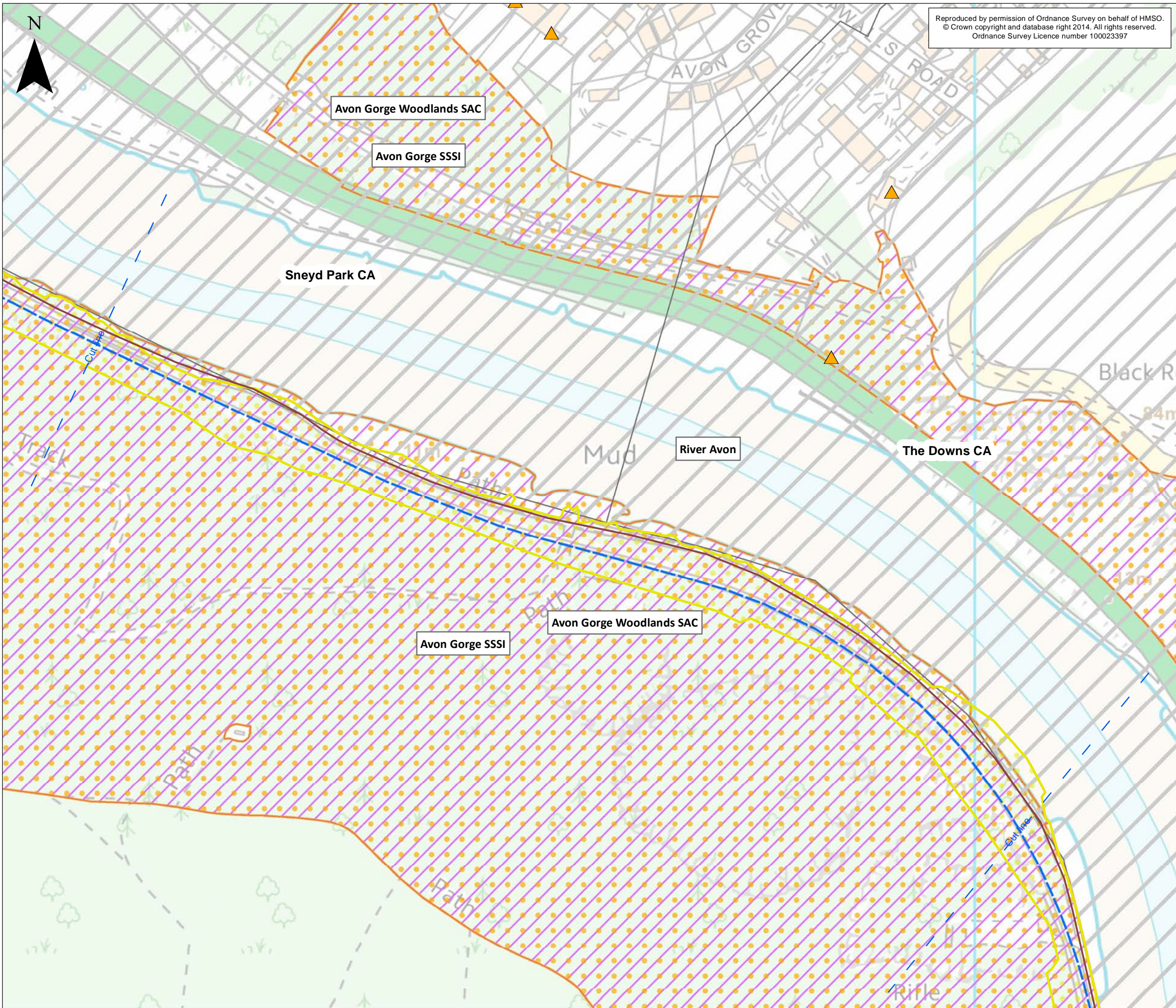
Project : Portishead Branch Line
 (MetroWest Phase 1)

Drawing :
 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 14 of 23

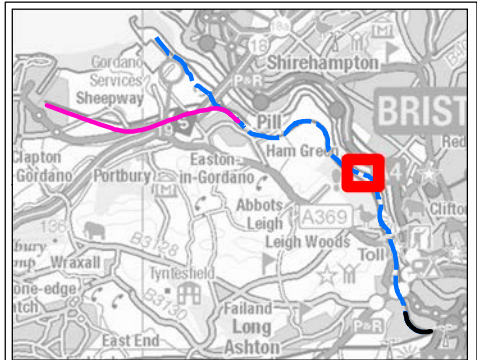
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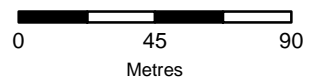
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- Land Ownership**
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- Environmental Features**
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 - Conservation Area (CA)
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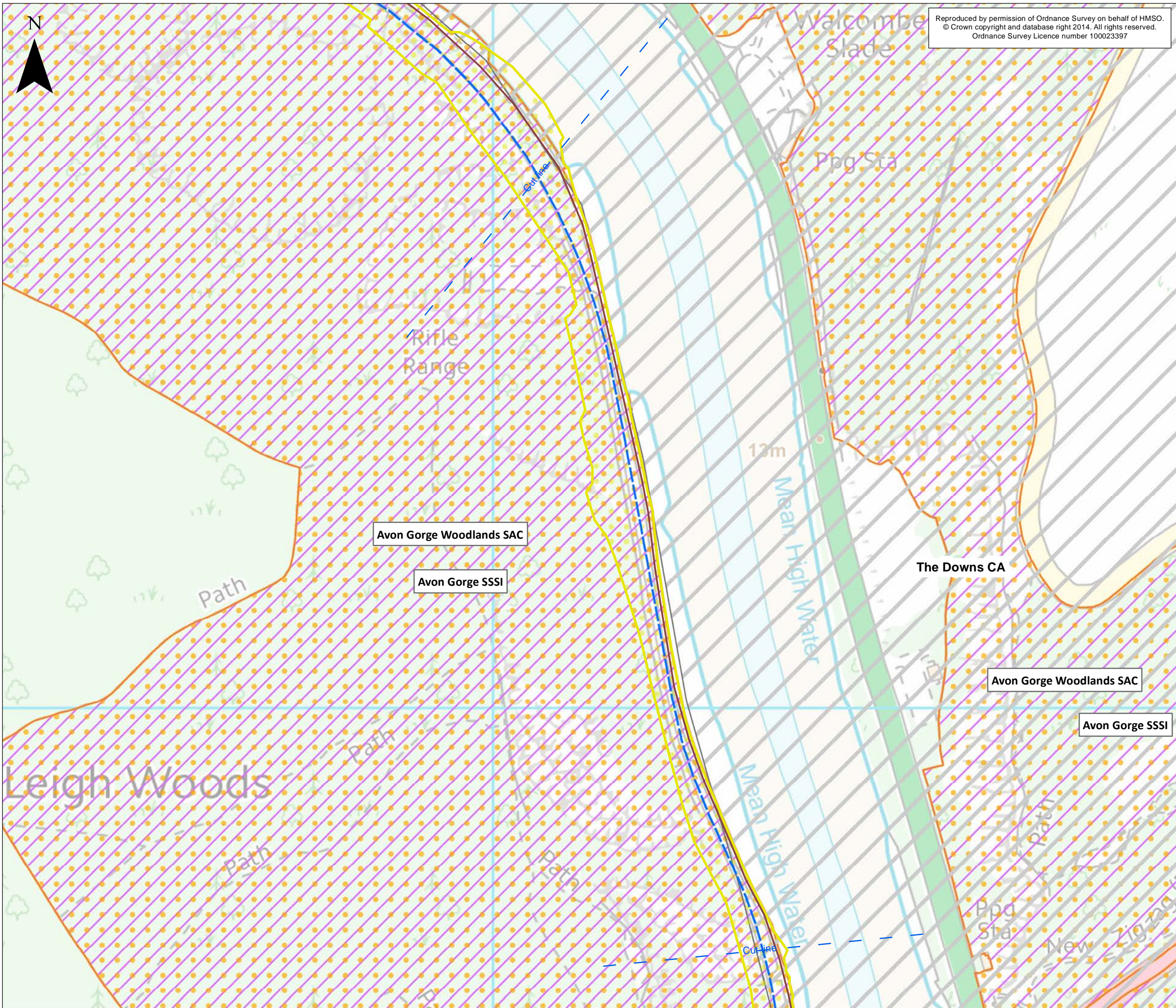
Project : Portishead Branch Line
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Drawing :
 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 15 of 23

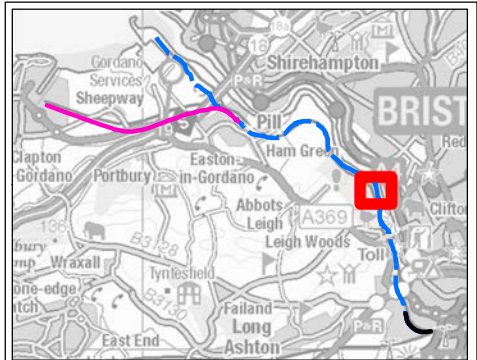
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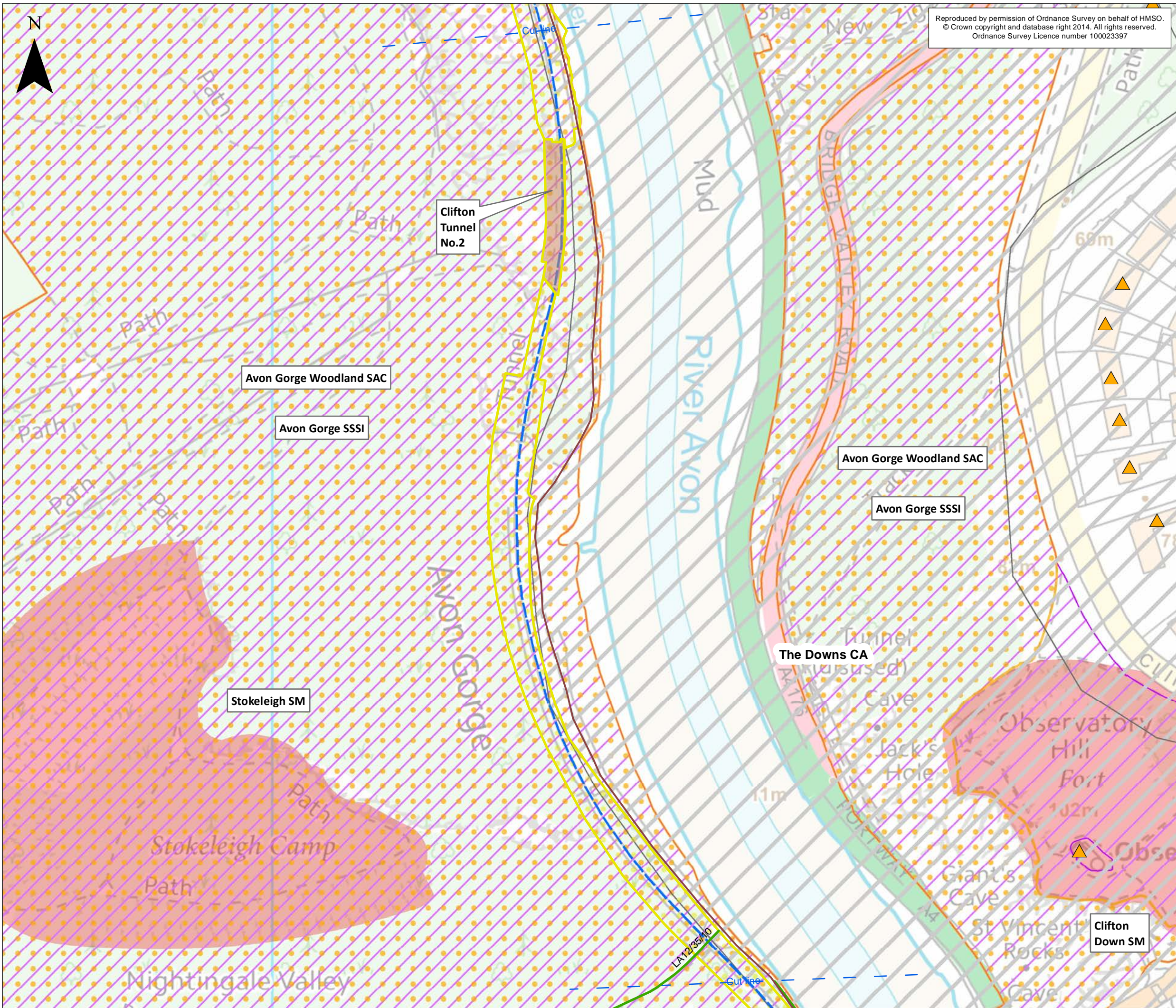
Project : Portishead Branch Line (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for Scoping Sheet 16 of 23

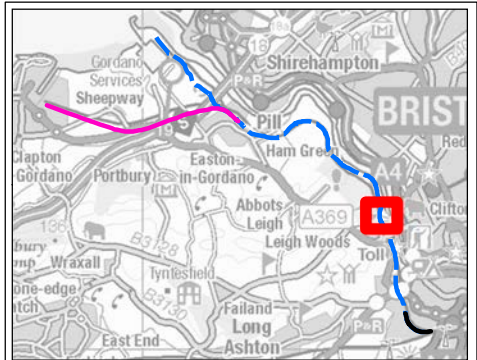
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- Environmental Features**
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 - Site of Special Scientific Interest (SSSI)
 - Conservation Area (CA)
 - Sustrans cycle path
 - Footpath
 - Scheduled Monument (SM)
 - ▲ Listed Building



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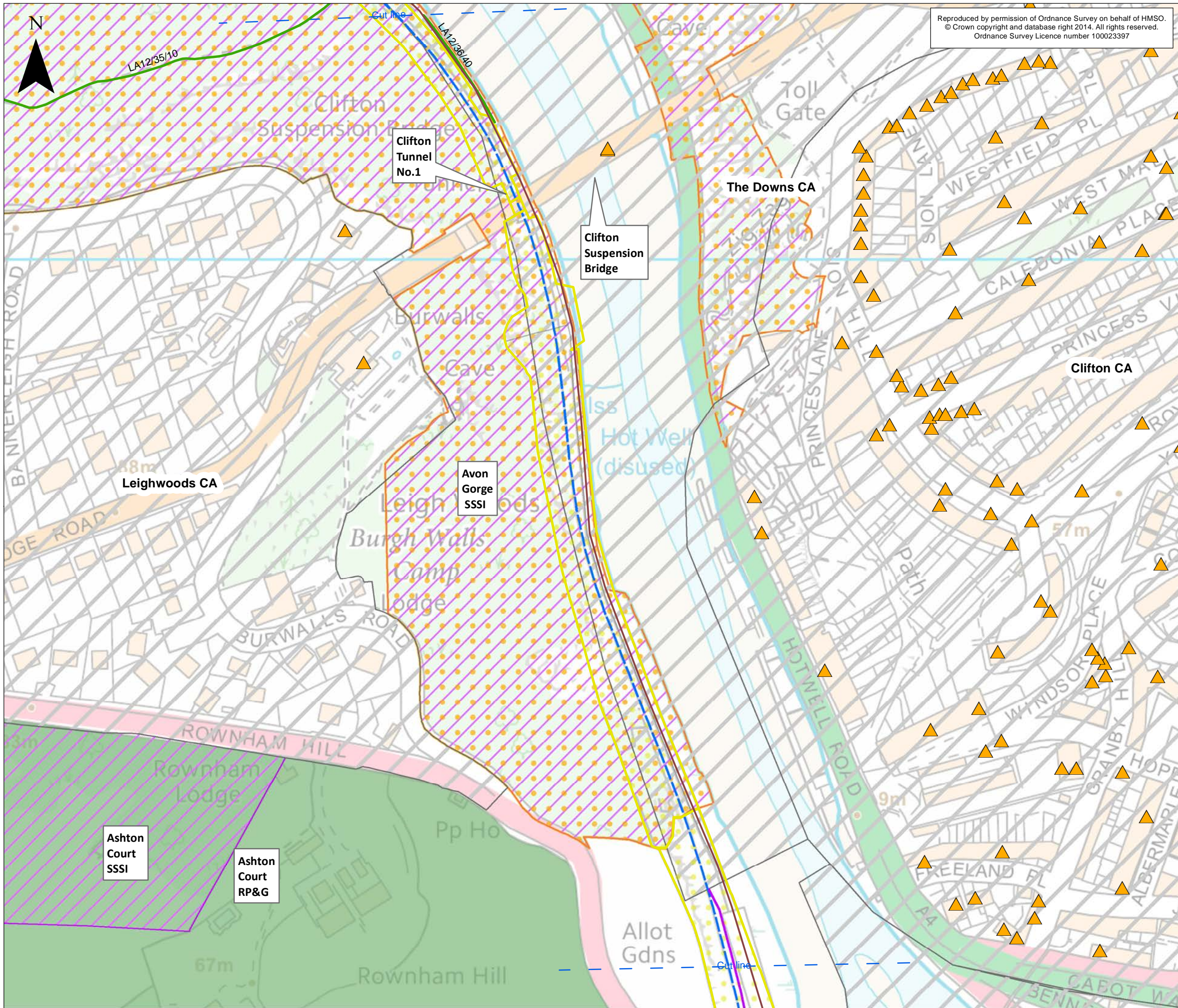
Project : Portishead Branch Line
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Drawing :
 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 17 of 23

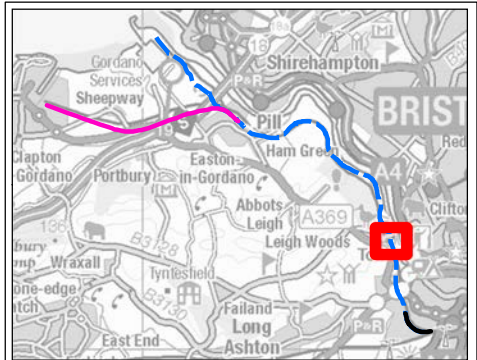
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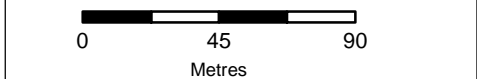
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- Land Ownership**
- Network Rail

- Environmental Features**
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 - Site of Special Scientific Interest (SSSI)
 - Registered Park & Garden (RP&G)
 - Conservation Area (CA)
 - Sustrans cycle path
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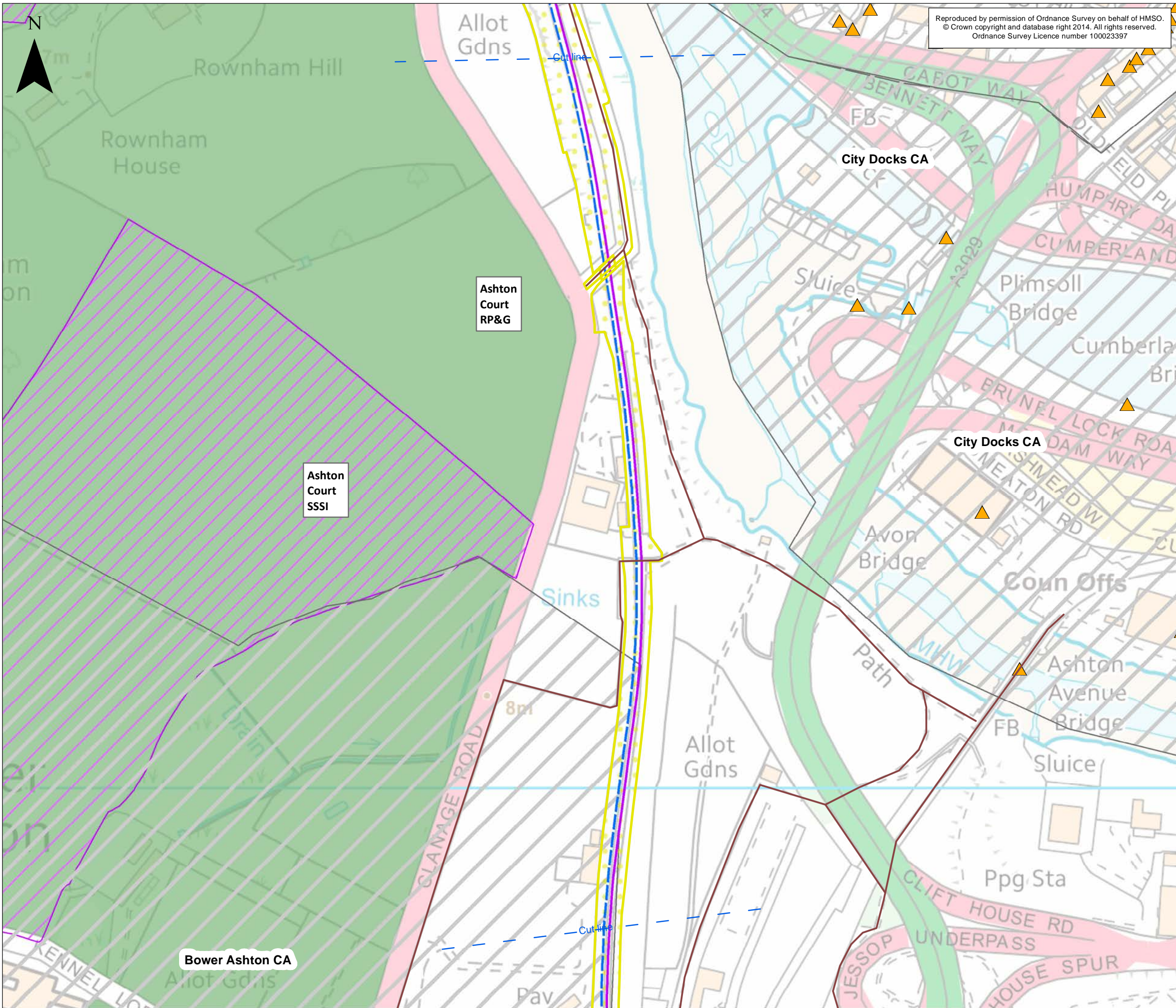
Project : Portishead Branch Line (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for Scoping Sheet 18 of 23

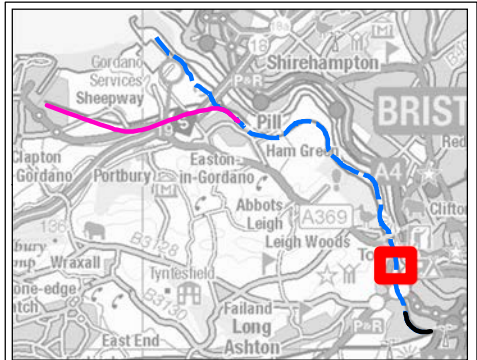
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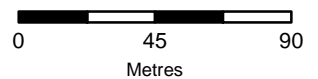
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Project : **Portishead Branch Line
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Drawing : **Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 19 of 23**

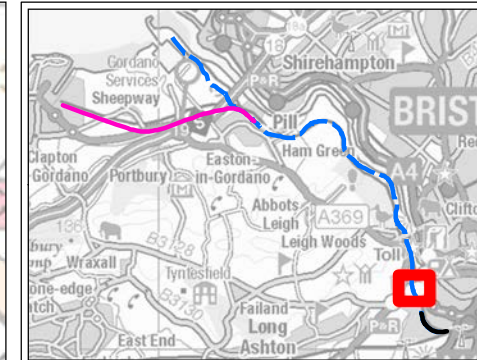
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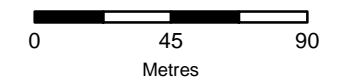


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Project : Portishead Branch Line (MetroWest Phase 1)

Drawing : Figure 2.1: Indicative Red Line Plan for Scoping Sheet 20 of 23

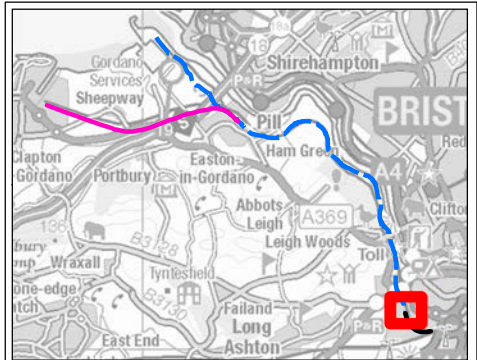
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Approved By : Carolyn Francis **Date:** 19/06/2015

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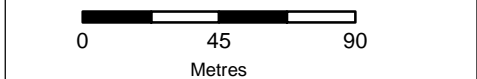
- KEY**
- Network Rail Permitted Development Rights
 - DCO Indicative Red Line Boundary
 - Portbury Freight Line Improvements
 - Existing Railway
 - Proposed Double Tracking

Land Ownership

- Network Rail

Environmental Features

- Sustrans cycle path



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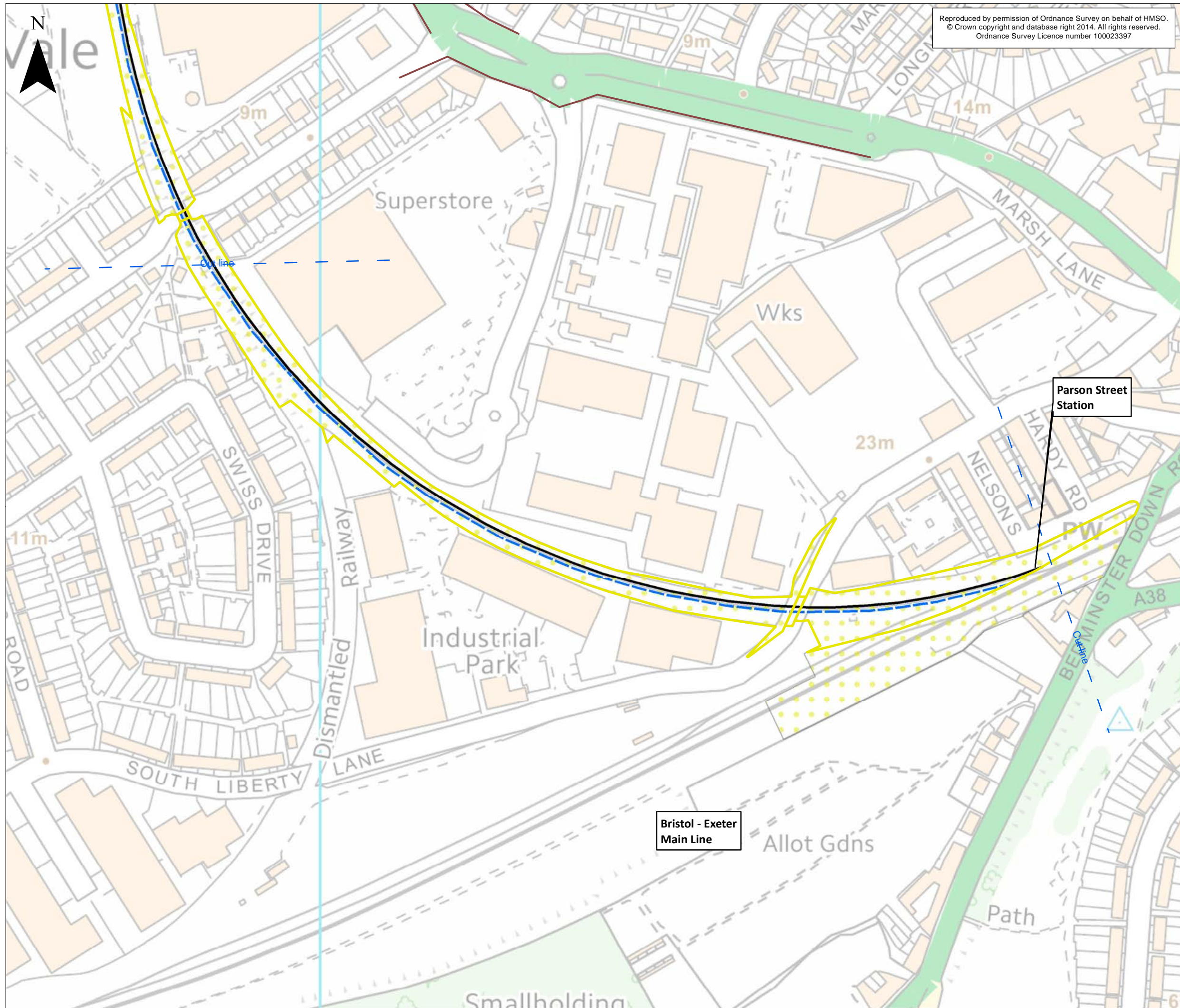
Project : Portishead Branch Line
 (MetroWest Phase 1)

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 Figure 2.1: Indicative Red Line Plan for
 Scoping Sheet 21 of 23

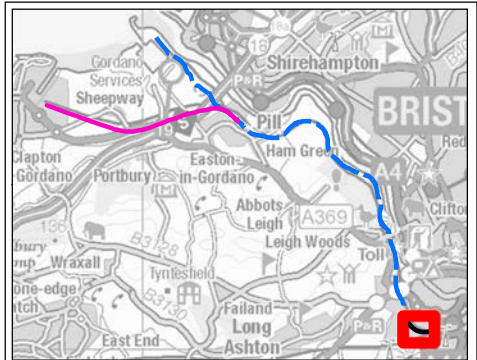
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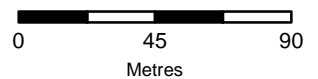
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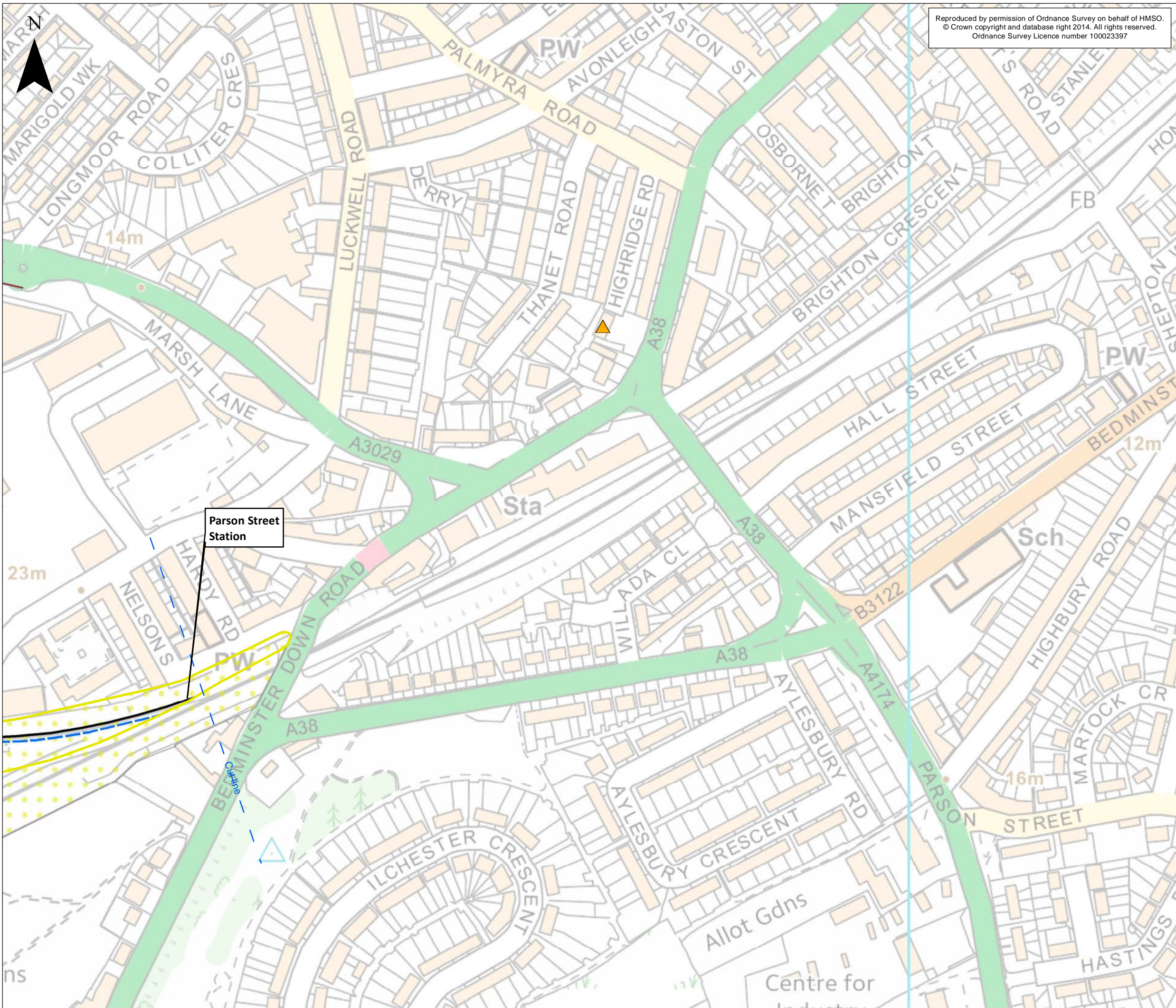
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 Figure 2.1: Indicative Red Line Plan for
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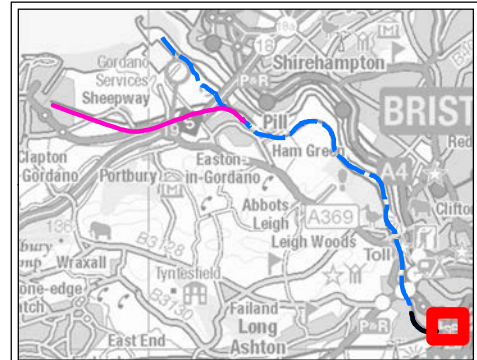
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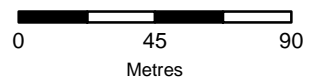
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- KEY**
- Network Rail Permitted Development Rights
 - Portbury Freight Line Improvements
 - Existing Railway

- Land Ownership**
- Network Rail

- Environmental Features**
- Sustrans cycle path
 - ▲ Listed Building



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Project : Portishead Branch Line
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 Scoping Sheet 23 of 23

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Appendix A
Habitats Regulations Assessment
Screening

Appendix A: Habitats Regulations Assessment Screening

Contents

DRAFT MetroWest Phase 1: Habitat Regulations Assessment Screening

Natural England reponse to Screening dated 05 February 2015

DRAFT MetroWest Phase 1: Habitat
Regulations Assessment Screening

DRAFT

MetroWest Phase 1: Habitat Regulations Assessment Screening

Prepared for

North Somerset Council

April 2014



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Document History

ECOLOGY REPORT

MetroWest Phase 1: Habitat Regulations Assessment Screening

This document has been issued and amended as follows:

Version	Date	Description	Created by	Verified by	Approved by
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Context and Background

1.1 Introduction

- 1.1.1 The Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna - the Habitats Directive - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of interest to the EU in a favourable condition. This is implemented through a network of protected areas referred to as Natura 2000 sites.
- 1.1.2 Articles 6(3) and 6(4) of the Habitats Directive requires Appropriate Assessment of plans and projects likely to have a significant effect on a European site. This means that the effects of such plans/projects on Natura 2000 sites need to be assessed to ensure that the integrity of these sites is maintained. The Natura 2000 sites are of two types - Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Each Natura 2000 site has a number of qualifying features, for which conservation objectives have been developed. Government guidance also requires that Ramsar sites (which support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance) are included within a Habitats Regulations Assessment/Appropriate Assessment.
- 1.1.3 The purpose of Habitat Regulations Assessment (HRA) is to assess the impacts of a land use plan or project, in combination with the effects of other plans and projects, against the conservation objectives of a European Site and to ascertain whether it would adversely affect the integrity of that site. Where significant negative effects are identified, alternative options should be examined to avoid any potential damaging effects. The scope of the HRA is dependent on the location, size and significance of the proposed plan or project and is first determined by screening.
- 1.1.4 The main stages of Habitats Regulations Assessment (HRA) process are as follows.
- Stage 1 - Screening**
- 1.1.5 This stage identifies the likely impacts upon a European Site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant. Confirmation of no 'likely significant effects' (LSE) can effectively complete the HRA.
- Stage 2 - Appropriate Assessment**
- 1.1.6 Where there are likely significant effects, this stage considers the impacts of the plan or project on the integrity of the relevant European Sites, either alone or in combination with other projects or plans, with respect to the structure and function of the site and the conservation objectives. Where there are adverse impacts, it also includes an assessment of the potential mitigation for those impacts.
- Stage 3 - Assessment of alternative solutions**
- 1.1.7 Where adverse impacts are predicted, this stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of European Sites.
- Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain**
- 1.1.8 This stage assesses compensatory measures where it is deemed that the project or plan should proceed for imperative reasons of overriding public interest (IROPI). The guidance does not deal with the assessment of IROPI.

1.2 The Proposed Project

1.2.1 The four West of England authorities North Somerset Council (NSC), Bristol City Council (BCC), Bath & North East Somerset Council (B&NES) and South Gloucestershire Council (SGC) are jointly promoting a programme of rail enhancement projects known as MetroWest within their combined jurisdictions. MetroWest Phase 1 is centred on the railway services provided in and around Bristol and comprises:

- A new passenger service between Portishead and Bristol Temple Meads, including stations at Portishead and Pill, with a half hourly service during peak times and an hourly services at other times
- Hourly services from Bristol Temple Meads to Bath Spa via Oldfield Park and Keynsham
- A new passenger service between Portishead and Bristol Temple Meads, including stations at Portishead and Pill, with a half hourly service during peak times and an hourly services at other times
- Hourly services from Bristol Temple Meads to Severn Beach / Avonmouth

1.2.2 To implement MetroWest Phase 1 it will be necessary to build new infrastructure and modify or upgrade the existing operational rail. These works are summarised below.

New Railway Portishead to Pill

1.2.3 The existing abandoned railway between Portishead and Pill will be removed and replaced by modern standard earthworks, railway tracks, and other features to build an operational railway. A new railway station will be built in Portishead and the abandoned railway station in Pill will be refurbished (and a new car park provided). Provision will be made for pedestrian and farm crossings. Planning approval for these works will be sought under the Planning Act 2008 Development Consent Order application (the Portishead to Pill DCO Application Area).

Portbury Freight Line

1.2.4 The existing single line Portbury freight line between Pill and its junction with the south west main line will be upgraded. The main works are new sections of double tracks between Pill and Ashton Gate, and an improved maintenance road access to Pill tunnel. These works will be undertaken under Network Rail's permitted development rights. However, the potential environmental impacts will be considered as part of the cumulative impacts associated with the Portishead to Pill DCO Application Area.

Other Works

1.2.5 Other works required on the operational railway to implement MetroWest Phase 1 will be undertaken by Network Rail under their permitted development rights and subject to ongoing study may include:

- Possible need to improve Parsons Street Junction and line works between Parsons Street Junction and Bristol Temple Meads;
- Re-signalling the entire line between Portishead and Temple Meads;
- A possible extension of the passing loop at Clifton Down on the Severn Beach line; and
- A turn back facility at Bathampton east of Bath Spa.

1.2.6 The Portishead to Pill DCO Application Area is located to the west of Bristol, close to the Severn Estuary and south of the River Avon. The Portbury freight line extends from Portbury Dock and south of the River Avon, passing through the Avon Gorge to join the main line to the South West of England between Ashton Gate and Parsons Street Junction

to the south of Bristol. Bathampton turn back is located to the east of Bath on the main line to London (Refer to Annex A Figure A.1 for location plan).

- 1.2.7 The nearest European site to the proposed MetroWest Project is the Avon Gorge Woodlands SAC. The existing Portbury Freight line runs through this site for a length of approximately 3.8 km. The Severn Estuary SPA, SAC and Ramsar Site is approximately 60m from the Portishead to Pill DCO Application Area at its closest point, near Pill. The North Somerset & Mendip Bats SAC is located approximately 11.5 km south-west of the Portishead to Pill DCO Application Area at its closest point and the Bath and Bradford-on-Avon Bats SAC is located 22km from the Portishead to Pill DCO Application Area and 950 m from Bathampton Turnback (refer to Annex A Figures A.2 and A.3).
- 1.2.8 To date no formal consultation between NSC and Natural England has taken place. However initial contact has been made and discussions have begun regarding the potential impacts upon Natura 2000 Sites. It was agreed that a more formal meeting to review potential impacts will take place at a later date when there is more information regarding the scope and likely impacts of the Portishead to Pill DCO Application. There has been consultation between Natural England and Network Rail on this scheme, and NSC and NR are in discussion to share this feedback.
- 1.2.9 In the interim it is considered appropriate to undertake HRA to formalise the screening process to establish if 'likely significant effects' (LSE) on any European sites would occur from the implementation of the Portishead to Pill DCO Application Area and the works to the Portbury Freight Line (referred to as the scheme in the following sections).

Appropriate Assessment Screening Matrix

2.1.1 The following Screening Matrix to assess the level of Appropriate Assessment required has been produced as a requirement under the EU Habitats Directive (92/43/EEC). The matrix has been produced based upon assumptions that the mitigation specified within this report will be implemented. Any changes to the described mitigation will require further assessment and consultation with statutory environmental bodies as appropriate.

Plan or Project Name:	MetroWest Phase 1	
Natura 2000 Site under Consideration:	Avon Gorge Woodlands SAC Severn Estuary SPA, SAC, Ramsar North Somerset & Mendip Bats SAC	
Date:	Author:	Verified:
April 2004	Gemma Harding	David Whitehorne
Description of Project/Plan:		
Size and scale (road type and probable traffic volume);	The Scheme extends from OS Grid Reference: ST472764 to ST575705. The length of the Scheme is 14.5km (see Annex A Figure A.1).	
Land-take;	A 3.8 km section of the Portbury Freight Line lies within the boundaries of the SAC. This section of railway line was in operation before the SAC was designated. The existing boundaries of the railway line and associated infrastructure will not change as a result of the MetroWest project. Therefore no land take of European sites will be required.	
Distance from the European Site or key features of the site (from edge of the project assessment corridor);	Part of the scheme falls within Avon Gorge Woodlands SAC. Severn Estuary SPA, SAC and Ramsar is located approximately 60m north of works at its closest point. North Somerset & Mendip Bats SAC is located 11.5 km to the south-west. (Refer to Annex A Figures A.2 and A.3)	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts);	Materials of local provenance will be employed where possible for the construction of the proposed Scheme. No resources will be required from Natura 2000 Sites.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutant, atmospheric pollution);	The proposed railway development will introduce a new service of diesel-powered trains between Portishead and Pill, and additional services along the Portbury freight line. Combustion of diesel emits carbon dioxide and water vapour with trace amounts of the pollutants nitrogen oxides (NOx) and soot (PM10). The fossil carbon dioxide ('carbon') emissions are a factor in Climate Change. The site clearance and construction phase will involve activities such as earthworks which are likely to generate dust. Materials used during construction will also have an embodied carbon impact.	

	During the operational phase there will be an increase in emissions from diesel engines on the currently disused Portishead to Pill line. Increased emissions from the additional passenger service along the Portbury Freight Line and indirect increases in emissions on roads surrounding rail stations are also expected. However, the scheme is designed to create a modal shift from road vehicles to rail, leading to a change in vehicle journeys and traffic distribution on the road network. Therefore the scheme would be expected to lead to a reduction in vehicular emissions of pollutants and carbon in the area as a whole.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations may be required within the Portishead to Pill disused section of the line to remove and replenish ballast and for localised lowering of the line by about 200 mm under bridges. Some minor excavation may be required along the existing Portbury Freight Line and its associated tunnels to ensure adequate drainage and signalling is in place. Sections of the Portbury freight line fall within the SAC however excavations will be limited to the rail infrastructure.
Transportation requirements	Access points into the Portishead to Pill section are likely to be required in order to deliver materials to site, with much of the works and access along the existing railway corridor. The Portbury Freight line will largely be accessed via the existing train line in order to deliver materials. There will be a temporary increase in traffic and disruption during construction at access points along the disused section.
Duration of construction, operation, etc.	Construction activities along the Portbury Freight Line will be minimal and likely to be undertaken under weekend possessions. The main construction and reopening of the line and new stations between Portishead and Pill are anticipated to be completed within a 12 month period.
Other.	None.
Description of avoidance and/or mitigation measures Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:	
Nature of proposals	<ul style="list-style-type: none"> - Construction Environmental Management Plan (CEMP) - Pollution Prevention as identified in the relevant Pollution Prevention Guidelines (in particular PPG1 '<i>General Guide to the Prevention of Pollution</i>', PPG5 '<i>Works and maintenance in or near water</i>', PPG6 '<i>Working at Construction and Demolition Sites</i>' and PPG21 '<i>Pollution incident response planning</i>') and CIRIA's '<i>Environmental Good Practice on Site</i>' guidance. - Protected species surveys - Mitigation measures to protect habitat and species disturbance including specific timing of works; toolbox talks and modifying works where required.

	- Habitat reinstatement and management to maintain green corridors and minimise fragmentation effects for bats and other species.
Location	Locations of mitigation measures to be determined following detailed surveys and assessment, but will comprise: <ul style="list-style-type: none"> - Statutory and non-statutory conservation sites - Features and habitats impacted by the works that are deemed as important for nature conservation following species surveys (e.g. statutorily protected species, species and habitats of principal importance and those as priorities within local Biodiversity Action Plans). - Best practice methods following the CEMP and pollution prevention methods would be employed throughout the site.
Evidence for effectiveness	Mitigation measures would follow standard methodologies as identified above and in relevant Pollution Prevention Guidance and CIRIA's Environmental Good Practice On Site guidance. Where SSSIs form part of the SAC Operations likely to damage the special interest will be adhered to. Protected species mitigation will be undertaken in accordance with legal requirements and subject to any licence conditions. <p>All environmental work procedures that need to be followed during the course of the works will be included in the CEMP and other relevant documentation (e.g. General Maintenance Construction Health, Safety & Environment Plan).</p>
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	Portishead to Pill works to be undertaken in accordance with a Development Consent Order application. All works within Network Rail estate to be undertaken under permitted development rights. <p>Works will be undertaken in accordance with the Highways Agency's Design Manual for Roads and Bridges (DMRB) and Network Rail's environmental policies. The CEMP and Method Statements would be prepared and implemented by the successful contractor, and supervised by the overseeing agent on behalf of Network Rail.</p>
Characteristics of European Site(s)	
A brief description of the European Site should be produced, including information on:	
Name of European Site and its EU code	Avon Gorge Woodlands SAC Code UK0012734
Location and distance of the European Site from the proposed works	A 3.8km section of the scheme is within the Avon Gorge Woodlands SAC.
European Site size	152.35 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<i>Tilio-Acerion</i> forests of slopes, screes and ravines (primary reason for selection). Avon Gorge is representative of <i>Tilio-Acerion</i> forests in south-west England on the limestone cliffs and screes of a large river gorge. It is important because of the high concentration of small-leaved lime <i>Tilia cordata</i> , compared with other sites in the region, the

	<p>presence of rare whitebeams <i>Sorbus</i> spp., including two unique to the Avon Gorge (<i>S. bristoliensis</i> and <i>S. wilmottiana</i>), and other uncommon plants, such as green hellebore <i>Helleborus viridis</i>. Other characteristic species include soft shield-fern <i>Polystichum setiferum</i> and hart's-tongue <i>Phyllitis scolopendrium</i>. Species-rich transitions to scrub and grasslands are associated with the woodland. Small groves of yew <i>Taxus baccata</i> also occur on some of the stonier situations.</p> <p>Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) (not primary reason for selection).</p>
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>There are no significant threats to the Annex I habitat on this site. Part is managed as a National Nature Reserve and the management of the remainder is being addressed through a Site Management Statement, which is being negotiated. The presence of non-native trees throughout the site needs to be assessed. In addition, scrub invasion on calcareous grasslands is a problem. Both of these have begun to be tackled through the Avon Gorge and Downs Wildlife Project.</p>
<p>European Site conservation objectives – where these are readily available</p>	<p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; • The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; • The populations of qualifying species; • The distribution of qualifying species within the site.
<p>Assessment Criteria</p> <p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p> <ul style="list-style-type: none"> • The project proposes to reopen a section of disused railway line which includes vegetation removal and constructing new stations. • The project includes additional rail infrastructure within the existing rail boundaries and the running of passenger trains along the Portbury Freight Line. 	
<p>Initial Assessment</p> <p>The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.</p>	
<p><i>Describe any likely changes to the site arising as a result of:</i></p>	

Reduction of habitat area	No direct loss of habitat will occur as works will be limited to the existing Network Rail boundary.
Disturbance to key species	<p>Temporary disturbance may occur to habitats within the limits of the railway. However, initial surveys found no evidence for habitats within the railway boundary to support key species of the SAC. Although there maybe potential for disturbance to uncommon plant species associated with the SAC habitats.</p> <p>Greater and lesser horseshoe bats (<i>Rhinolophus ferrumequinum</i> and <i>R. hipposideros</i>) are listed as an Annex II species for the site. To ensure no disturbance to these species takes place, works to structures and tunnels will not be permitted unless bat surveys and inspection have been undertaken. The surveys can then inform appropriate mitigation to avoid or minimise any disturbance to the bats. Network Rail has recently commissioned bat surveys in relation to maintenance works for the four tunnels on the Portbury Freight line. According to the consultants undertaking the work, no bats were identified as using the tunnels (pers. Comm.) although this needs to be verified with Network Rail. As the Portbury Freight line is used by up to 20 freight trains a day, the railway tunnels may not be suitable for bats.</p>
Habitat or species fragmentation	No additional fragmentation will occur with the SAC as the site in question already functions as an operational railway line.
Reduction in species density	The proposed scheme would lead to a modest increase in emissions along the route. Changes in species density are unlikely, however changes in air quality need to be quantified in order to confirm this.
Changes in key indicators of conservation value (water quality, etc.)	With best practice measures for construction and pollution prevention in place, there will be no impact upon any key indicators.
Climate change	No changes identified as a result of the proposed project.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
• Interference with the key relationships that define the structure of the site	No impacts likely.
• Interference with the key relationships that define the function of the site	No impacts likely.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Over time changes in air quality may impact some plant species within close proximity of the railway line. Further calculations are

	required in order to understand the likely impacts relating to air quality however with nitrogen increases considered to be minimal and a modal shift from vehicles to trains, air quality it is not expected to be significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
<p>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</p> <p>Empirical Critical Loads (kg N/ha/yr) for the primary and qualifying habitats (<i>Tilio-Acerion</i> forests and Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)) of this site are set between 15-25 kg N/ha/yr. The increases in nitrogen deposition anticipated from the increased running of trains is likely to be negligible in terms of impacts to the SAC. However, as the nitrogen levels for this area are already high compared to the critical load for the SAC further investigation is required in order to assess this aspect in more detail and in combination with other projects.</p>	
<p>Characteristics of European Site(s)</p> <p>A brief description of the European Site should be produced, including information on:</p>	
Name of European Site and its EU code	<p>Severn Estuary SPA Code UK9015022</p> <p>Severn Estuary SAC Code UK0013030</p> <p>Severn Estuary Ramsar site UK11081</p>
Location and distance of the European Site from the proposed works	Approximately 60m to north of the site at the closest point.
European Site size	SAC and SPA – 73,715.4 ha; Ramsar – 24,662.98 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p><u>Severn Estuary SPA</u></p> <p>ARTICLE 4.1 QUALIFICATION (79/409/EEC): Tundra Swan <i>Cygnus Columbianus bewickii</i>. Over winter the area regularly supports (Western Siberia/North-eastern & North-western Europe) 3.9% of the GB population. 5 year peak mean 1991/92-1995/96.</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC): Gadwall <i>Anas strepera</i>. Over winter the area regularly supports (North-western Europe) 0.9% of the population. 5 year peak mean 1991/92-1995/96. Greater white-fronted goose <i>Anser albifrons albifrons</i>. Over winter the area regularly supports (North-western Siberia/North-eastern & Northwestern Europe) 0.4 % of the population. 5 year peak mean 1991/92-1995/96. Dunlin <i>Calidris alpina alpina</i>. Over winter the area regularly supports (Northern Siberia/Europe/Western Africa) 3.3% of the population. 5 year peak mean 1991/92-1995/96. Shelduck <i>Tadorna tadorna</i>. Over winter the area regularly supports (North-</p>

	<p>western Europe) 1.1% of the population. 5 year peak mean 1991/92-1995/96. Redshank <i>Tringa totanus</i>. (Eastern Atlantic - wintering) 1.3% of the population. 5 year peak mean 1991/92-1995/96.</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS: Over winter the area regularly supports 84,317 waterfowl (5 year peak mean 01/04/1998) Including: <i>Cygnus columbianus bewickii</i>, <i>Anser albifrons albifrons</i>, <i>Tadorna tadorna</i>, <i>Anas strepera</i>, <i>Calidris alpina alpina</i>, <i>Tringa totanus</i>.</p> <p><u>Severn Estuary SAC</u></p> <p>Estuaries (primary reason for selection). Habitat occurrence description not yet available.</p> <p>Mudflats and sandflats not covered by seawater at low tide (primary reason for selection). Habitat occurrence description not yet available.</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) (primary reason for selection). Habitat occurrence description not yet available.</p> <p>Sea lamprey <i>Petromyzon marinus</i> (primary reason for selection). Species occurrence description not yet available.</p> <p>River lamprey <i>Lampetra fluviatilis</i> (primary reason for selection). Species occurrence description not yet available.</p> <p>Twaite shad <i>Alosa fallax</i> (primary reason for selection). Species occurrence description not yet available.</p> <p>Sandbanks which are slightly covered by sea water all the time (not a primary reason for selection)</p> <p>Reefs (not a primary reason for selection).</p> <p><u>Severn Estuary Ramsar site</u></p> <p>Ramsar criterion 1. Due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities.</p> <p>Habitats Directive Annex I features include: Sandbanks which are slightly covered by sea water all the time, Estuaries, Mudflats and sandflats not covered by seawater at low tide, and Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>Ramsar criterion 3. Due to unusual estuarine communities, reduced diversity and high productivity.</p> <p>Ramsar criterion 4. This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla anguilla</i>. It is also of particular importance for migratory birds during spring and autumn.</p> <p>Ramsar criterion 8. The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>,</p>
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	<p>twaite shad <i>A. fallax</i>, and eel <i>Anguilla anguilla</i> use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad <i>Alosa alosa</i> and twaite shad <i>A. fallax</i> which feed on mysid shrimps in the salt wedge.</p> <p>Ramsar criterion 5 Assemblages of international importance: Species with peak counts in winter: 70,919 waterfowl (5 year peak mean 1998/99-2002/2003).</p> <p>Ramsar criterion 6 – species/populations occurring at levels of international importance. Species with peak counts in winter: Tundra swan, <i>Cygnus columbianus bewickii</i>, NW Europe 229 individuals, representing an average of 2.8 % of the GB population (5 year peak mean 1998/9-2002/3). Greater white-fronted goose, <i>Anser albifrons albifrons</i>, NW Europe 2076 individuals, representing an average of 35.8% of the GB population (5 year peak mean for 1996/7-2000/01). Common shelduck, <i>Tadorna tadorna</i>, NW Europe 3,223 individuals, representing an average of 1 % of the population (5 year peak mean 1998/9-2002/3). Gadwall, <i>Anas strepera strepera</i>, NW Europe 241 individuals, representing an average of 1.4 % of the GB population (5 year peak mean 1998/9-2002/3). Dunlin, <i>Calidris alpina alpina</i>, W Siberia/W Europe 25082 individuals, representing an average of 1.8 % of the population (5 year peak mean 1998/9-2002/3). Common redshank, <i>Tringa totanus totanus</i>, 2,616 individuals, representing an average of 1 % of the population (5 year peak mean 1998/9-2002/3).</p>
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>Severn Estuary SAC/SPA - The conservation of the site features is dependent on the tidal regime. The tidal range in the Severn Estuary is the second-highest in the world and the scouring of the seabed and strong tidal streams result in natural erosion of the habitats and the presence of high sediment loads. The estuary is therefore vulnerable to large-scale interference, mainly as a result of human actions. These include land-claim, aggregate extraction, physical developments such as barrage construction and other commercial construction activities, flood defences, industrial pollution, oil spillage and tourism-based activities and disturbance.</p> <p>There are several management mechanisms that seek to secure sustainable management of the Severn Estuary and its wildlife interest. Under the 1994 Habitats Regulations, a management scheme under Regulation 34 was established in 2004 in relation to the international bird interest that underpins designation as a SPA. Conservation advice has been provided under Regulation 33 for the Severn Estuary SAC, SPA and Ramsar site. Under the 2010 Habitat Regulations the management scheme previously produced is being reviewed and expanded to cover the not only the SPA but also the SAC and Ramsar site.</p> <p>Severn Estuary Ramsar - Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects are:</p>

	<ul style="list-style-type: none"> • Dredging (on-site, off-site and major impact); • Erosion (on-site and major impact); and • Recreational/tourism disturbance (unspecified) (on-site and off-site).
<p>European Site conservation objectives – where these are readily available</p>	<p>SAC interest feature 1: Estuaries</p> <p>The conservation objective for the “estuaries” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met</p> <p>(i) the total extent of the estuary is maintained;</p> <p>(ii) the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;</p> <p>(iii) the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained;</p> <p>(iv) the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained;</p> <p>(v) the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained;</p> <p>(vi) the abundance of the notable estuarine species assemblages is maintained or increased;</p> <p>(vii) the physico-chemical characteristics of the water column support the ecological objectives described above;</p> <p>(viii) toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>(ix) airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above.</p> <p>SAC interest feature 2: Subtidal sandbanks which are covered by sea water all the time (subtidal sandbanks)</p> <p>The conservation objective for the “subtidal sandbanks” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the total extent of the subtidal sandbanks within the site is maintained;</p> <p>(ii) the extent and distribution of the individual subtidal sandbank communities⁴ within the site is maintained;</p> <p>(iii) the community composition of the subtidal sandbank feature within the site is maintained;</p>

	<p>(iv) the variety and distribution of sediment types across the subtidal sandbank feature is maintained;</p> <p>(v) the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained.</p> <p>SAC interest feature 3 : Mudflats and sandflats not covered by seawater at low tide (mudflats and sandflats)</p> <p>The conservation objective for “mudflats and sandflats” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the total extent of the mudflats and sandflats feature is maintained;</p> <p>(ii) the variety and extent of individual mudflats and sandflats communities within the site is maintained;</p> <p>(iii) the distribution of individual mudflats and sandflats communities within the site is maintained;</p> <p>(iv) the community composition⁵ of the mudflats and sandflats feature within the site is maintained;</p> <p>(v) the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained.</p> <p>SAC interest feature 4: Atlantic salt meadow</p> <p>The conservation objective for the “Atlantic salt meadow” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;</p> <p>(ii) the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;</p> <p>(iii) the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained;</p> <p>(iv) the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained;</p> <p>(v) the abundance of the notable species⁶ of the Atlantic salt meadow and associated transitional vegetation communities is maintained;</p> <p>(vi) the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the</p>
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	<p>requirements of conditions iv and v above and the requirements of the Ramsar and SPA features;</p> <p>(vii) the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained; and</p> <p>(viii) any areas of <i>Spartina anglica</i> salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.</p> <p>SAC interest feature 5 : Reefs</p> <p>The conservation objective for the “reefs” feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes¹, each of the following conditions are met:</p> <p>(i) the total extent and distribution of Sabellaria reef is maintained;</p> <p>(ii) the community composition of the Sabellaria reef is maintained;</p> <p>(iii) the full range of different age structures of Sabellaria reef are present; and</p> <p>(iv) the physical and ecological processes necessary to support Sabellaria reef are maintained.</p> <p>SAC interest feature 6: River lamprey <i>Lampetra fluviatilis</i>.</p> <p>The conservation objective for the river lamprey <i>Lampetra fluviatilis</i> feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p> <p>(ii) the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;</p> <p>(iii) The abundance of prey species forming the river lamprey’s food resource within the estuary, is maintained.</p> <p>(iv) Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>SAC interest feature: The conservation objective for sea lamprey <i>Petromyzon marinus</i></p>
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	<p>The conservation objective for the sea lamprey <i>Petromyzon marinus</i> feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the migratory passage of both adult and juvenile sea lamprey through the Severn</p> <p>Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p> <p>(ii) the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term;</p> <p>(iii) the abundance of prey species forming the sea lamprey's food resource within the estuary, is maintained;</p> <p>(vi) toxic contaminants in the water column³ and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>SPA Interest feature 1: Internationally important population of regularly occurring Annex 1 species : Bewick's swan.</p> <p>The conservation objective is to maintain the Bewick's swan population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature Bewick's swan will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>(i) the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3);</p> <p>(ii) the extent of saltmarsh at the Dumbles is maintained;</p> <p>(iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained;</p> <p>(iv) the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites are maintained;</p> <p>(v) greater than 25% cover of suitable soft leaved herbs and grasses³ in winter season throughout the transitional saltmarsh at the Dumbles is maintained;</p> <p>(vi) aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance.</p> <p>SPA interest feature 2: Internationally important population of regularly occurring migratory species: wintering European white-fronted goose</p>
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	<p>The conservation objective is to maintain the European white-fronted goose population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature European white-fronted goose will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (i.e. the 5 year peak mean between 1988/9-1992/3); (ii) the extent of saltmarsh at the Dumbles is maintained; (iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; (iv) greater than 25 % cover of suitable soft-leaved herbs and grasses³ is maintained during the winter on saltmarsh areas; (v) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (vi) aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 3: Internationally important population of regularly occurring migratory species: wintering dunlin</p> <p>The conservation objective is to maintain the dunlin population and its supporting habitats in favourable condition, as defined below:</p> <p>The interest feature dunlin will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh; (vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (ix) aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 4: Internationally important population of regularly occurring migratory species: wintering redshank</p>
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	<p>The conservation objective is to maintain the redshank population and its supporting habitats¹ in favourable condition, as defined below</p> <p>The interest feature redshank will be considered to be in favourable condition when, subject to natural processes each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh (Appendix 8) and associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) the extent of vegetation with a sward height of <10cm throughout the saltmarsh is maintained; (vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (ix) aggregations of redshank at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 5: Internationally important population of regularly occurring migratory species: wintering shelduck</p> <p>The conservation objective is to maintain the shelduck population and its supporting habitats in favourable condition, as defined below:</p> <p>The interest feature shelduck will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) the abundance and macro-distribution of suitable invertebrates³ in intertidal mudflats and sandflats is maintained; (vi) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (vii) aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 6: Internationally important population of regularly occurring migratory species: wintering gadwall</p>
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	<p>The conservation objective is to maintain the gadwall population and its supporting habitats in favourable condition, as defined below:</p> <p>The interest feature gadwall will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the wintering gadwall population is no less than 330 (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of intertidal mudflats and sandflats is maintained; (iii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (iv) aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 7: Internationally important assemblage of waterfowl</p> <p>The conservation objective is to maintain the waterfowl assemblage and its supporting habitats in favourable condition, as defined below:</p> <p>The interest feature waterfowl assemblage will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> (i) the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh and their associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) extent of vegetation of <10cm throughout the saltmarsh is maintained; (vi) the abundance and macroscale distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macroscale distribution of suitable invertebrates in hard substrate habitats is maintained; (viii) greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas is maintained; (ix) unrestricted bird sightlines of >500m at feeding and roosting sites are maintained; (x) waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance. <p>Ramsar interest feature 1: Estuaries</p> <ul style="list-style-type: none"> (i) the total extent of the estuary is maintained; <p>Limited to the lesser area of the Ramsar Site – excludes all subtidal areas</p>
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	<p>(ii) the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;</p> <p>These requirements are related to the estuary regime, structure and function at a whole ecosystem level</p> <p>(iii) the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained;</p> <p>(iv) the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained;</p> <p>Within the Ramsar Site this is limited to the habitats listed as Ramsar “estuarine habitats communities” below</p> <p>(v) the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained;</p> <p>Within the Ramsar Site this is limited to the habitats listed as Ramsar “hard substrate communities” below</p> <p>(vi) the abundance of the notable estuarine species assemblages is maintained or increased;</p> <p>Within the Ramsar Site this is limited to the species listed as Ramsar “notable estuarine species assemblages”</p> <p>(vii) the physico-chemical characteristics of the water column support the ecological objectives described above;</p> <p>These requirements apply estuary wide at a whole ecosystem level</p> <p>(viii) Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>Ramsar interest feature 2: Assemblage of migratory fish species</p> <p>(i) the migratory passage of both adults and juveniles of the assemblage of migratory fish species through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p> <p>(ii) the size of the populations of the assemblage species in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;</p> <p>(iii) the abundance of prey species forming the principle food resources for the assemblage species within the estuary, is maintained.</p> <p>(iv) toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>Ramsar interest feature 3: Internationally important populations of waterfowl: Bewick’s swan - The conservation objective for the “Bewick’s swan” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “Bewick’s swan” feature.</p>
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	<p>Ramsar interest feature 4: Internationally important populations of waterfowl : European white-fronted goose - The conservation objective for the “European white-fronted goose” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering European white-fronted goose” feature.</p> <p>Ramsar interest feature 5: Internationally important populations of waterfowl: dunlin - The conservation objective for the “dunlin” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering dunlin” feature.</p> <p>Ramsar interest feature 6: Internationally important populations of waterfowl: redshank - The conservation objective for the “redshank” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering redshank” feature.</p> <p>Ramsar interest feature 7: Internationally important populations of waterfowl: shelduck - The conservation objective for the “shelduck” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering shelduck” feature.</p> <p>Ramsar interest feature 8: Internationally important populations of waterfowl: gadwall - The conservation objective for the “gadwall” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering gadwall” feature.</p> <p>Ramsar interest feature 9: Internationally important assemblage of waterfowl - The conservation objective for the “internationally important assemblage of waterfowl” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “internationally important assemblage of waterfowl” feature.</p>
<p>Assessment Criteria</p> <p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p> <ul style="list-style-type: none"> • The project proposes to reopen a section of disused railway line which includes vegetation removal and constructing new stations. • The project includes additional rail infrastructure within the existing rail boundaries and the running of passenger trains along the Portbury Freight Line. 	
<p>Initial Assessment</p> <p>The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.</p>	
<p><i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>None</p>

Disturbance to key species	The closest point from the site to the European Site is 60m and this is only across a short section. There could be some low-level disturbance to bird species associated with the SPA.
Habitat or species fragmentation	None.
Reduction in species density	None.
Changes in key indicators of conservation value (water quality, etc.)	None.
Climate change	None.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	None.
Interference with key relationships that define the function of the site	None.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	Not significant.
Disturbance to key species	There could be some disturbance from construction in this area along the Portishead to Pill section. However as it will be temporary and close to a residential area on the outskirts of Portishead, the levels of disturbance will be minimal. Considering this and the small amount of potential habitat for SPA species close to the site no significant impact is expected. Operational and additional train journeys not considered as likely to disturb species beyond noise levels currently experienced.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known. Impacts from construction disturbance on over-wintering and passage birds of the SPA are likely to be negligible in relation to existing noise levels within the area. As the location is close to residential areas and the existing freight line no significant increases in noise level is expected. Further consultation and	

<p>potential survey of this area may be required in order to determine this beyond doubt. However it is considered highly unlikely that this will be significant or impact upon the integrity of the site.</p>	
<p>Characteristics of European Site(s)</p> <p>A brief description of the European Site should be produced, including information on:</p>	
<p>Name of European Site and its code</p>	<p>North Somerset and Mendip Bats SAC</p>
<p>Location and distance of the European Site from the proposed works</p>	<p>The site is located 11.5 km away from the European Site at its closest point.</p>
<p>European Site size</p>	<p>561.19 ha</p>
<p>Key features of the European Site including the primary reasons for selection and any other qualifying interests</p>	<p>Annex I habitats that are a primary reason for selection of this site:</p> <p>6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites).</p> <p>The Cheddar complex and Wookey Hole areas support a wide range of semi-natural habitats including semi-natural dry grasslands. The principal community present is CG2 <i>Festuca ovina</i> – <i>Avenula pratensis</i> grassland which occurs on rock ledges and on steep slopes with shallow limestone soil, especially in the dry valleys and gorges and on the south-facing scarp of the Mendips. The site is also important for the large number of rare plants which are associated with Carboniferous limestone habitats. These include dwarf mouse-ear <i>Cerastium pumilum</i>, Cheddar pink <i>Dianthus gratianopolitanus</i> and rock stonecrop <i>Sedum forsterianum</i>, which occur on rocks, screes, cliffs and in open grassland. Transitions to and mosaics with limestone heath, calcareous screes, scrub and 9180 <i>Tilio-Acerion</i> forests are a particular feature of the Cheddar complex part of the site.</p> <p>9180 <i>Tilio-Acerion</i> forests of slopes, screes and ravines</p> <p>The main block of <i>Tilio-Acerion</i> forest at Kings and Urchin’s Wood has developed over limestone which outcrops in parts of the site and forms a steep scarp to the south-east. Ash <i>Fraxinus excelsior</i> predominates in the canopy with small-leaved lime <i>Tilia cordata</i>, yew <i>Taxus baccata</i> and elm <i>Ulmus</i> spp., mostly formerly coppiced, but including some pollard limes. There is a rich ground flora including lily-of-the-valley <i>Convallaria majalis</i>, columbine <i>Aquilegia vulgaris</i>, angular Solomon’s-seal <i>Polygonatum odoratum</i> and purple gromwell <i>Lithospermum purpureocaeruleum</i>.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <p>8310 Caves not open to the public.</p> <p>Annex II species that are a primary reason for selection of this site</p> <p>1303 Lesser horseshoe bat <i>Rhinolophus hipposideros</i>.</p> <p>The limestone caves of the Mendips provide a range of important hibernation sites for lesser horseshoe bat <i>Rhinolophus hipposideros</i> and 1304 greater horseshoe bat <i>Rhinolophus ferrumequinum</i>.</p>

	<p>1304 Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>.</p> <p>This site in south-west England is selected on the basis of the size of population represented (3% of the UK greater horseshoe bat <i>Rhinolophus ferrumequinum</i> population) and its good conservation of structure and function, having both maternity and hibernation sites. This site contains an exceptionally good range of the sites used by the population, comprising two maternity sites in lowland north Somerset and a variety of cave and mine hibernation sites in the Mendip Hills.</p>
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>Problems are known to exist with recreational cavers in some of the caves used as hibernacula by bats. Natural England is working with the owners of these caves in order to minimise disturbance at critical times of the year. Further breeding roosts are believed to occur in the Cheddar area and steps are being taken to identify these. The bat population will potentially be at risk until these are discovered.</p> <p>There are significant management problems associated with both the grassland and woodland elements of the SAC. Low levels of grazing are resulting in scrub invasion and the development of secondary woodland. The woodland has been badly managed in the past and requires a considerable amount of restoration.</p>
<p>European Site conservation objectives – where these are readily available</p>	<p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; • The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; • The populations of qualifying species; and • The distribution of qualifying species within the site.
<p>Assessment Criteria</p> <p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p> <ul style="list-style-type: none"> • The project proposes to reopen a section of disused railway line which includes vegetation removal and constructing new stations. • The project includes additional rail infrastructure within the existing rail boundaries and the running of passenger trains along the Portbury Freight Line. 	
<p>Initial Assessment</p> <p>The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.</p>	

<i>Describe any likely changes to the site arising as a result of:</i>	
Reduction of habitat area	None
Disturbance to key species	Key species from the SAC, namely greater and lesser horseshoe bats, are known to be present close to the proposed development site. It is possible that the bats are moving between the two sites especially greater horseshoes which can travel significant distances between roosts. The known habitat for these species is outside of the works footprint therefore no disturbance is anticipated. However surveys of suitable habitat on, or very close to the proposed scheme, will be undertaken should any works have the potential to cause disturbance. In the case that these species are identified, mitigation to prevent disturbance will be implemented.
Habitat or species fragmentation	None.
Reduction in species density	None.
Changes in key indicators of conservation value (water quality etc.)	None.
Climate change	None.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	None.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water	Not significant.

quality, hydrological regime etc.)	
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
None	
Characteristics of European Site(s)	
A brief description of the European Site should be produced, including information on:	
Name of European Site and its code	Bath and Bradford-on-Avon Bats UK0012584
Location and distance of the European Site from the proposed works	950m from Bathampton Junction and approximately 22km from the closest point of the Portbury Freight Line
European Site size	107.16 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<ul style="list-style-type: none"> •Annex II species (primary reason for designation). Greater horseshoe bat <i>Rhinolophus ferrumequinum</i> and Bechstein`s bat <i>Myotis bechsteini</i>. This site in southern England includes the hibernation sites associated with 15% of the UK greater horseshoe bat <i>Rhinolophus ferrumequinum</i> population and is selected on the basis of the importance of this exceptionally large overwintering population. Small numbers of Bechstein`s bats <i>Myotis bechsteini</i> have been recorded hibernating in abandoned mines in this area, though maternity sites remain unknown. •Annex II species (present as a qualifying feature, but not a primary reason for site selection). Lesser horseshoe bat <i>Rhinolophus hipposideros</i>
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	These disused stone mines are of key importance to greater horseshoe bats because of a combination of temperature and humidity conditions, suitable access for the bats, lack of pollution and infilling, and freedom from significant disturbance. In order to maintain these conditions, efforts are being made to fit grilles over the most vulnerable mine entrances. If necessary, management agreements will be drawn up to facilitate this process. As some of the mines are unstable, there is a danger of collapse or subsidence. An environmental assessment is being prepared for the Combe Down Mines stabilisation project.
European Site conservation objectives – where these are readily available	<p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species;

	<ul style="list-style-type: none"> • The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; • The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; • The populations of qualifying species; • The distribution of qualifying species within the site.
<p>Assessment Criteria</p> <p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p> <ul style="list-style-type: none"> • The project proposes to reopen a section of disused railway line which includes vegetation removal and constructing new stations. • The project includes additional rail infrastructure within the existing rail boundaries and the running of passenger trains along the Portbury Freight Line. 	
<p>Initial Assessment</p> <p>The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.</p>	
<p><i>Describe any likely changes to the site arising as a result of:</i></p>	
Reduction of habitat area	None
Disturbance to key species	Key species from the SAC, namely greater and lesser horseshoe bats are known to be present close to the proposed development site. It is possible that the bats are moving between the two sites especially Greater horseshoes which can travel significant distances between roosts. The known habitat for these species is outside of the works footprint therefore no disturbance is anticipated. However surveys of suitable habitat on, or very close to the site habitat will be undertaken should any works have the potential to cause disturbance. In the case that these species are identified, mitigation to prevent disturbance will be implemented.
Habitat or species fragmentation	None
Reduction in species density	None
Changes in key indicators of conservation value (water quality etc.)	None
Climate change	None
<p><i>Describe any likely impacts on the European Site as a whole in terms of:</i></p>	
Interference with the key relationships that define the structure of the site	None
Interference with the key relationships that define the function of the site	None

<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	Not significant
Disturbance to key species	The works at Bathampton Turnback will be limited to within railway boundary with localised vegetation clearance of herbs and shrubs. As the main works site is 22km from any bat habitat it is unlikely that disturbance to key species will occur, any likely disturbance will be mitigated and will therefore not be significant.
Habitat or species fragmentation	Not significant
Loss	Not significant
Fragmentation	Not significant
Disruption	Not significant
Disturbance	Not significant
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
None	
<u>Potential for in-combination effects</u>	
<i>The following schemes have been identified as having the potential to affect the European Sites in-combination with MetroWest Phase 1:</i>	
<u>Sainsburys Supermarket Gordano Gate Serbert Close Portishead:</u> The proposed development is located 950 m south of the Severn Estuary SAC, SPA and Ramsar 7 km west of Avon Gorge Woodland SAC and 11 km north of the North Somerset & Mendip Bats SAC. Erection of food store, customer parking, service access and associated development. Gordano Gate Serbert Close Portishead. Application no.12/P/1506/F Planning permission granted.	
<u>Retail Unit Development Land off Harbour Road, Portishead:</u> The proposed development is located 870 m south of Severn Estuary SPA, SAC and Ramsar; 7.6 km east of Avon Gorge Woodland SAC and 14 km north of North Somerset & Mendip Bats SAC. Erection of two class A1 retail units and one class A4 unit together with car parking, landscaping, associated works and extension to existing 'park and ride' facility. Land off Harbour Road Harbour Road Portishead BS20. Application no:13/P/2079/F	
<u>The Ashton Vale To Temple Meads (AVTM) MetroBus Scheme:</u> Avon Gorge Woodlands SAC is approximately 0.6 km north-west of the proposed project and the Severn Estuary SPA, candidate SAC and Ramsar Site is approximately 6 km north-west. North Somerset & Mendip Bats SAC is located approximately 12.7 km south-west. The development comprises construction of a new junction with Cumberland Road, a new bridge at Bathurst Basin, flood protection measures, demolition and reconstruction of walls, realignment of highway, crossings, traffic signals and temporary construction areas, bus stops and shelter. 13/05648/FB GRANTED subject to condition(s)	
<u>Ashton Vale and Former Alderman Moore Allotments Off Ashton Road (B3128) Bristol:</u> The proposed development is located 1.5 km south of Avon Gorge Woodland SAC; 7km south of Severn Estuary SPA, SAC and Ramsar and 16.5 km north-east of North Somerset & Mendip Bats SAC. Hybrid application	

comprising: Full planning permission for the erection of a 30,000 seat stadium (D2) incorporating other uses (conferencing and hospitality (5,574 sqm), retail unit (382 sqm) and community facilities), car and coach parking (up to 1,000 car spaces) (including new accesses), landscaping including fencing/paving, re-grading of site to form new levels and related infrastructure and engineering works, and Outline planning permission (with all matters reserved except for access) for development for residential (C3 - up to 253 dwellings), relocation of young persons home (C2), hotel (C1 - 3,500 sqm), restaurants/bars (A3/A4 - 1,599 sqm), drive thru restaurant (A5 - 336 sqm), car parking, vehicular and pedestrian/cycle accesses, flood storage and ecological area, landscaping including fencing and paving and related infrastructure and engineering works.

In-combination

The above projects are not considered likely to have a detectable impact upon the designations. However, further assessment of the MetroBus Scheme along with MetroWest Phase 1 is required in combination with local plans and core strategies to examine potential impacts from changes in air quality.

Outcome of screening stage (delete as appropriate):	<p>Significant Effects are Likely/ Sufficient Uncertainty Remains/ Not Likely to be Significant Effects</p>
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attach relevant correspondence).	<p>YES/NO</p> <p>Initial consultation has been instigated with Natural England. A meeting with them to discuss impacts upon the sites should be arranged once a more detailed scope of works is established.</p>

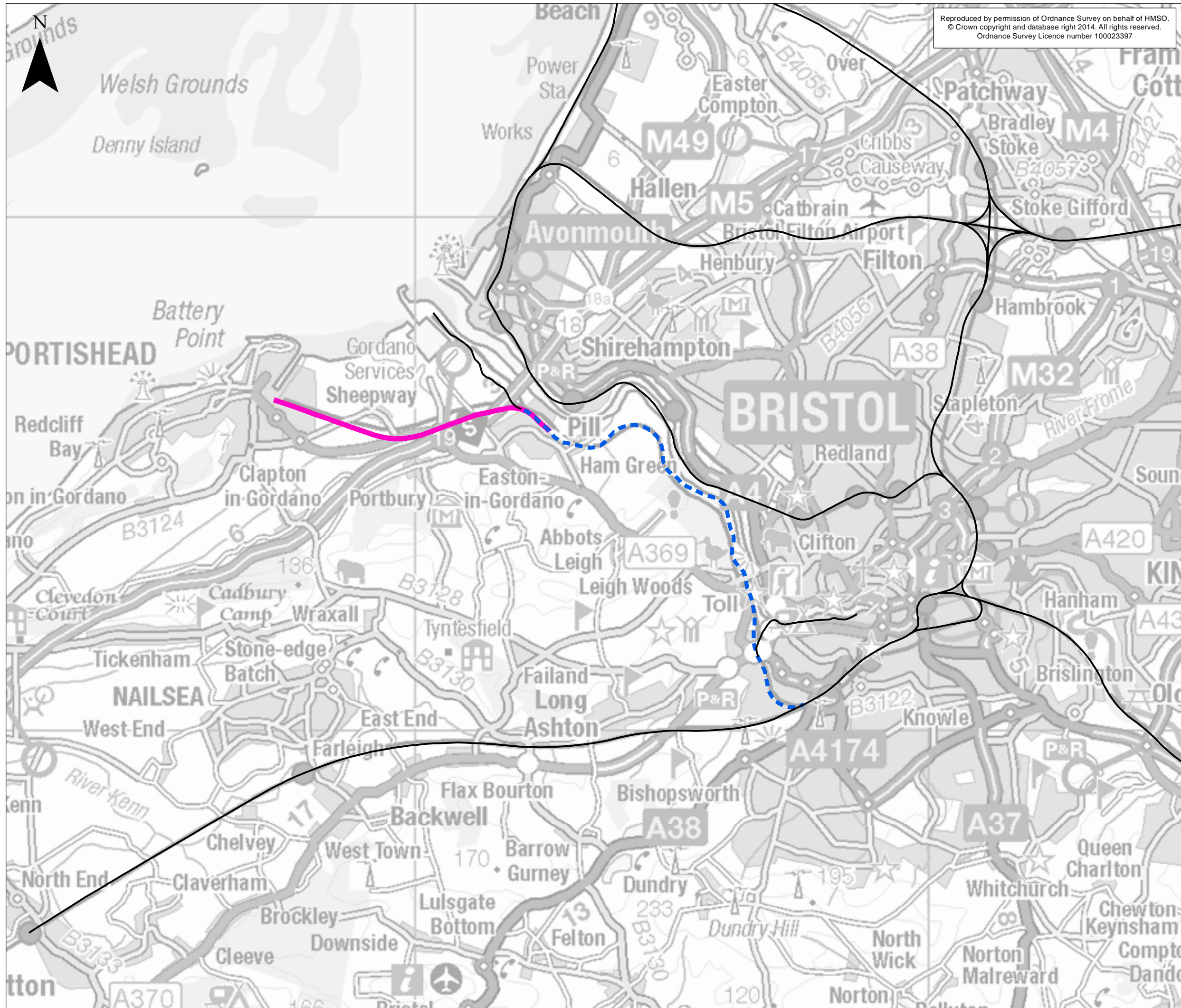
Conclusion

- 3.1.1 This screening assessment has concluded that 'Sufficient Uncertainty Remains' regarding the impacts upon Avon Gorge Woodland SAC (alone or in combination with other plans or projects). A statement of the likely significant effects cannot be fully determined until detailed environmental assessment relating to noise and air quality have been undertaken. It is, therefore, recommended that this screening report is reviewed following completion of further surveys and studies to finalise the conclusion of likely significant effect. If uncertainty remains or a likely significant effect is predicted then a Stage II Appropriate Assessment of any effects under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) may be required.

SECTION 3

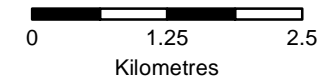
Annex A

Figures



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- KEY**
- Existing Railway Line
 - DCO Application Area**
 - Portishead to Pill
 - - - Portbury Freight Line (Improvements for MetroWest Phase 1)



Client
 North Somerset Council,
 Town Hall,
 Walliscote Grove Road,
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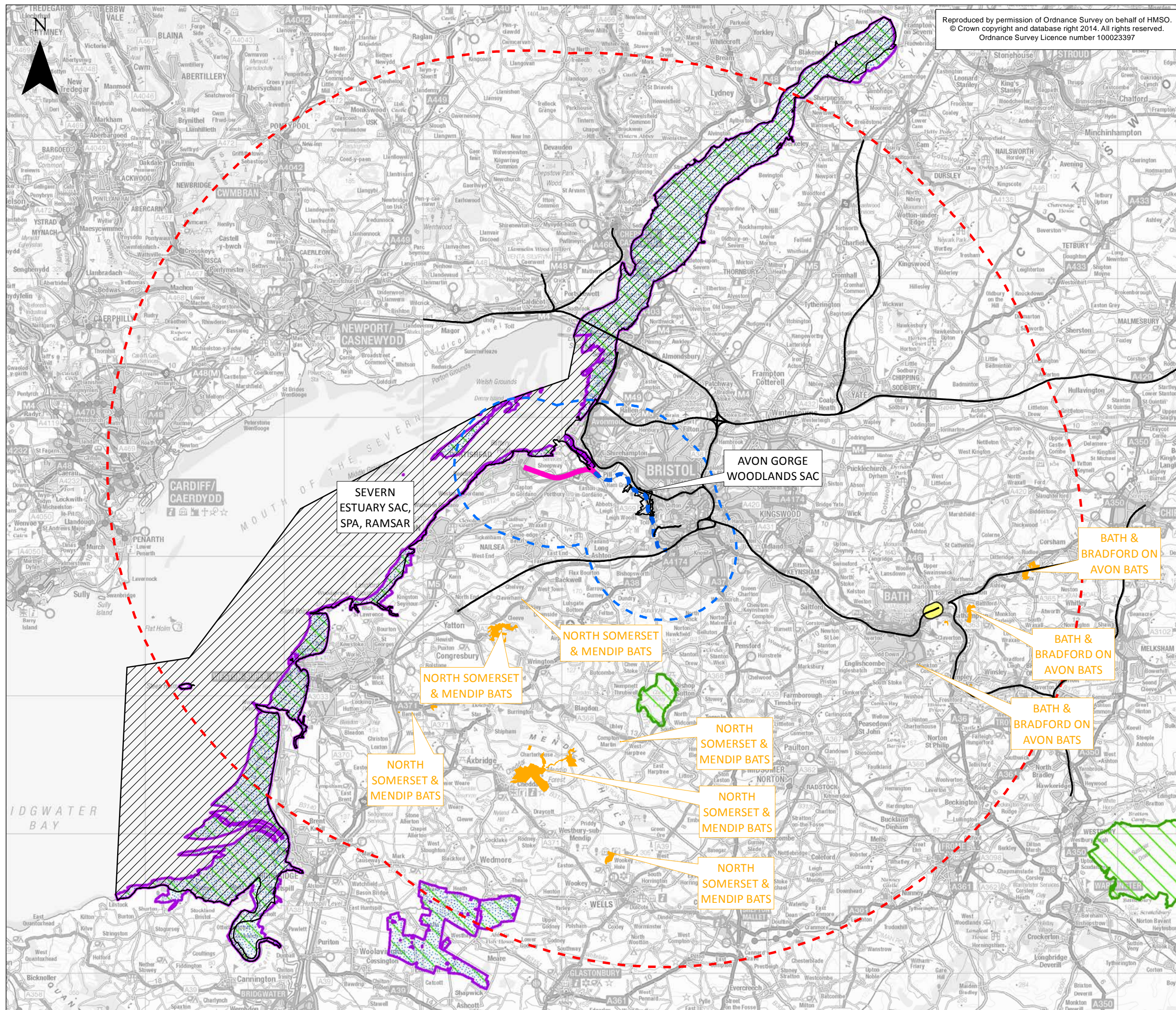
Project : METROWEST PHASE 1
 PORTISHEAD TO PARSON
 STREET JUNCTION

Drawing : FIGURE A.1 - LOCATION PLAN

Drawn By : Tim Hughes **Date:** 27/02/2015
Checked By : Gemma Harding **Date:** 27/02/2015
Approved By : Carolyn Francis **Date:** 27/02/2015

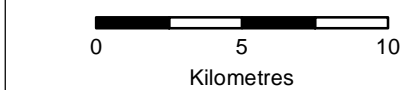
Drawing No. : 490327-006-009 **Revision** 1

Drawing Scale : 1:70,000



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- KEY**
- Radius 5km
 - Radius 30km
 - Existing Railway Line
 - Bathampton Junction
 - DCO Application Area**
 - Portishead to Pill
 - Portbury Freight Line (Improvements for MetroWest Phase 1)
 - Special Protection Area
 - Ramsar
 - Special Area of Conservation Bat Site within 30km
 - Special Area of Conservation within 5km



Client
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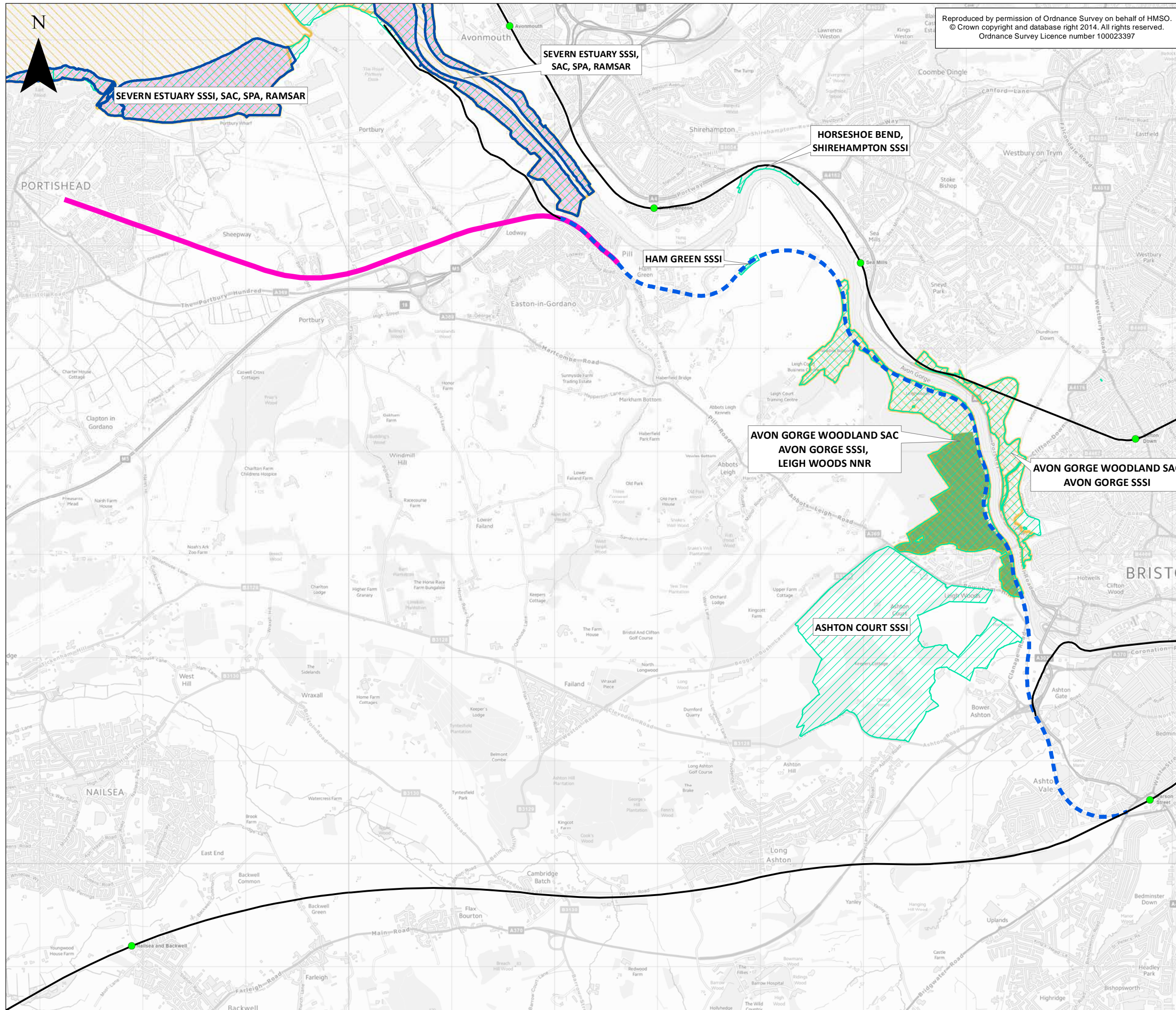
Project : METROWEST PHASE 1
 PORTISHEAD TO PARSON
 STREET JUNCTION

Drawing : FIGURE A.2 - NATURA 2000 SITES
 OVERVIEW

Drawn By : Tim Hughes **Date:** 27/02/2015
Checked By : Gemma Harding **Date:** 27/02/2015
Approved By : Carolyn Francis **Date:** 27/02/2015

Drawing No. : 490327-006-010 **Revision**
 1

Drawing Scale : 1:259,255



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- KEY**
- Existing Railway Station
 - Existing Railway Line
 - DCO Application Area**
 - Portishead to Pill
 - Portbury Freight Line (Improvements for MetroWest Phase 1)
 - Designated Contamination Sites**
 - Site of Special Scientific Interest (SSSI)
 - Special Area of Conservation (SAC)
 - Ramsar Site
 - Special Protection Areas (SPA)
 - National Nature Reserves (NNR)

Client
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Project : METROWEST PHASE 1
 PORTISHEAD TO PARSON
 STREET JUNCTION

Drawing : FIGURE A.3: STATUTORY
 DESIGNATED SITES

Drawn By : Tim Hughes **Date:** 26/02/2015
Checked By : Gemma Harding **Date:** 26/02/2015
Approved By : Carolyn Francis **Date:** 26/02/2015

Drawing No. : 490327-006-008 **Revision** 1

Drawing Scale : 1:35,000

Natural England reponse to
Screening dated 05 February 2015

Date: 05 February 2015
Our ref: DAS 8965, 142897
Your ref: MetroWest Phase 1



Clare Williams
ch2m

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear Clare

Discretionary Advice Service (Charged Advice) - MetroWest

Thank you for your consultation on the above dated 22 January 2015 which was received by Natural England on the same date. This advice is being provided as part of Natural England's Discretionary Advice Service (DAS). ch2m (on behalf of North Somerset Council) has asked Natural England to provide advice upon:

- The results of survey work undertaken to date in relation to protected sites that could be affected by the Metrowest (Phase 1) project
- Preliminary conclusions and assumptions based with regard to the potential effects on those protected sites

This advice is provided in accordance with the Quotation and Agreement dated 13 January 2015 and is based upon the information provided in the email from David Whitehorne dated 22 February, 2015.

Phase 1 of the Metrowest project proposes the introduction of a passenger rail service between Bristol and Portishead. Our advice is focused on the evidence and survey requirements that will be needed to underpin a Habitats Regulations Assessment screening of the project as well as our views on proposed mitigation measures.

Protected sites

Avon Gorge Woodlands Special Area of Conservation (SAC)

A significant part of the proposed rail route is within or close to the Avon Gorge Woodland SAC. Whilst we understand that no major work or construction is envisaged on the section of line within the SAC we would advise that any project submission provides evidence to that end. Similarly, the information provided so far indicates that the management/maintenance regime of the rail corridor will not change as a result of this project. We would advise that clear evidence to support that statement is provided as part of an application, because changes in those regimes could affect the SAC's qualifying features.

We do know that the number of trains using the line will change and there is potential therefore for an increase in air quality impacts on some SAC qualifying features (botanic interest) We consider the risk of significant effects to be relatively low, but would expect to see that these issues have been considered and evidence provided to support conclusions.

Severn Estuary European Site

The proposed rail line includes a section of the route that is located 60m from the Severn Estuary European Site, which is designated a Special Protection Area (SPA) and a SAC. The site is also listed as a Ramsar site¹ and also notified at a national level as a Site of Special Scientific Interest (SSSI). Our understanding is that works would be essentially 'on line' and will be undertaken in accordance with an agreed construction and environmental management plan (CEMP)

With the above in mind, Natural England is satisfied that significant direct impacts on qualifying habitats and species associated with the Severn Estuary SAC appear unlikely. The key concern therefore relates to the Severn Estuary SPA and Ramsar and the potential for disturbance to bird species associated with these designations.

In order to better understand the likely impacts, a partial wintering bird survey has been undertaken of the Pill foreshore, the area closest to the proposed rail line.

Survey effort: To date, a total of three (3) survey visits have taken place at high and low tide between October and December. Survey findings have recorded low numbers of redshank and a single curlew feeding at low tide on intertidal mudflats – these birds were reported to be at least 290m from the nearest works.

Existing disturbance: occasional dog walkers, cyclists and a peregrine falcon were noted at the M5 over bridge. These disturbance incidents are reported as being 'highly likely to be consistent throughout the year' on the basis that visitors are thought to be local residents (although the basis for this assumption is unclear and unsupported by evidence).

If there is year round anthropogenic disturbance in the form of walkers, dogs, and cyclists, it would appear reasonable to assume that the area is unlikely to be suitable for significant numbers of SPA/Ramsar species; however at project submission stage we would expect to see further information to support the assertion that people are indeed a constant feature, i.e. that they are present throughout the year, would provide greater confidence that this conclusion is robust and reasonable.

Habitat condition: the marsh is reported as being unmanaged and dominated by sea couch, with inundation likely only at high spring tide, with no inundations noted on the survey visits.

This would appear to suggest that the habitats in this area are considered unsuitable for SPA/Ramsar species, regardless of prevailing weather conditions. That said, further information about the habitats within 300m of the railway line would provide greater confidence that such a conclusion is robust and reasonable.

Noise: potential noise modelling has not been undertaken, but the location of the rail line is reported as being approximately 300m from the mudflats where redshank and curlew were recorded and is screened by steep banks of the mudflats below the level of the proposed works.

Based on the above, Natural England is satisfied that further wintering bird surveys are not necessary and would add little to the assessment of the likely effects of the proposed works on the Severn Estuary SPA and Ramsar site. It remains the case, however, that the use by birds of the Severn Estuary designated site and the intertidal areas is intrinsically variable, which in many locations is known to be affected by a range of factors, including weather conditions and disturbance events. In our view, it is not possible therefore to rely upon a survey over a single overwintering period to reach a definitive conclusion of bird use, but rather to see is a being

¹ Listed or proposed Wetlands of International Importance under the Ramsar Convention (Ramsar) sites are protected as a matter of Government policy. Paragraph 118 of the National Planning Policy Framework applies the same protection measures as those in place for European sites.

indicative.

Whilst the survey indications are that SPA bird numbers in the area are not significant, we would expect to see clearer justification at project submission stage for avoidance and mitigation of potential disturbance of birds. In particular, some evidence from visitor surveys showing that all or most visitors are local, and further information on noise modelling of construction activity, would, in our view, be needed. Alternatively, further information regarding possible mitigation measures that might be taken, for example, an undertaking that any noisy construction works such as percussive piling would be undertaken outside the overwintering/passage periods.

Protected Species

Both greater and lesser horseshoe bats are known to occur in in the Avon Gorge and Woodlands area. We consider that the information provided (as attached to David Whitehorne's email of 22 February, 2015) shows a planned approach to bat surveys for the winter and summer that is reasonable. In addition to what is proposed we advise that it would be sensible to undertake further survey in September or October before the bats go into hibernation, particularly as this will aid understanding of the potential swarming sites close to tunnels in the area.

As with other potential impacts, survey work and justification of conclusions should be informed by an understanding of risks and impact pathways. For example, the number of additional trains, lighting and how bats use the existing railway corridor and associated features will be key considerations.

Further advice on protected species is available through our published [Standing Advice](#). Should you decide that you need a wildlife licence, guidance tailored to Nationally Significant Infrastructure Projects is also [available online](#). This includes details about the draft licence application process.

For clarification of any points in this letter, please contact Amanda Grundy on 07900 608311.

Senior adviser to QA letter and check box below

The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

Amanda Grundy
Somerset, Avon & Wiltshire Team

Appendix B
Environment Agency Pre-Application
Consultation

Mr Robert Bird
CH2M HILL
Burderop Park
Swindon
Wiltshire
SN4 0QD

Our ref: WX/2014/125769/01-L01
Your ref:
Date: 28 July 2014

Dear Mr Bird

**PROPOSED RE-COMMISSIONING OF DISUSED RAILWAY BETWEEN
PORTISHEAD AND PILL (METRO WEST PHASE 1)**

I refer to our meeting on 2 May 2014 and our subsequent discussions/
correspondence regarding the above proposal.

We have now received North Somerset Council's formal acceptance of our
information offer dated 19 June 2014. Accordingly, please find hereunder the
Agency's response in respect of the submitted details. We would be pleased to
advise further when additional information becomes available.

FLOOD RISK

This proposal must be supported by a robust flood risk assessment (FRA) that
clearly articulates the flood risks to the development and its operation, both in terms
of current and future risks. It is important to note that although the position of the
Shoreline Management Plan is to 'hold the line' through this tidal cell, this is subject
to central government funding. Accordingly, the requisite FRA must not rely on this
position as a mitigation argument.

In our opinion tidal flooding of this low lying area and fluvial flooding/tide locking of
the Drove Rhyne presents the main flood risks to the development. Currently, the
tidal defences from Portbury Wharf to the Drove Rhyne outfall are privately owned
and operated by Persimmon Homes as part of the redevelopment of Portishead
Marina. As discussed, it was previously agreed through the planning process that we
would operate and maintain these tidal assets however, this has not been possible
due to structural problems with certain elements of the scheme i.e. the wall that
forms part of the inland bund. For information, we are currently awaiting design
drawings from Persimmon's consultants Arup, detailing their proposals to resolve
this matter. Accordingly, it is not considered appropriate to forward the previously
requested 'as built' levels, at this stage.

During our meeting Network Rail made it very clear that they will require a flood resilient railway line that remains operational during flood events. As discussed, this requirement will impact on the flood risk vulnerability classification of the proposal, which should be agreed with the Local Planning Authority. In view of Network Rail's stated requirements, and the indicated area of Flood Zone 3b (Functional Floodplain) it would appear that compliance with the National Planning Policy Framework (NPPF) will necessitate an 'Essential Infrastructure' classification. Due to the construction and operational difficulties such a designation would apparently present, further discussions between all relevant parties will be required.

The FRA will be required to quantify the tidal risks for the development's design life, which we currently understand to be 160 years. Accordingly, reference must be made to the climate change guidance in the NPPF and the latest Environment Agency guidelines dated 2011. This is an important matter that could influence the direction of mitigation works today and in the future. To assume the worst case scenario i.e. defence issues are not resolved prior to the submission of the DCO application, the FRA will need to consider this potentially higher risk and a suite of options that achieve the necessary protection to meet NPPF and Networks Rail requirements. It is advisable that North Somerset Council's transport and planning department continue to assist the Agency in the resolution of this flood risk infrastructure. We can confirm that there will be no charge for the use of our tidal model to assist your investigations, subject to a licence agreement. It would therefore be advisable to agree the extent of the model required and the scope of the modelling.

The Drove Rhyne, Portbury Ditch and Markham Brook all fall within the red line of the development boundary. The main risk will be from the Drove Rhyne as it is physically crossed by the line through a series of culverts. The catchment is steep in its upper slopes to the south of the motorway and responds quickly to intense rainfall; in addition the natural drainage has been modified heavily as a result of the motorway widening. To the north of the motorway there is little gradient and the tide is prevented from progressing inland due to our tidal flap valve. As advised, tide locking of watercourses does occur and should therefore be included, in terms of the mitigation approach for the development.

The proposal should be viewed as an opportunity to investigate and improve the Drove Rhyne culverts at the head of the Main River under the existing line, which are understood to be structurally unsound or blocked. The weight of the new railway line and the requirement to achieve flood resilience objectives could be viewed as an opportunity to improve the channel alignment by the Portbury A369. Unfortunately, we do not hold any flood level data for any of the above watercourses other than the historic flood data included in the Product 4 request. We would advise that a hydraulic modelling exercise is carried out for the Drove Rhyne, to quantify the flood risk and further inform the flood risk designation and culvert works to improve conveyance.

Please find attached a plan that shows our current access route along the Drove Rhyne for weed cutting along the left bank. Our future access to the inland bund via the B3124 is to the left of Sheepway Gate Farm.

Attenuation will be necessary to offset the new impermeable areas up to the 1 in 100 year rainfall event, with an appropriate allowance for climate change. We would expect the inclusion of sustainable drainage methods to assist in, inter alia, improving water quality. North Somerset Council should consider appropriate opportunities to improve local drainage in conjunction with the Agency and the IDB. This could be through the improvement of ditches or the main channels, which again could be identified through the modelling work.

During the meeting Network Rail explained that their business plans are to have a resilient design and that they have a policy statement outlining what this means. This is particularly relevant when considering the winter flooding on the Somerset Levels and in Dawlish. It was understood that it was an action on Network Rail to provide this information to allow further discussion/understanding however, this was not included in the meeting notes.

WATER QUALITY

As requested, please find attached a plan indicating the position of all known discharge consents and their associated outlets in the area.

Please note, careful consideration must be given to the proposal's potential impact on local water resources. Accordingly, a detailed Construction Environmental Management Plan and Operational Method Statement will be required.

BIODIVERSITY

- Water Framework Directive (WFD)

Five water bodies (WBs) have been identified as being at risk of impact as a result of the proposal, these are: the Portbury Ditch, Easton in Gordano Stream, Markham Brook, Drove Rhine and the Severn Estuary. The applicant will be expected to provide a WFD assessment illustrating the potential impacts, how these impacts could affect the water body status and to suggest appropriate avoidance/mitigation measures. Much of the assessment will be covered in the EIA, therefore it should be a relatively simple desk-based exercise to provide the additional WFD assessment. As such it is not acceptable to provide an Environmental Impact Assessment /Environmental Statement in lieu of a WFD assessment; a separate WFD assessment should be provided.

The applicant is reminded that they are responsible for illustrating that the proposed works will not cause a deterioration in, or prevent the future improvement of WFD status. If required we can provide additional advice and guidance in respect of this issue. Information on the current WFD status and factors influencing the status of the water bodies can be gained through a formal information request. Under such circumstances, it is suggested that the following information would be of particular use:

- Current WFD status of the above listed WBs
- Where there is a failure, what elements are driving this classification?

- What variables are driving elemental failure?
- What measures have been suggested/are in place for improvement?

- Protected Species Surveys

A number of protected species have been recorded in the vicinity of the proposed development, including the following; Water Vole, Great Crested Newt, European Eel, Hazel Dormouse, Grass Snake and Adder. Appropriate protected species assessments and suggested mitigation will therefore need to be incorporated into the EIA/ES.

- Protected habitats

The rivers which may be impacted by this development feed into the Severn Estuary which is designated as SSSI, SPA, SAC and Ramsar site. In addition some of the land adjacent to the development is designated as Flood Plain and Grazing Marsh. As such the applicant should consult with Natural England on the potential impacts and mitigation for these sites.

- Value of disused railway as habitat

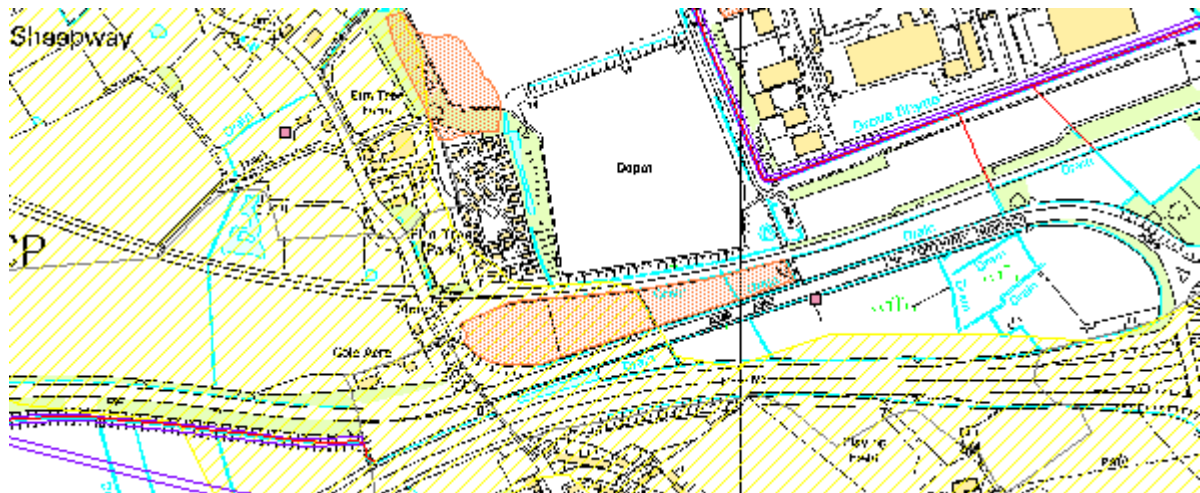
There is evidence to suggest that disused railways become important habitat and wildlife corridors for a range of animals and insects. As such, assessment of the proposed development area and compensatory habitat should be carefully considered.

WATER RESOURCES

Following an assessment of local water resources, we can advise that there are no issues regarding water resources availability along the proposed route. Additionally, there are limited abstractions in the vicinity of the site.

LANDFILL.

As discussed, our records indicate that there are two historic landfill sites within 250m of the proposed route (highlighted in orange hereunder).



The site to the north, known as Elm Tree Farm, Portbury (Ref: 0100/0052) is located at ST 4960 – 7590. The gassing status of the site is 'unknown'.

The southern site, known as Priory Farm, Portbury (Ref: 0100/0189) is located at ST 4980 – 7560. The gassing status of the site is 'high risk'.

Landfill gas consists of methane and carbon dioxide, which is produced as the waste in the landfill site degrades. Methane can present a risk of fire and explosion. Carbon dioxide can present a risk of asphyxiation or suffocation. The trace constituents of landfill gas can be toxic and can give rise to long and short term health risks as well as odour nuisance.

The risks associated with landfill gas will depend on the controls in place to prevent uncontrolled release of landfill gas from the landfill site. Older landfill sites may have poorer controls in place and the level of risk may be higher or uncertain due to a lack of historical records of waste inputs or control measures.

On the 22nd of June 2007 the local authority was forwarded a CD containing all the historic landfill data we hold, including the historic landfill sites within 250m of the proposed development. Accordingly, the local authority's Environmental Health and Building Control departments should be consulted in respect of this matter, in particular any requirement to assess the potential for sub-surface migration of landfill gas.

WASTE REGULATION

Excavated material arising from development works can sometimes be classified as waste. For further guidance on how waste is classified, together with best practice for its handling, transport, treatment and disposal please see our waste pages at:

<http://www.environment-agency.gov.uk/business/topics/waste/default.aspx>

If any waste is to be used on site, the applicant will be required to obtain the appropriate waste exemption or permit from the Agency. We are unable to specify what exactly would be required (if anything) due to the limited information provided.

If any controlled waste is to be removed off site, the site operator must ensure a registered waste carrier is used to convey the waste material off site to a suitably permitted facility. Further information is available at:

www.environment-agency.gov.uk/subjects/waste.

Should you wish to discuss these issues further please contact me direct.

Yours sincerely

Mr Dave Pring
Planning Specialist
Sustainable Places

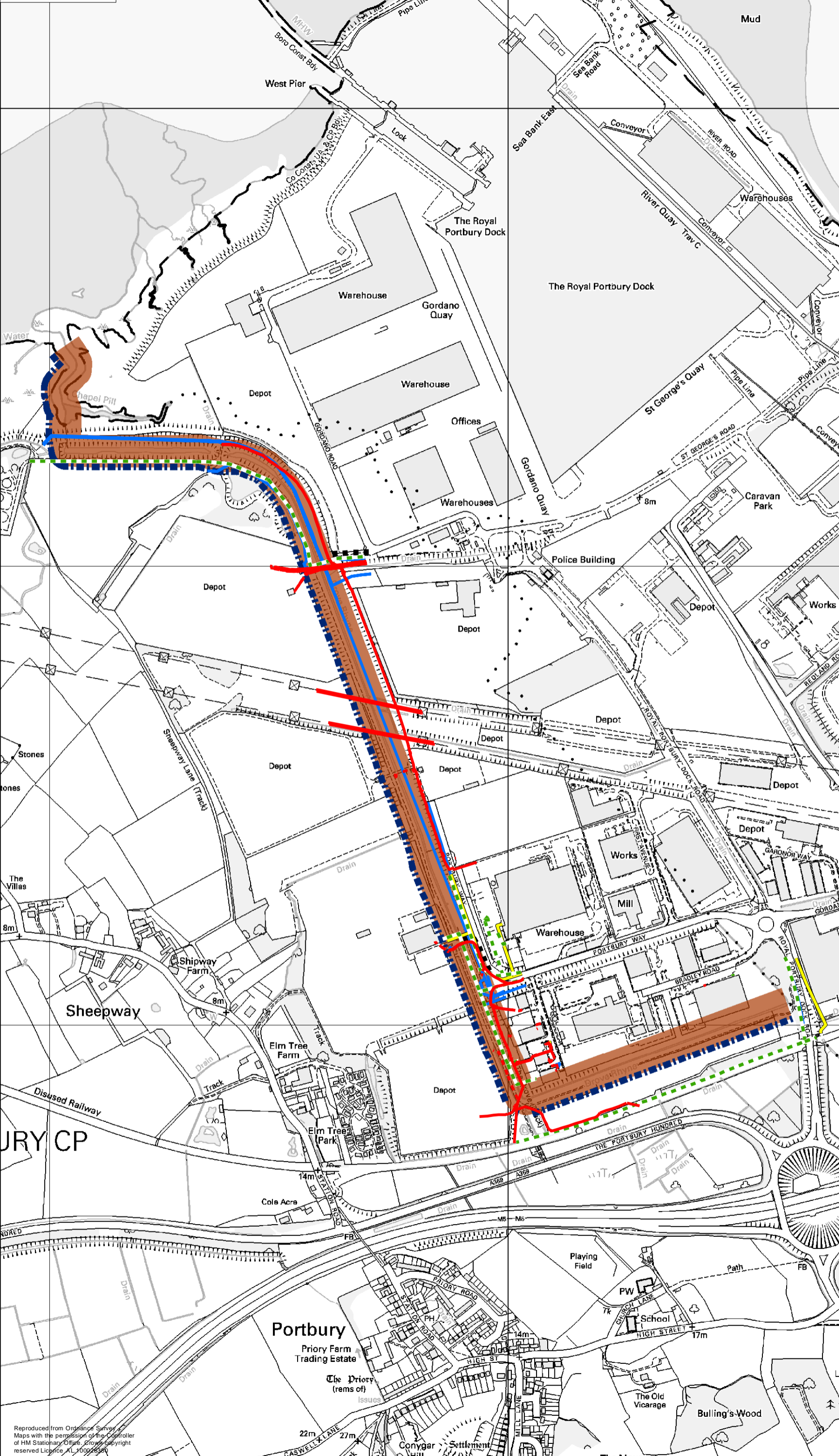
Direct dial 01278 484627

Direct fax 01278 452985

Direct e-mail dave.pring@environment-agency.gov.uk



- KEY TO SYMBOLS**
- Working Routes
 - Access Routes
 - Utility Information**
 - Gas
 - Water
 - BT and Other Communications**
 - Overhead
 - Underground
 - Electric**
 - Overhead
 - Underground
 - Vegetation Maintenance**
 - No Flail, WB2
 - H/Cut, No WC
 - M1, No WC
 - M1, W1
 - M3, No WC
 - M4, No WC
 - M4, W1
 - M4, W2
 - ME2, No WC
 - ME2, W2
 - ME2, W6
 - MS2, No WC
 - Mowing Dry Channels, -
 - X, X



- NOTES**
1. THE INDICATION OF A SERVICE ON THIS DRAWING IS BASED ON THE BEST AVAILABLE INFORMATION, BUT THE LOCATION CANNOT BE GUARANTEED.
 2. THE INTENDED USE OF THIS DRAWING IS FOR WEEDCUT/FLAILING WORKS ONLY



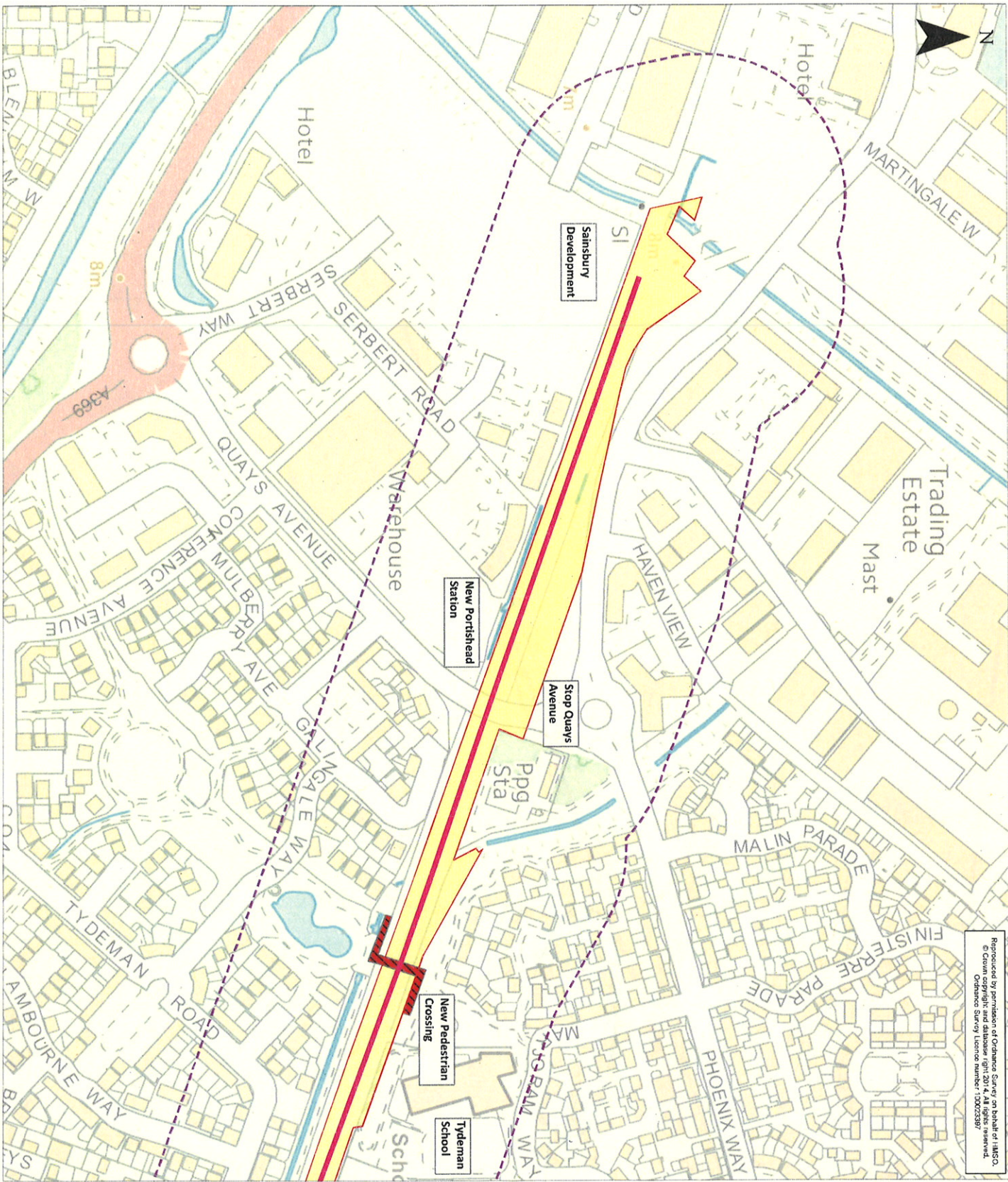
PROJECT
NORTH WESSEX VEGETATION MAINTENANCE UPDATE 2012

TITLE
UTILITIES INFORMATION
DROVE RHYNE
SHEET 1 of 1

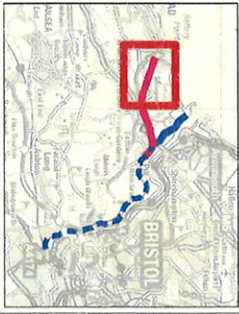


DATE	MAY'13	CLIENT REF	73019556	VALID UNTIL	NOV'13	
SCALE	A3	1:8,000	REF	Technical, Drafts, GISProjectFigures		
DRAWING NUMBER	1 of 1				REVISION	0

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- KEY**
- 100m radius
 - Red line boundary
 - Porthead to Pill DCO
 - Application Area
 - New Pedestrian Crossing
 - DCO Study Boundary
 - North Somerset Council



Client
 North Somerset Council
 Town Hall, Green, St Paul
 Weston-super-Mare
 BS23 3UJ

Consultant
 CH2M HILL
 General House, Gordon, Southport
 Tel: +44 (0)1775 872088
 031735 872088
 www.ch2mhill.com

Project
 METROWEST PHASE 1

Drawn by: Tim Higgins
 Date: 30/04/2014

Checked by: Emily Farring
 Date: 30/04/2014

Approved by: Carolyn Francis
 Date: 30/04/2014

Drawing No.: 490327-008-001 - A
 Drawing Scale: 1:2500

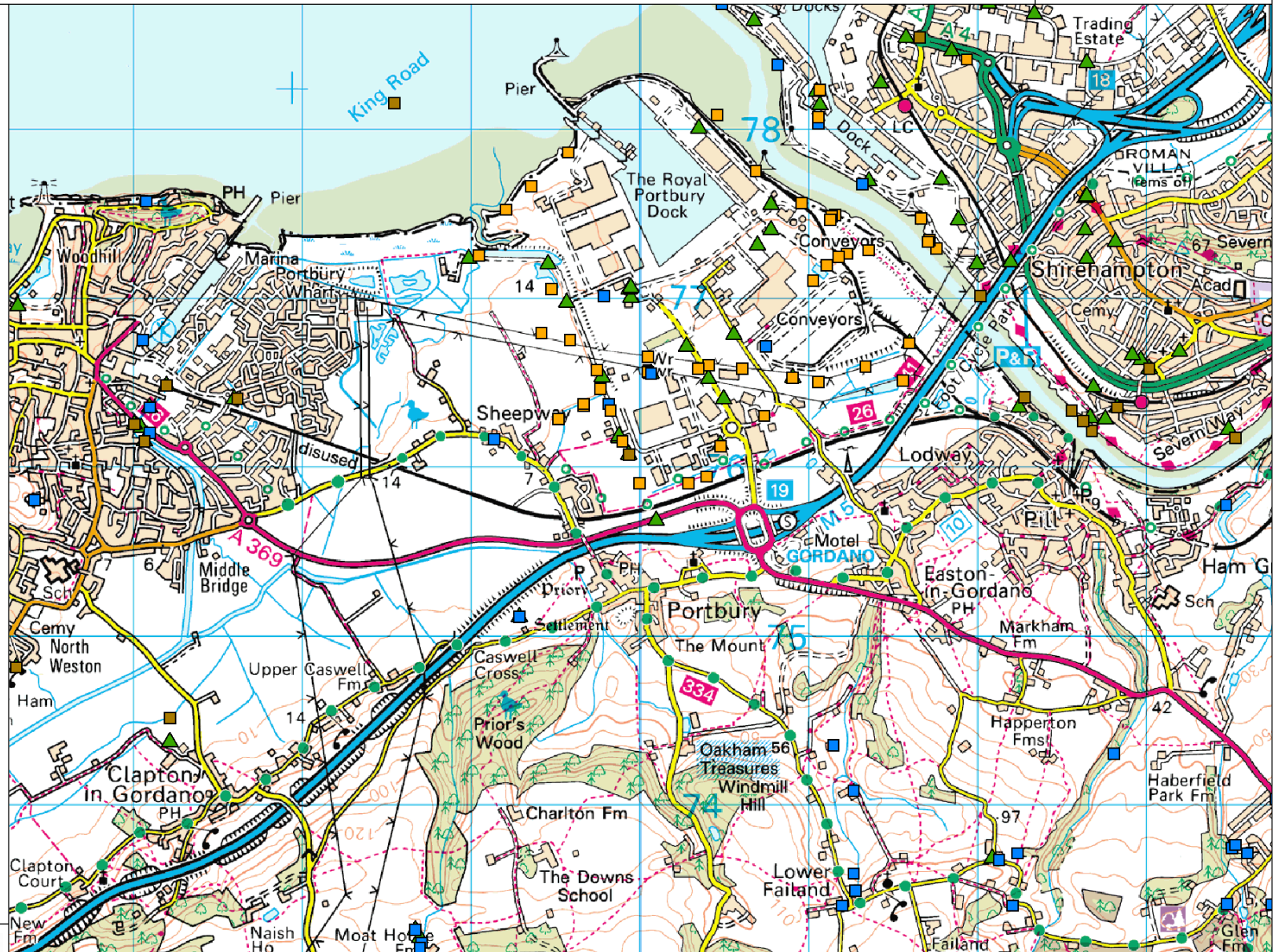
Figure 2.2: PORTSHEAD TO PILL DCO APPLICATION SITE & ENVIRONMENTAL CONSTRAINTS 1 of 8

Portishead - Discharge Consents and Outlets

Legend

WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site
- ▲ WIMS Active Discharge Consents



0 325 650 975 m.



Mr Robert Bird
CH2M HILL
Burderop Park
Swindon
Wiltshire
SN4 0QD

Our ref: WX/2014/125769/02-L01
Your ref:
Date: 31 December 2014

Dear Mr Bird

**METROWEST - PROPOSED RE-COMMISSIONING OF DISUSED RAILWAY
(EXTENDED RED LINE – PILL TO ASHTON GATE AREA)**

I refer to your consultation and our meeting on 10 December 2014 regarding the above.

We have now received North Somerset Council's formal acceptance of our information offer dated 4 December 2014. Accordingly, please find hereunder the Agency's response in respect of the submitted details. We would be pleased to advise further when additional information becomes available.

FLOOD RISK

Following our recent meeting it is understood that North Somerset Council, in agreement with Network Rail, wish to proceed on the basis that the proposed scheme will be classified as 'Less Vulnerable' development for flood risk management purposes. As we advised at the meeting, this particular flood risk vulnerability classification is not considered to be permissible in Flood Zone 3b (Table 3 NPPG).

Although it is evident from the flood mapping provided that sections of the route are above the current flood level, careful consideration must be given to the potential impact of climate change, particularly in respect of the possible effects on structural integrity and operational safety. As previously advised, the requisite FRA must be informed by Bristol City Council's CAFRA data, which details the latest flood levels for combined tidal and fluvial scenarios with and without climate change.

Accordingly, a detailed assessment of the route footprint and crest height will be required to determine potential flood depths/frequency, and inform the process of identifying appropriate mitigation and emergency/contingency measures, where applicable. Due to the stated 'Less Vulnerable' development classification, it is understood that the proposed service will not be required to remain operational during a flood event. Full details of the proposed works, including actual flood risk (with an allowance for climate change) confirmation of the development classification, closure trigger levels, mitigation and emergency/contingency measures must be detailed within the FRA.

As highlighted at our recent meeting, the proposal appears to be reliant on the resolution of existing issues regarding the tidal defences at Portishead. Clarification would be welcomed regarding any contingency proposals in the event of this long standing issue not being resolved within the MetroWest project timeframe.

As discussed, there are a series of culverts for the old and new Colliters Brook that are essential for draining the Ashton Vale valley. No additional loading must be applied in respect of the culverts, unless it is considered essential in terms of the viability of the proposed works. Under such circumstances, there could be opportunities to improve the culverts, which would necessitate culvert condition surveys.

The Agency would also appreciate additional detail regarding the treatment of the Drove Rhyne culverts.

For information, please see the attached maps (MWP1) which show where the CAFRA 3b flood zone is in proximity to the existing railway line.

As discussed, Agency schemes in the vicinity of the proposed works include the Ashton Vale tunnels and outfalls at Avon Chapel.

Under the provisions of the Water Resources Act 1991 and the Land Drainage Byelaws, the prior written consent of the Agency is required for any proposed works or structures in, under, over or within 8 metres of the bank top of the River Avon.

BIODIVERSITY

Water Framework Directive (WFD)

As previously advised, the applicant will be expected to provide a WFD assessment detailing the proposal's potential impacts, how these impacts could affect any relevant water body status and suggest appropriate avoidance/mitigation measures. Much of the assessment will be covered in the EIA, therefore it should be a relatively simple desk-based exercise to provide the additional WFD assessment. As such it is not acceptable to provide an Environmental Impact Assessment /Environmental Statement in lieu of a WFD assessment; a separate WFD assessment should be provided.

The applicant is reminded that they are responsible for demonstrating that the proposed works will not cause a deterioration in, or prevent the future improvement of WFD status. If required, we can provide additional advice and guidance in respect of this issue.

Protected Species Surveys

A number of protected species have been recorded in the vicinity of the proposed development, including the following; Otters, Water Voles, Great Crested Newts, Hedgehogs, Badgers, Dormice, Lesser Horseshoe Bats etc. Appropriate protected species surveys/assessments and suggested mitigation will therefore need to be incorporated into the EIA/ES.

Invasive Species

The presence of any invasive species along the route must be established and, if found, appropriate method statements provided, detailing how these will be dealt with to avoid a breach of the Wildlife and Countryside Act. For information, our records indicate the potential presence of, inter alia, the following species; Marsh Frog, Floating Pennywort, Winter Heliotrope, Japanese Knotweed, Giant Knotweed and Rhododendron.

Designated Sites

An appropriate assessment of the proposals potential impact on a range of designated sites must be provided. These include;

Markham Brook LWS
Severn Estuary SSSI, SAC, SPA, Ramsar
River Avon LWS (part of)
Ham Green SSSI (geological)
Avon Gorge – River Avon LWS
Avon Gorge Woodlands SAC, SSSI
Avon Gorge & Leigh Woods LWS
Portbury Wharf Nature Reserve LWS
Fields between A396 and M5 Motorway Portbury LWS
Fields between railway line and A369 Portbury LWS
Field east of M5 Motorway Lodway LWS
Field east of Court House LWS
Drove Rhyne and adjacent fields LWS

Natural England should be consulted in respect of any sites with a National/International designation. Ecological Surveys will also need to be carried out and appropriate mitigation/compensation implemented.

WATER QUALITY

As requested, please find attached the mapped positions of all known discharge consents and their associated outlets in the area of the extended route. Should you require details in respect of specific consents, please contact the Agency's customer enquiries section:

wessexenquiries@environment-agency.gov.uk

Please note, careful consideration must be given to the proposal's potential impact on local water resources. Accordingly, a detailed Construction Environmental Management Plan and Operational Method Statement will be required.

All relevant works must comply with the Agency's Pollution Prevention Guidance documents, particularly PPG1, PPG2, PPG5 and PPG6, which may be accessed through the following link:

<https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg>

WATER RESOURCES

Following an assessment of local water resources, we can advise that the availability of water for abstraction across the four Q values is classified as 'good' for the whole route, with all four Q values showing as green (water available for licensing). There is one waterbody however where availability becomes restricted (see attached map WRRES).

It must be noted that if it is intended to abstract more than 20 cubic metres of water per day from a surface water source (e.g. stream or drain) or from underground strata (via borehole or well) an abstraction licence will be required from the Agency under the provisions of the Water Resources Act 1991. There is no guarantee that a licence will be granted as this is dependent on available water resources and existing protected rights.

CONTAMINATION

National Planning Policy Framework (NPPF) paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by:

Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of water pollution; and

Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate

Government policy also states that planning policies and decisions should ensure that adequate site investigation information, prepared by a competent person, is presented (NPPF paragraph 121).

Accordingly, the Agency must advise that an appropriate remediation strategy is provided that includes the following components to deal with the risks associated with contamination of the site:

- A preliminary risk assessment which has identified:
 - all previous uses
 - potential contaminants associated with those uses
 - a conceptual model of the site indicating sources, pathways and receptors
 - potentially unacceptable risks arising from contamination at the site.
- A site investigation scheme, based on the above, to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.
- The results of the site investigation and the detailed risk assessment referred to above and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.

- A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

These comments are relevant to the proposed route in its entirety.

Further information regarding this matter may be accessed through the following link:

<https://www.gov.uk/government/collections/land-contamination-technical-guidance>

WASTE REGULATION

As previously advised, excavated material arising from development works can sometimes be classified as waste. For further guidance on how waste is classified, together with best practice for its handling, transport, treatment and disposal please see our waste pages at:

<http://www.environment-agency.gov.uk/business/topics/waste/default.aspx>

If any waste is to be used on site, the applicant will be required to obtain the appropriate waste exemption or permit from the Agency. We are unable to specify what exactly would be required (if anything) due to the limited information provided.

If any controlled waste is to be removed off site, the site operator must ensure a registered waste carrier is used to convey the waste material off site to a suitably permitted facility. Further information is available at:

www.environment-agency.gov.uk/subjects/waste.

LANDFILL.

Our records indicate that there are no known landfill sites within 250m of the extended section of the proposed route.

Should you wish to discuss these issues further please contact me direct.

This letter should be read in conjunction with the Agency's letter dated 28 July 2014

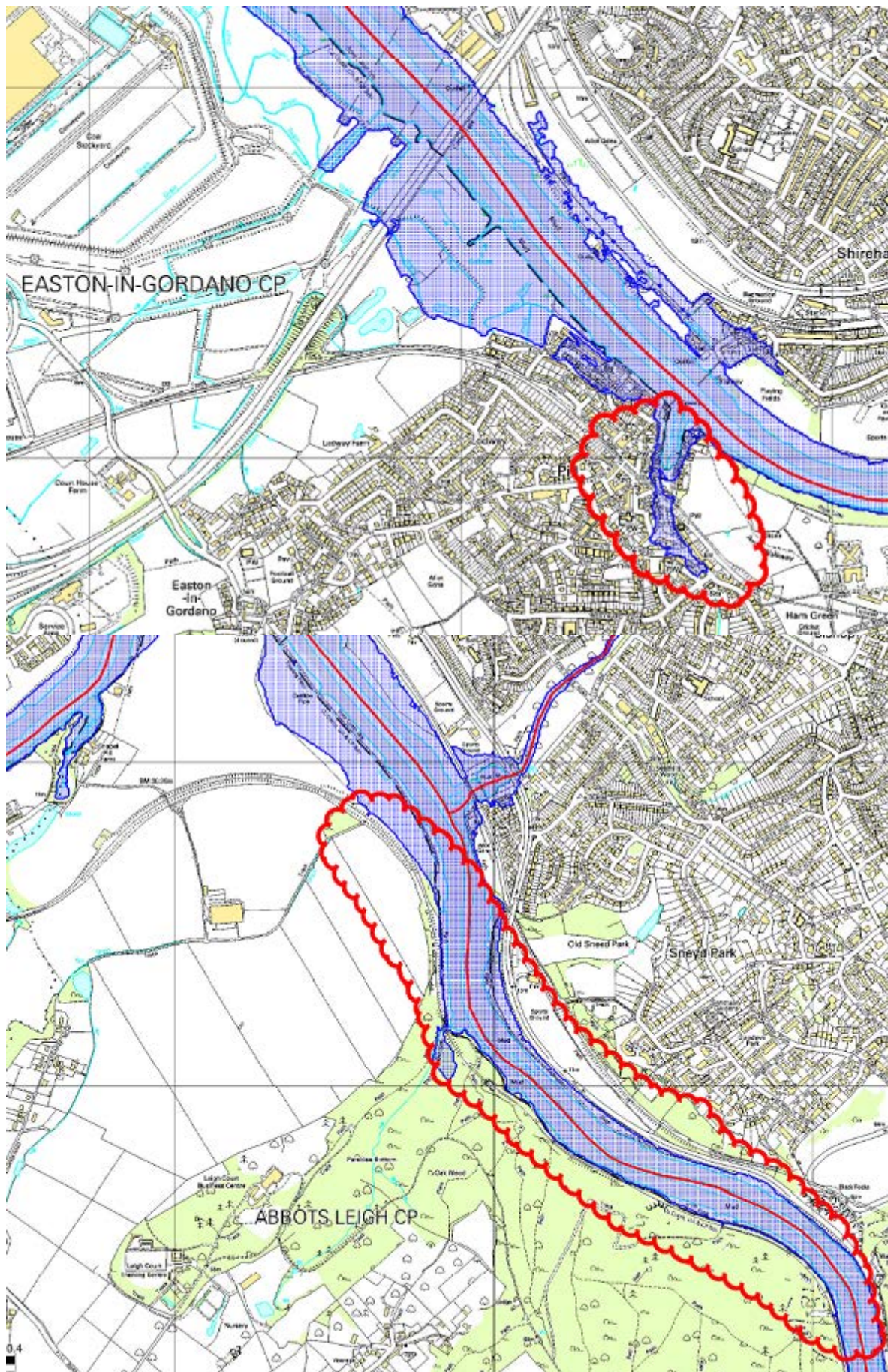
Yours sincerely

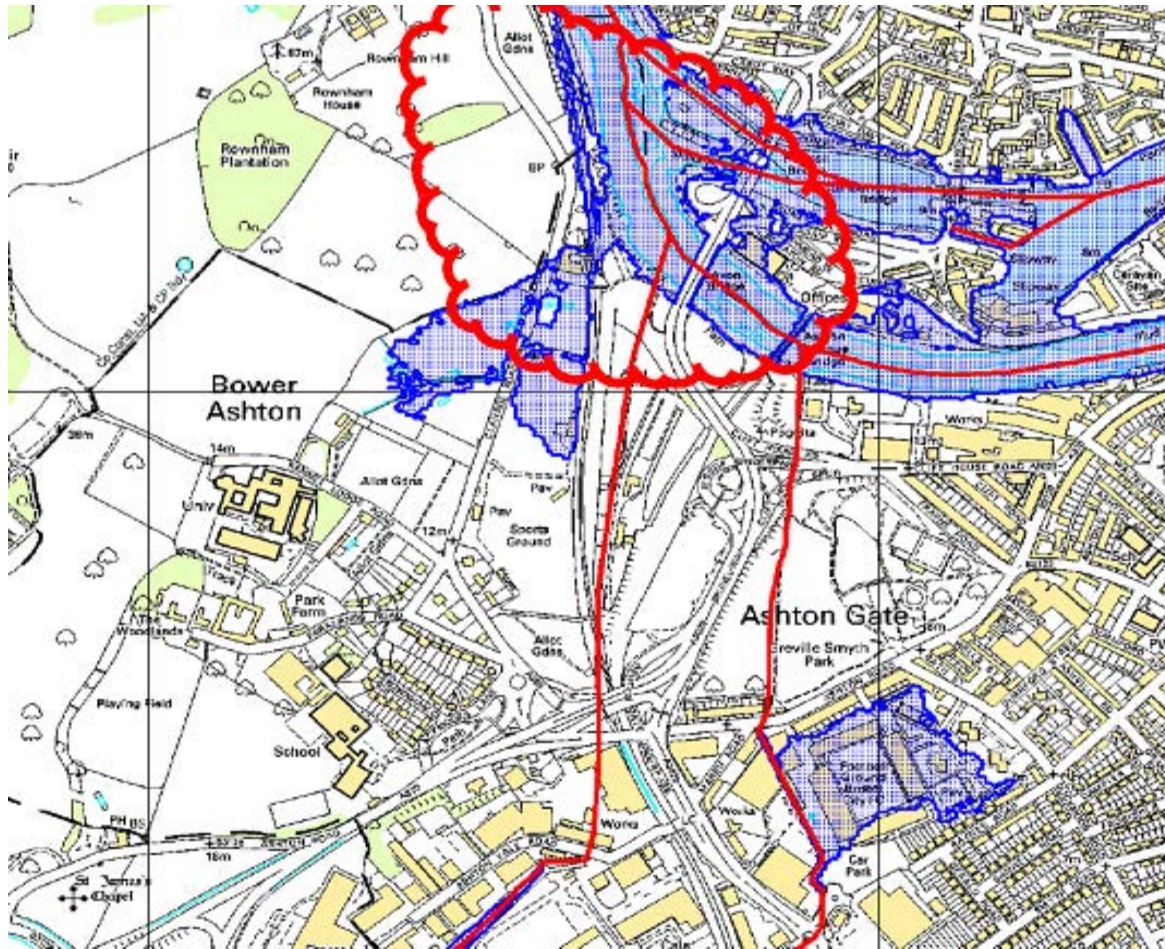
Mr Dave Pring
Sustainable Places - Planning Specialist

Direct dial 01278 484627

Direct fax 01278 452985

Direct e-mail dave.pring@environment-agency.gov.uk





Portishead to Pill DCO Scheme. Discharge Consent Outlets 1 of 5

Legend WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site



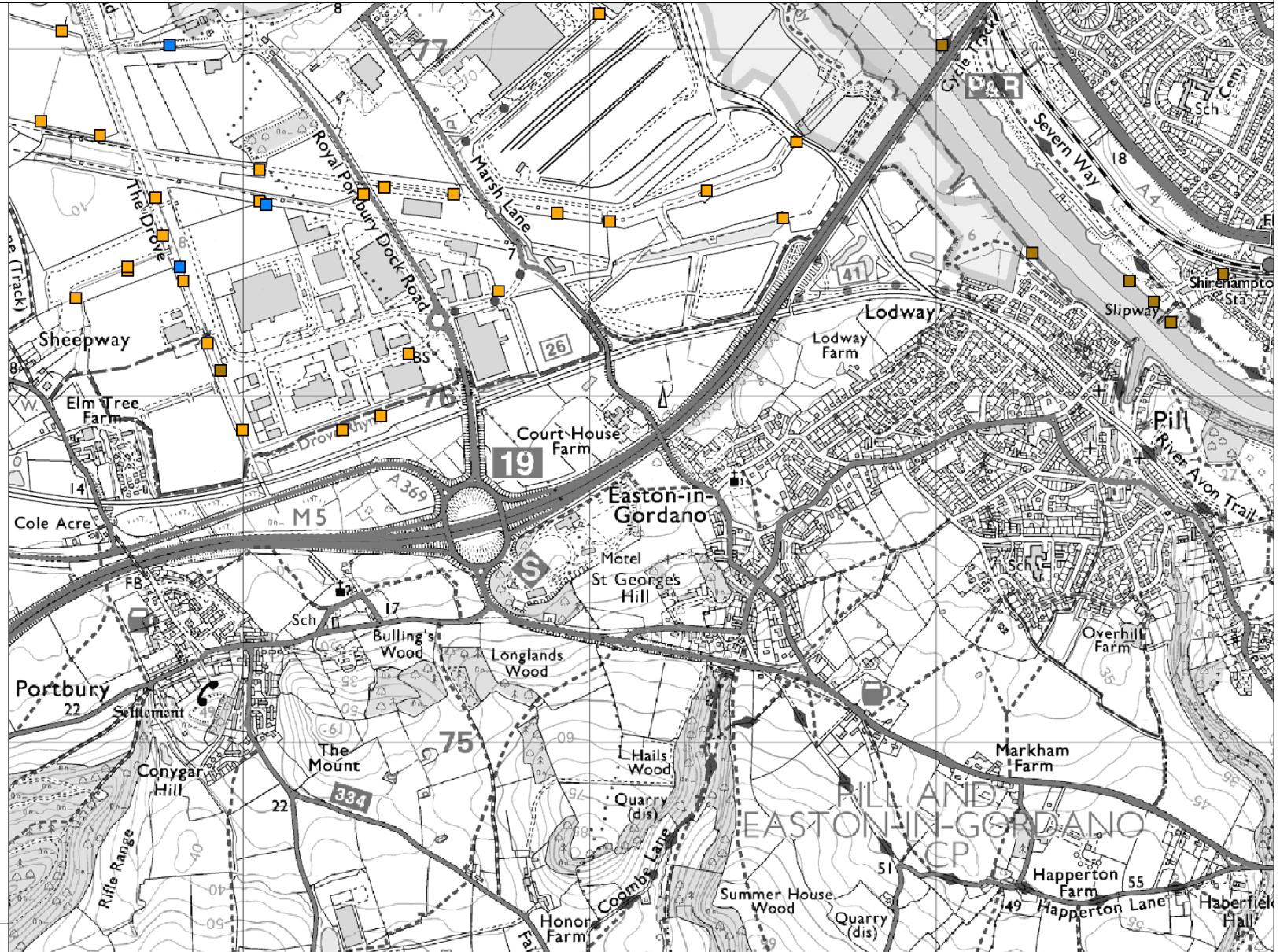
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Portishead to Pill DCO Scheme. Discharge Consent Outlets 2 of 5

Legend WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site



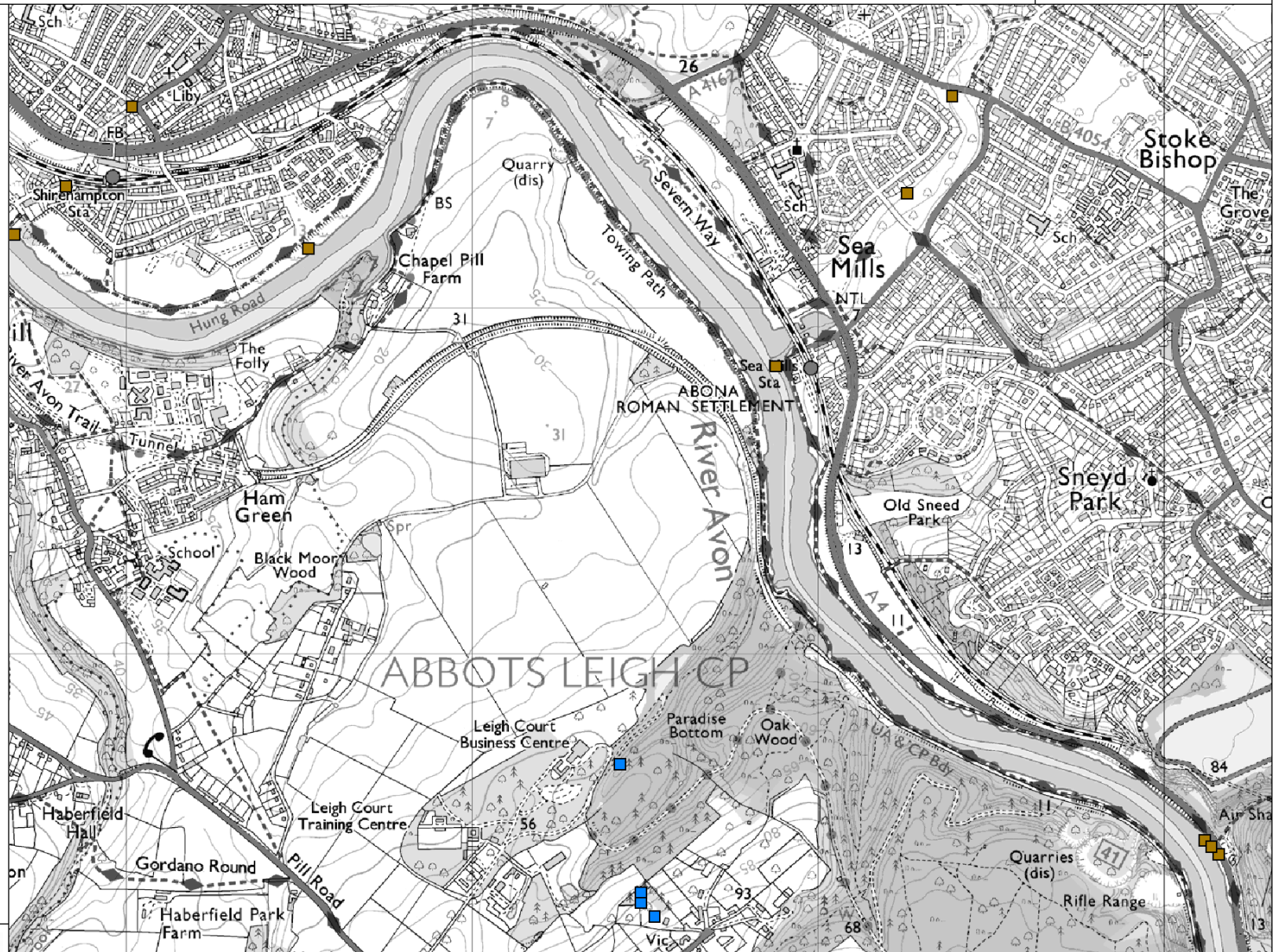
0 160 320 480 m.



Portishead to Pill DCO Scheme. Discharge Consent Outlets 3 of 5

Legend WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site



0 160 320 480 m.

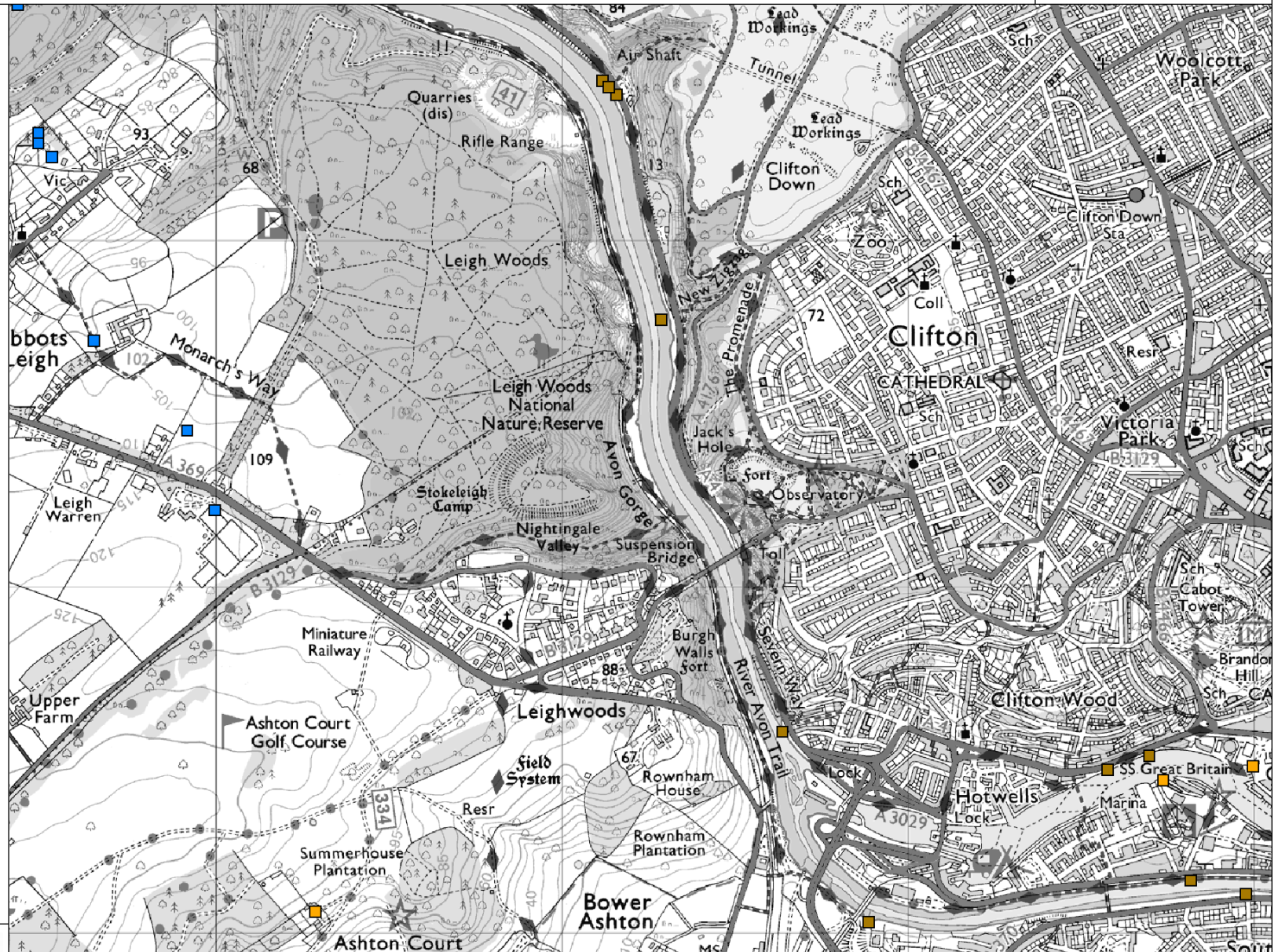


Portishead to Pill DCO Scheme. Discharge Consent Outlets 4 of 5



Legend WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site



0 160 320 480 m.



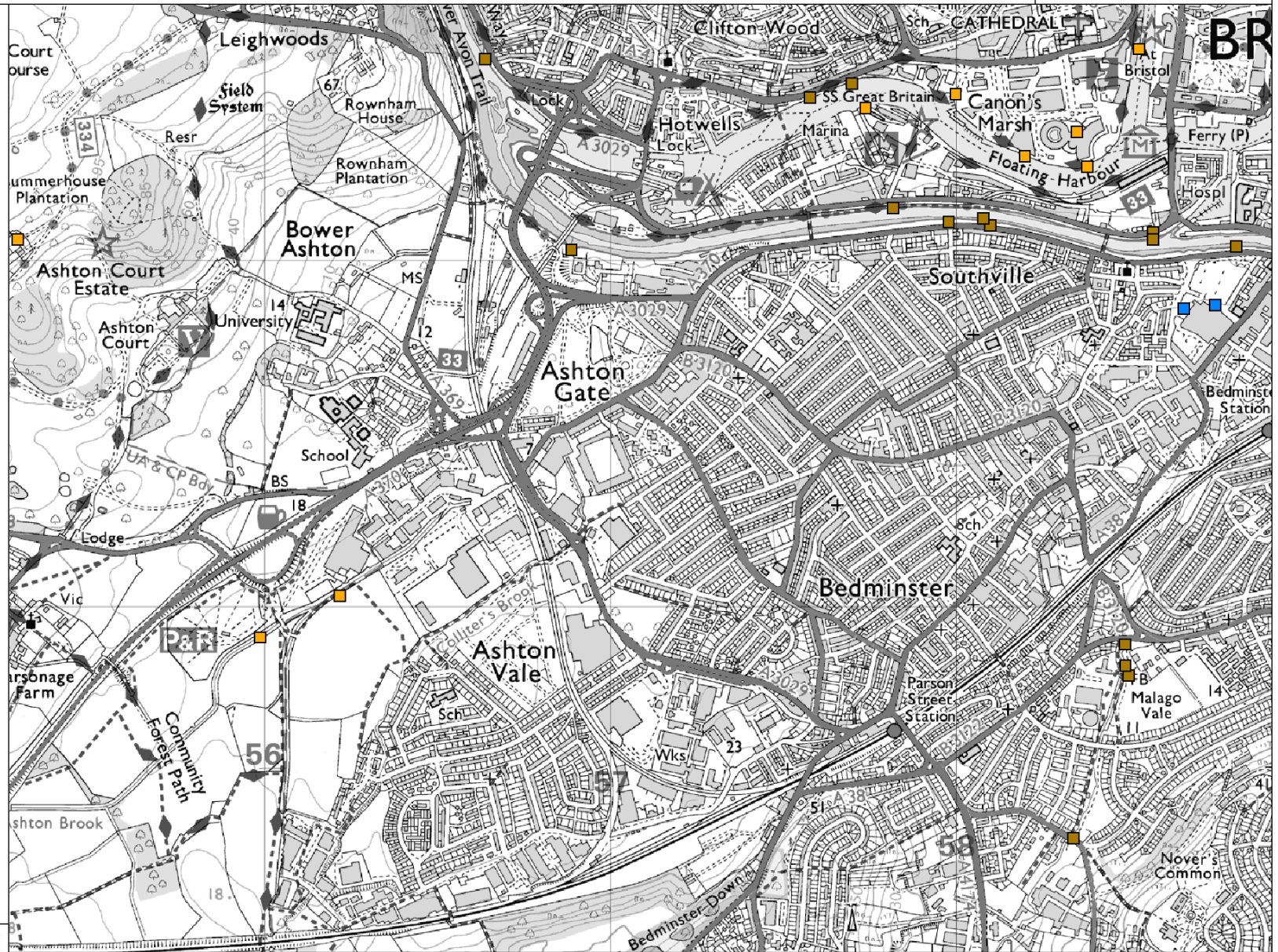
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Portishead to Pill DCO Scheme. Discharge Consent Outlets 5 of 5

Legend

WIMS Active Discharge Consents Outlets

- Agriculture
- Miscellaneous
- Sewage Outlet - not from Water Companies
- Sewage Outlet - from Water Companies
- Sewage and Trade combined
- Trade
- Waste Site



0 160 320 480 m.



Water Resources

The screenshot displays the ArcMap interface with the following components:

- Layers Panel:** A list of layers on the left, including 'G1 National, RBD, Region & Area Boundaries', 'G2 National RSA Scheme Summary', 'G3 Groundwater Model Investigation Areas', 'G4 CAMS National Collation', 'G5 Pressure: SWABS, GWABS & DIS (SW Body Low Flow)', 'G6 Pressure: GWABS (GW Body Quant Status)', 'G7 Pressure: Reservoir (SW Body Peak Flow) & Reg Rivers', 'G8 Pressure: Urbanisation (SW Body Peak Flow)', 'G9 Other SW Body Pressures: Physical and Pollution (TBC)', 'G10 Natura2000 Protected Areas and SSSIs', 'G11 Rivers, Lakes, Estuaries', 'G12 GW Body Quantitative Status and Risks', and 'G13 Basemaps'. The 'G11 Rivers, Lakes, Estuaries' layer is checked.
- Map View:** A map showing a network of rivers and lakes. A central river feature is highlighted in yellow, indicating it is the selected feature for the identify tool.
- Identify Window:** A dialog box titled 'Identify' is open, showing the 'Identify from' dropdown set to '<Top-most layer>'. The 'CAMS Colour Downs' layer is selected, and the 'Unnamed trib - s' feature is identified. The window displays a table of attributes for this feature.
- Attribute Table:** A table with two columns: 'Field' and 'Value'. The data is as follows:

Field	Value
OBJECTID_1	1046
OBJECTID	2464
EA_WB_ID	GB109053027430
DSTREAM_WB	GB530905415405
TYPE_IWB	River WB - Code 1
WBAREA_M2	4985107.687209
UPSAREA_M2	4985107.68721
OUTFLOWIX	35370.1621631
OUTFLOWY	176059.803389
REGRIVFLAG	0
NAME	Unnamed trib - source to conf R Avon (Brist)
OFFLAKEFLG	0
NUM_DS_WBS	2
SWFLG	0
TOTDIST	1
- Map Properties:** The map is displayed in the 'Display' mode with a scale of 1:35,426. The drawing toolbar at the bottom shows the 'Aerial' basemap selected.
- Taskbar:** The Windows taskbar at the bottom shows the system clock at 12:00 on 28/11/2014.

Appendix C

Portishead Station Options

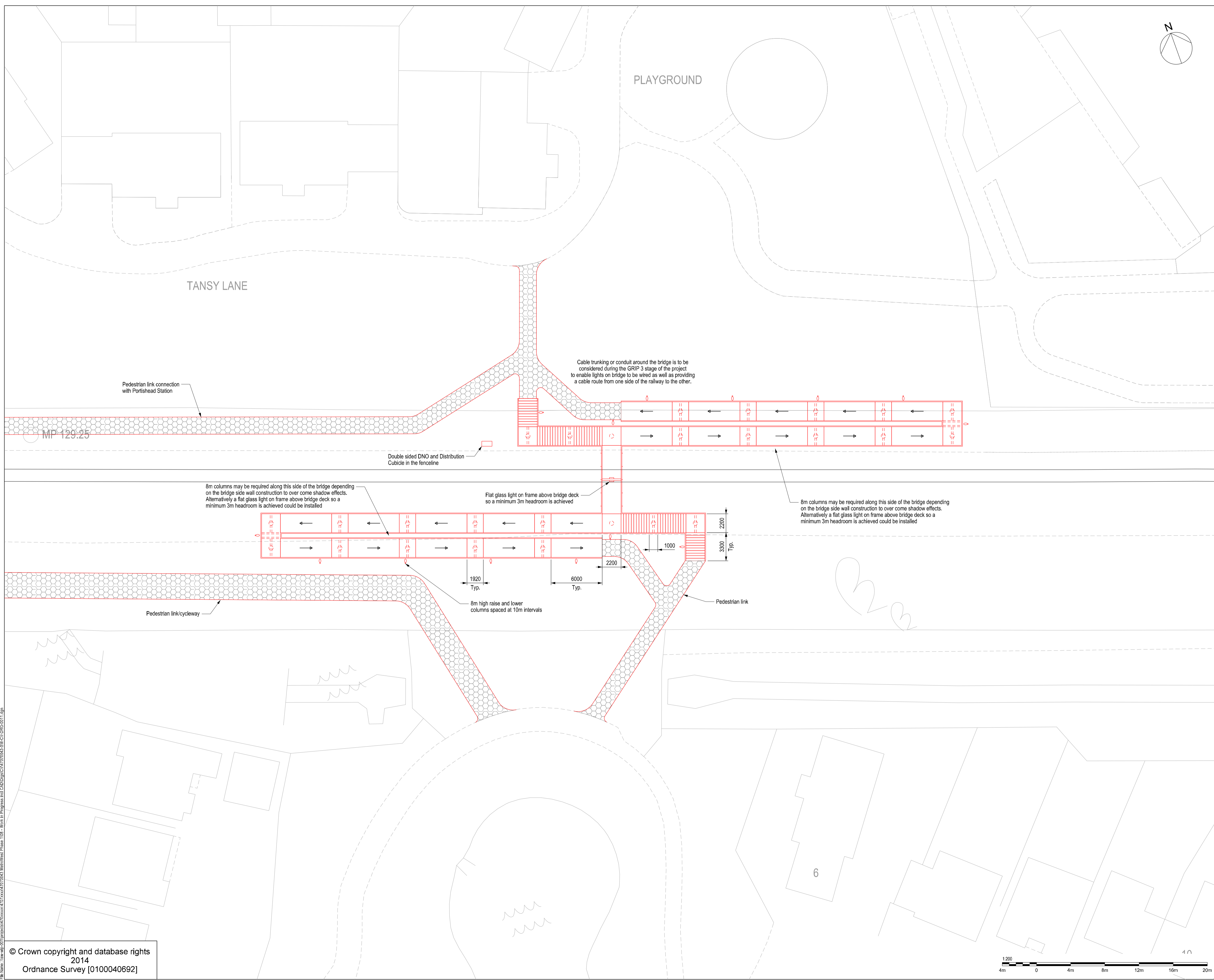
This drawing is for preliminary purposes only and is subject to amendment during design development. UNDER NO CIRCUMSTANCES MUST THIS DRAWING BE USED FOR CONSTRUCTION PURPOSES.

Construction Risks	Maintenance/cleaning Risks	Demolition/adaptation Risks
--------------------	----------------------------	-----------------------------

In addition to the hazard/risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

NOTES
1. Former crossing



Revision Details	By	Chkd	Appd	Checked Date	Suffix
------------------	----	------	------	--------------	--------

Purpose of Issue: GRIP 2



Project Title: UID 140569
METROWEST
PHASE 1

Drawing Title: GALINGALE WAY FOOTBRIDGE
OPTION 1
PLAN

Designed J. Coram	Drawn M. Fairchild	Checked S. Turner	Approved M. Summerfield	Date 27/05/2014
Subsidiary S1	URS Internal Project No. 47070043	Project Manager Karl Hatalla	kaarl.hatalla@urs.com +44 (0)1793 508787	
ELR / Mileage POD 123m 05ch	Scale @ A1 1:200			

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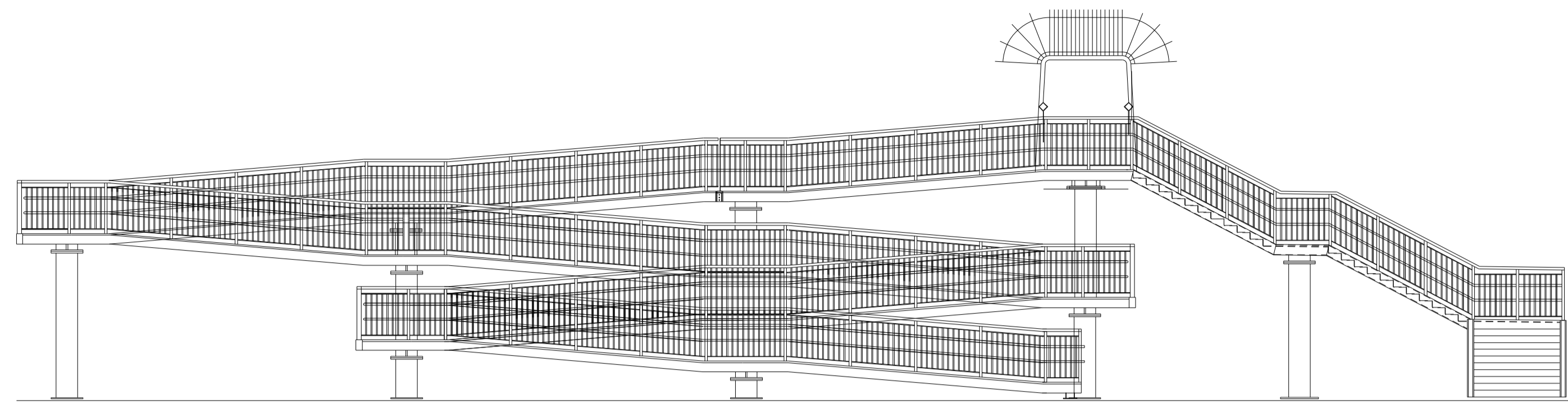
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Drawing Number 47070043-SW-CV-DRG-0011	Rev P01
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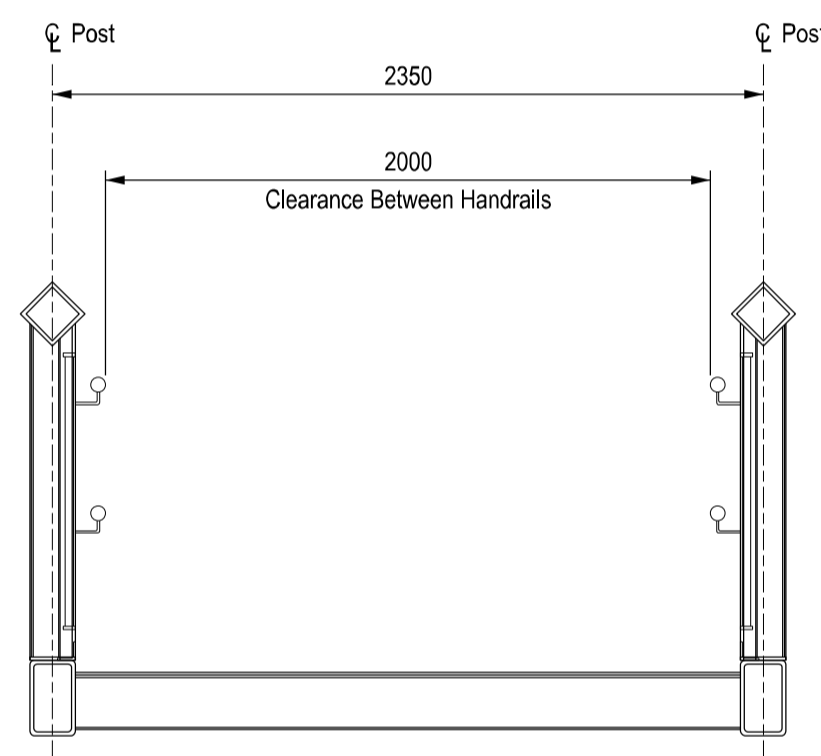
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 User: jcoram

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Ordnance Survey [0100040692]

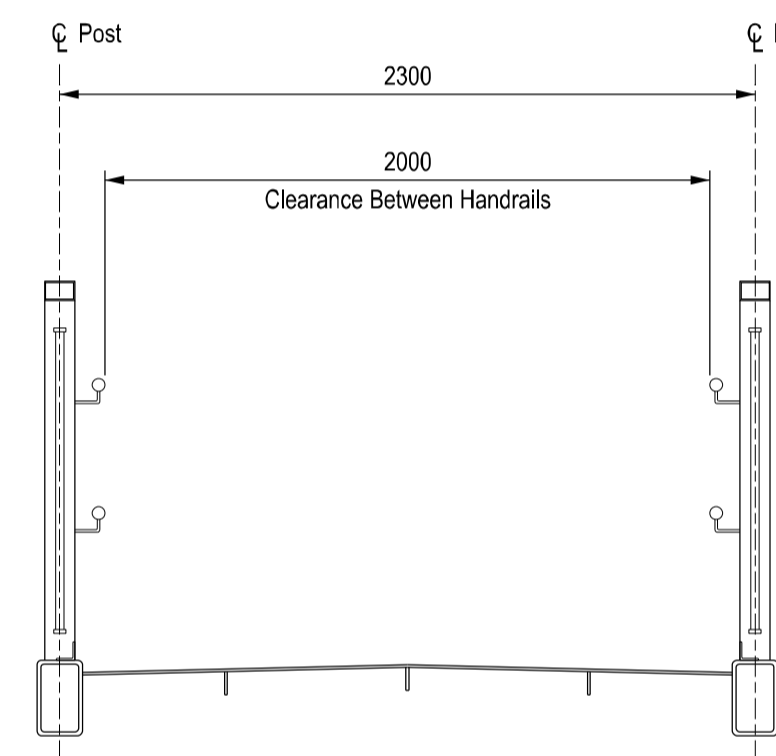
This drawing is for preliminary purposes only and is subject to amendment during design development. UNDER NO CIRCUMSTANCES MUST THIS DRAWING BE USED FOR CONSTRUCTION PURPOSES.



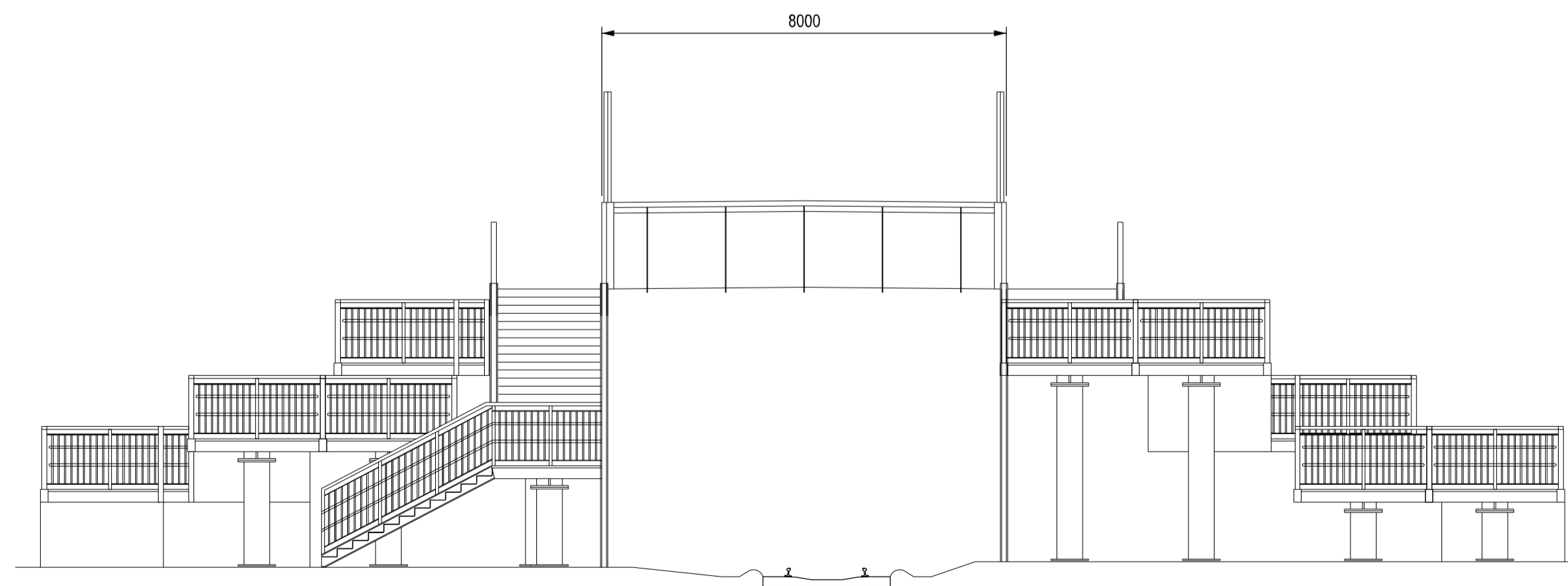
ELEVATION A
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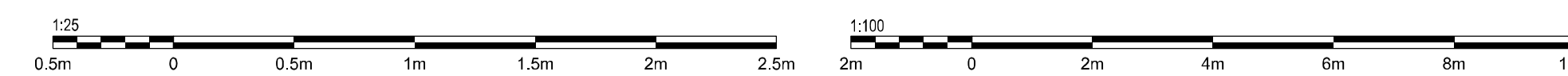
TYPICAL SECTION THROUGH STAIR LANDING
1:25



TYPICAL SECTION THROUGH RAMP
1:25



ELEVATION B
1:100



Construction Risks	Maintenance/cleaning Risks	Demolition/adaptation Risks
In addition to the hazard/risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.		

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

NOTES

Revision Details	By	Chkd	Appd	Checked Date	Suffix
Purpose of Issue					

GRIP 2



Project Title
**UID 140569
METROWEST
PHASE 1**

Drawing Title
**GALINGALE WAY FOOTBRIDGE
OPTION 2
ELEVATIONS AND SECTIONS**

Designed	Drawn	Checked	Approved	Date
J. Coram	M. Fairchild	S. Turner	M. Summerfield	27/05/2014
Subsidiary	URS Internal Project No.	Project Manager		
S1	47070043	Karl Hatalla		
ELR / Mileage	Scale @ A1	karl.hatalla@urs.com		
POD 12m 06ch	As Shown	+44 (0)1793 508787		

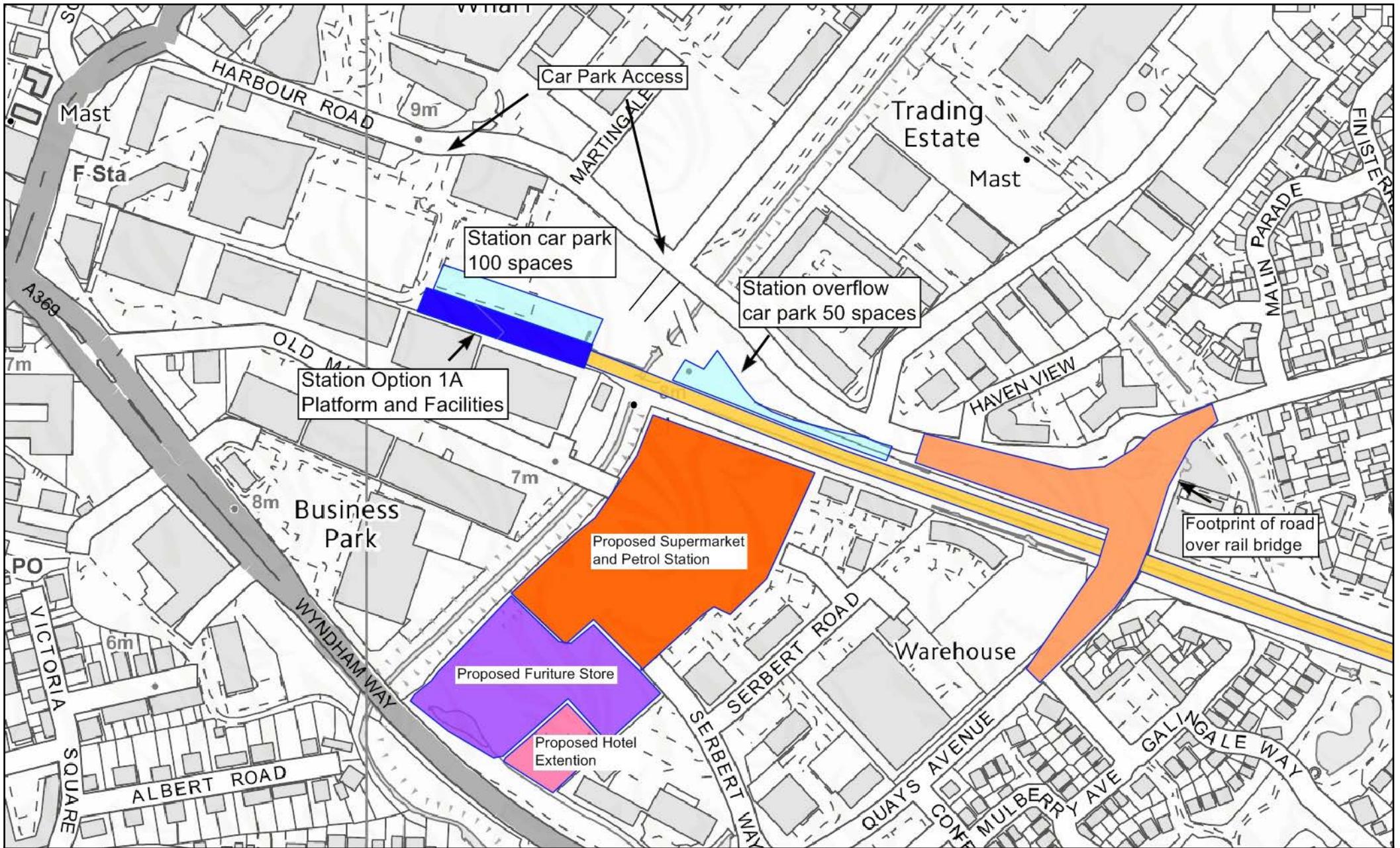
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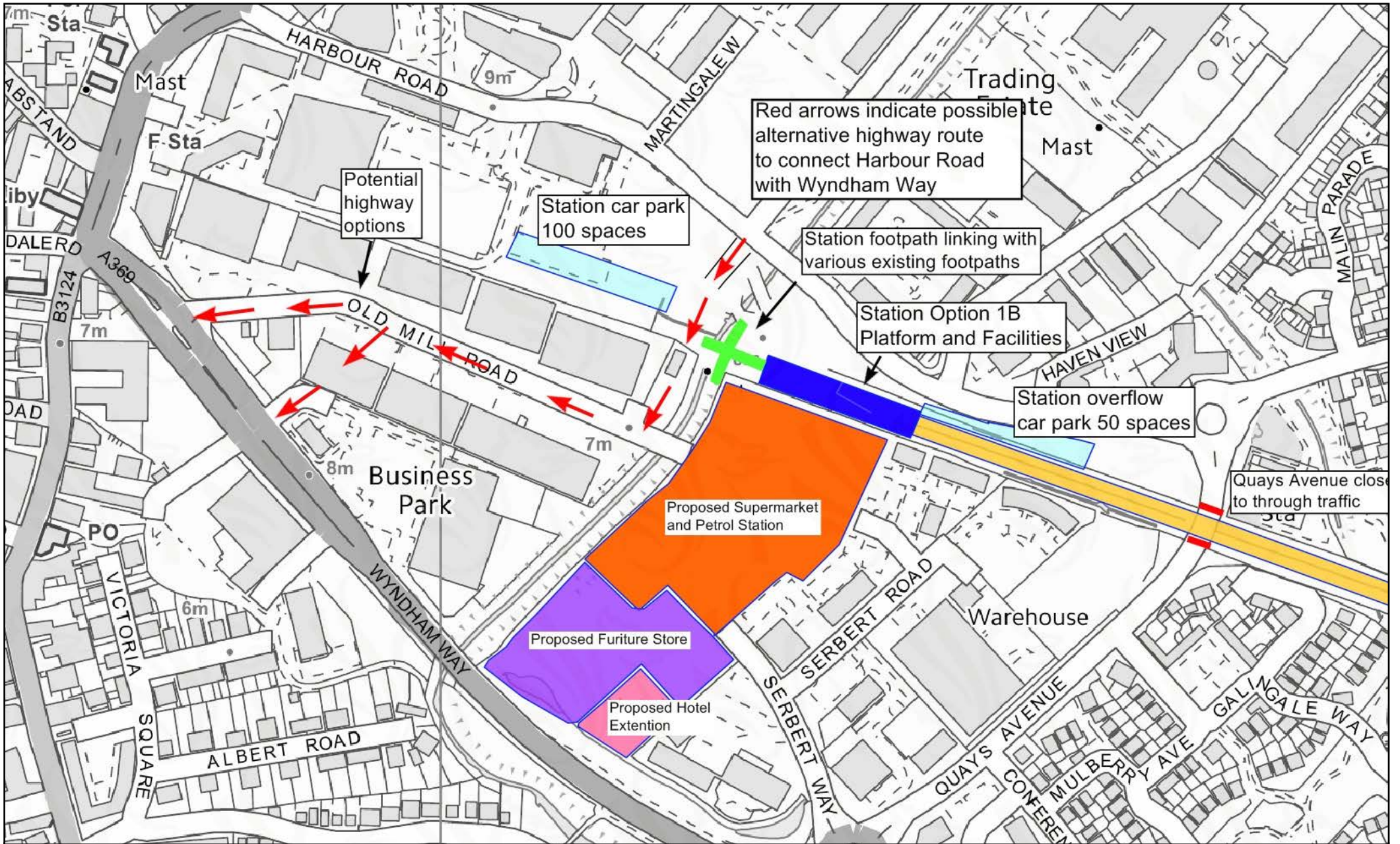
URS Infrastructure & Environment UK Limited
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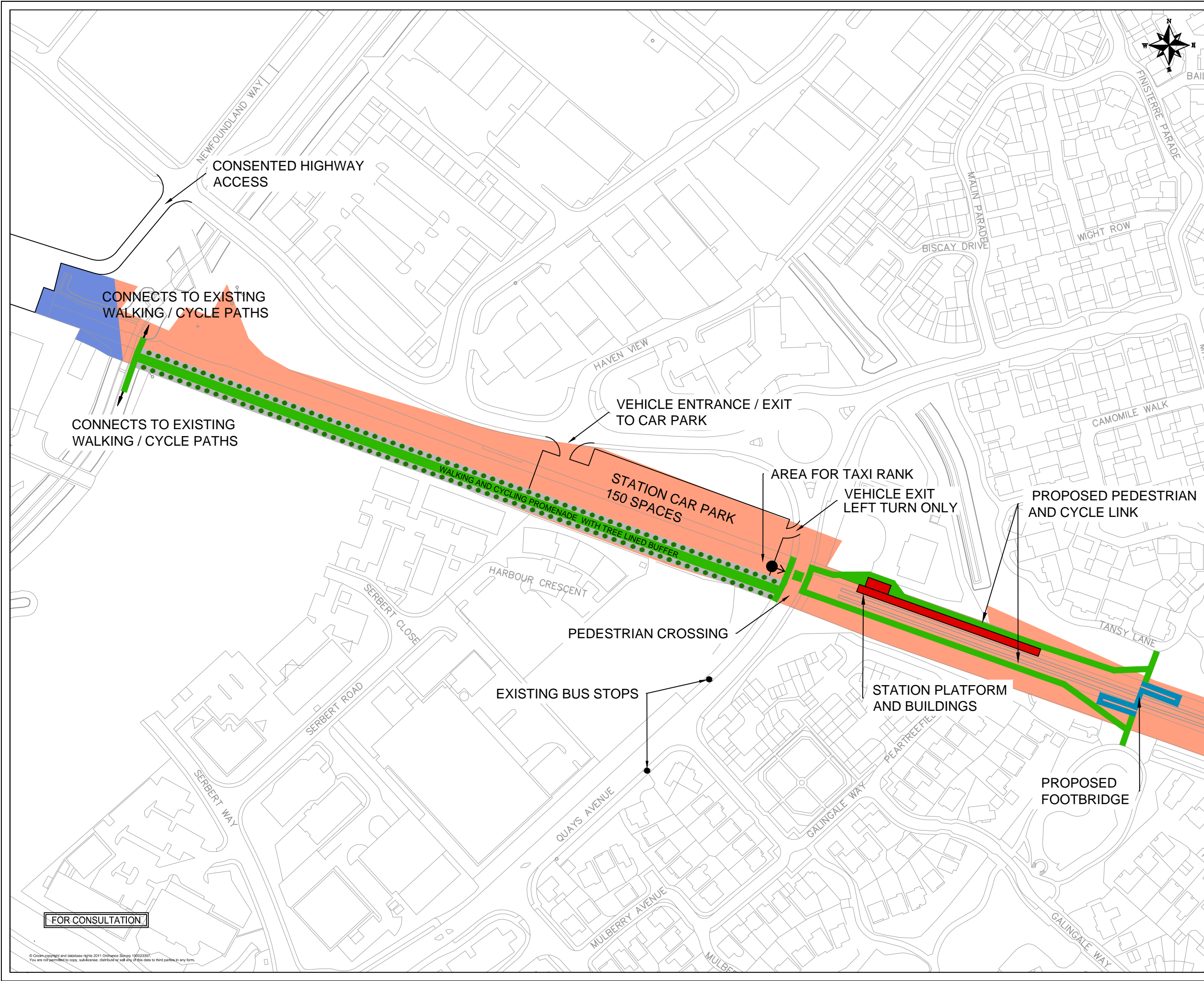


Drawing Number	Rev
47070043-SW-CV-DRG-0014	P01

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 User: M. Fairchild
 Date: 27/05/2014 14:09:00
 Plotter: HP DesignJet T1100e
 Plot Style: URS.ctb
 Scale: 1:100
 Sheet: 1 of 1







- Notes:**
1. All dimensions are in metres unless noted otherwise.
 2. This plan has been prepared for consultation purposes only and does not represent a definitive plan.
 3. Any further development of the plans presented or there alternatives is subject to consultation with third parties including private landowners and / or their respective tenants.
 4. Land boundaries shown are indicative only.

- Key:**
- PROPOSED FOOTBRIDGE
 - PROPOSED PEDESTRIAN LINK / CYCLEWAY
 - PROPOSED PEDESTRIAN CROSSING
 - PROPOSED HIGHWAY LINK
 - PROPOSED STATION PLATFORM AND BUILDINGS
 - NSC RAIL LAND
 - PHOTOGRAPH TAKEN FROM THIS POINT

Rev	By	Chkd	Apprvl	Date	Description

North Somerset Council
 Wallislee Grove Road
 Weston-super-Mare, BS23 1UJ
 Tel +44 (0)1934 888 888
 www.n-somerset.gov.uk

Project: METROWEST HIGHWAY REALIGNMENT OPTIONS

Drawing: OPTION 2a CONCEPTUAL ARRANGEMENT

Drawn by: DCF Date: MAY 2014
 Checked by: JW Date: MAY 2014
 Approved by: IW Date: MAY 2014

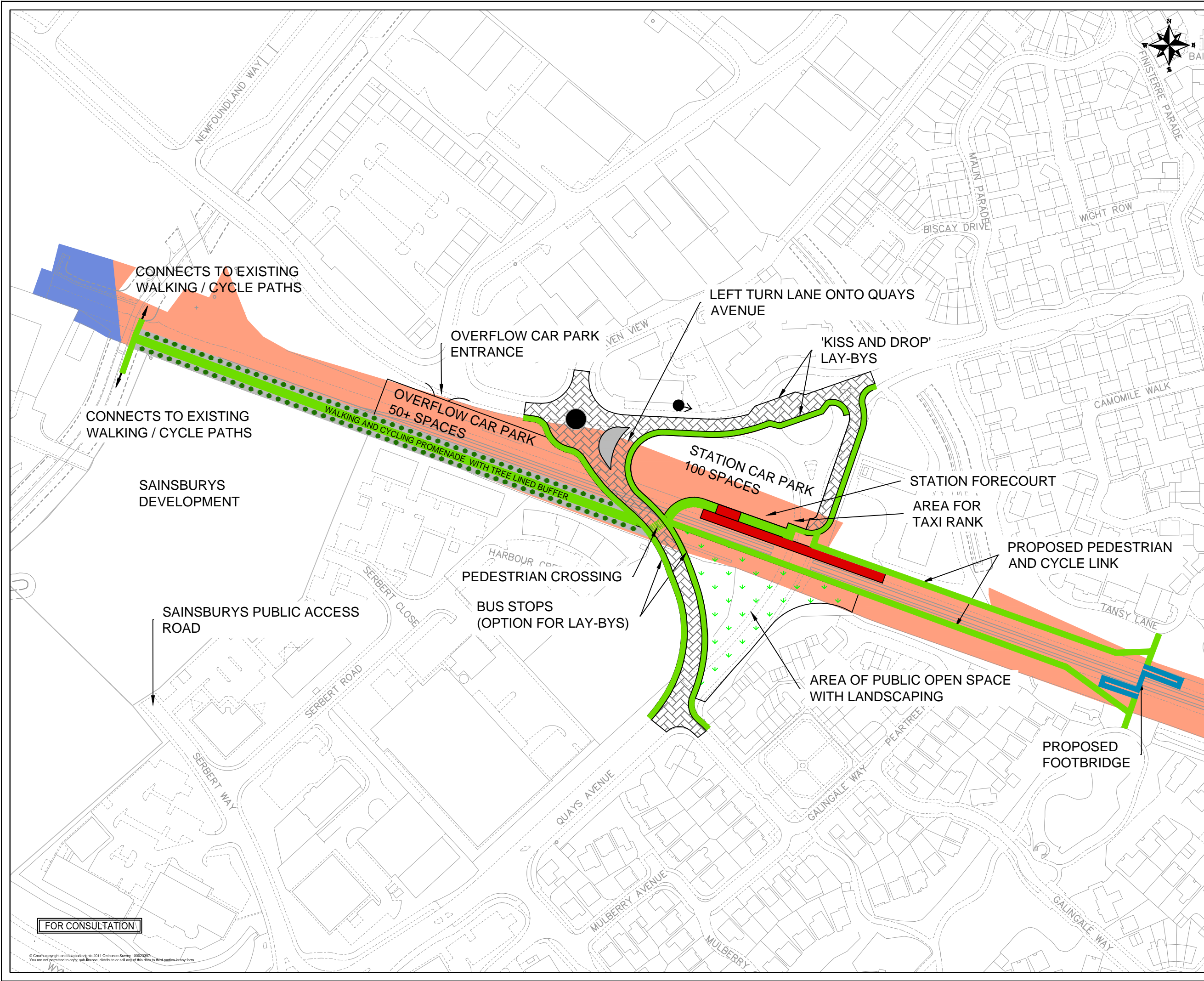
Drawing No.: METRO/HR0/2a Revision: 0

Drawing Scale: NTS

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 3. Any further development of the plans presented or there alternatives is subject to consultation with third parties including private landowners and / or their respective tenants.
 4. Land boundaries shown are indicative only.

- Key:**
- PROPOSED FOOTBRIDGE
 - PROPOSED PEDESTRIAN LINK / CYCLEWAY
 - PROPOSED PEDESTRIAN CROSSING
 - PROPOSED HIGHWAY LINK
 - PROPOSED STATION PLATFORM AND BUILDINGS
 - NSC RAIL LAND
 - PHOTOGRAPH TAKEN FROM THIS POINT

Rev	By	Chkd	Apprv	Date	Description

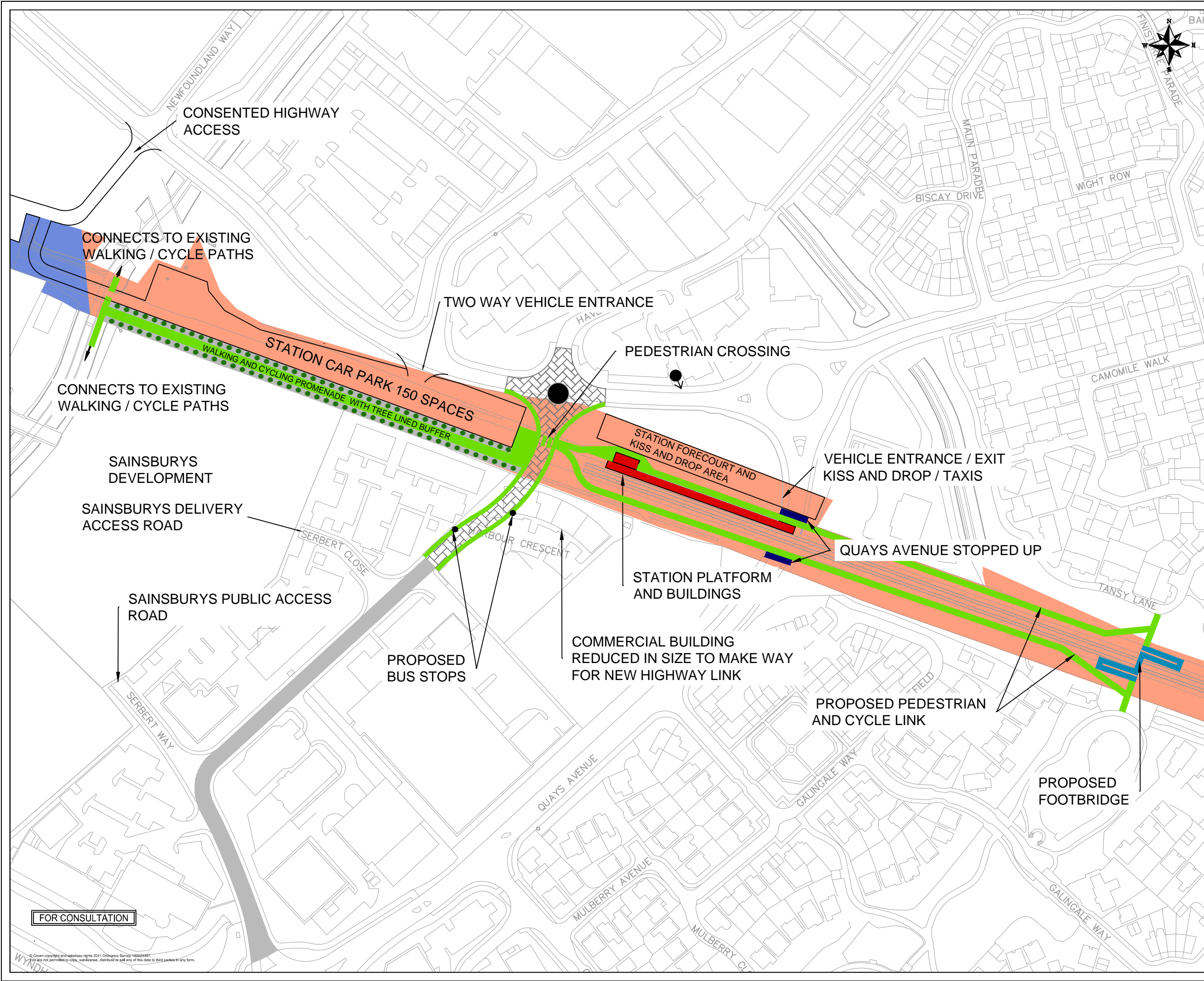
North Somerset Council
 Wallisley Grove Road
 Weston-super-Mare, BS23 1UJ
 Tel +44 (0)1934 888 888
 www.n-somerset.gov.uk

Project		METROWEST HIGHWAY REALIGNMENT OPTIONS
Drawing		OPTION 2b CONCEPTUAL ARRANGEMENT
Drawn by:	DCF	Date: MAY 2014
Checked by:	JW	Date: MAY 2014
Approved by:	IW	Date: MAY 2014
Drawing No.	METRO/HR0/2b	Revision
		0
Drawing Scale: NTS		

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1. All dimensions are in metres unless noted otherwise.
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 4. Land boundaries shown are indicative only.

- Key:**
- PROPOSED FOOTBRIDGE
 - PROPOSED PEDESTRIAN LINK / CYCLEWAY
 - PROPOSED PEDESTRIAN CROSSING
 - PROPOSED HIGHWAY LINK
 - PROPOSED STATION PLATFORM AND BUILDINGS
 - NSC RAIL LAND
 - PHOTOGRAPH TAKEN FROM THIS POINT

Rev	By	Chkd	Apprvl	Date	Description

North Somerset Council
 Wallislee Grove Road
 Weston-super-Mare, BS23 1UJ
 Tel +44 (0)1934 888 888
 www.n-somerset.gov.uk

Project
**METROWEST
 HIGHWAY REALIGNMENT OPTIONS**

Drawing
**OPTION 2c
 CONCEPTUAL ARRANGEMENT**

Drawn by: DCF Date: MAY 2014
 Checked by: JW Date: MAY 2014
 Approved by: IW Date: MAY 2014

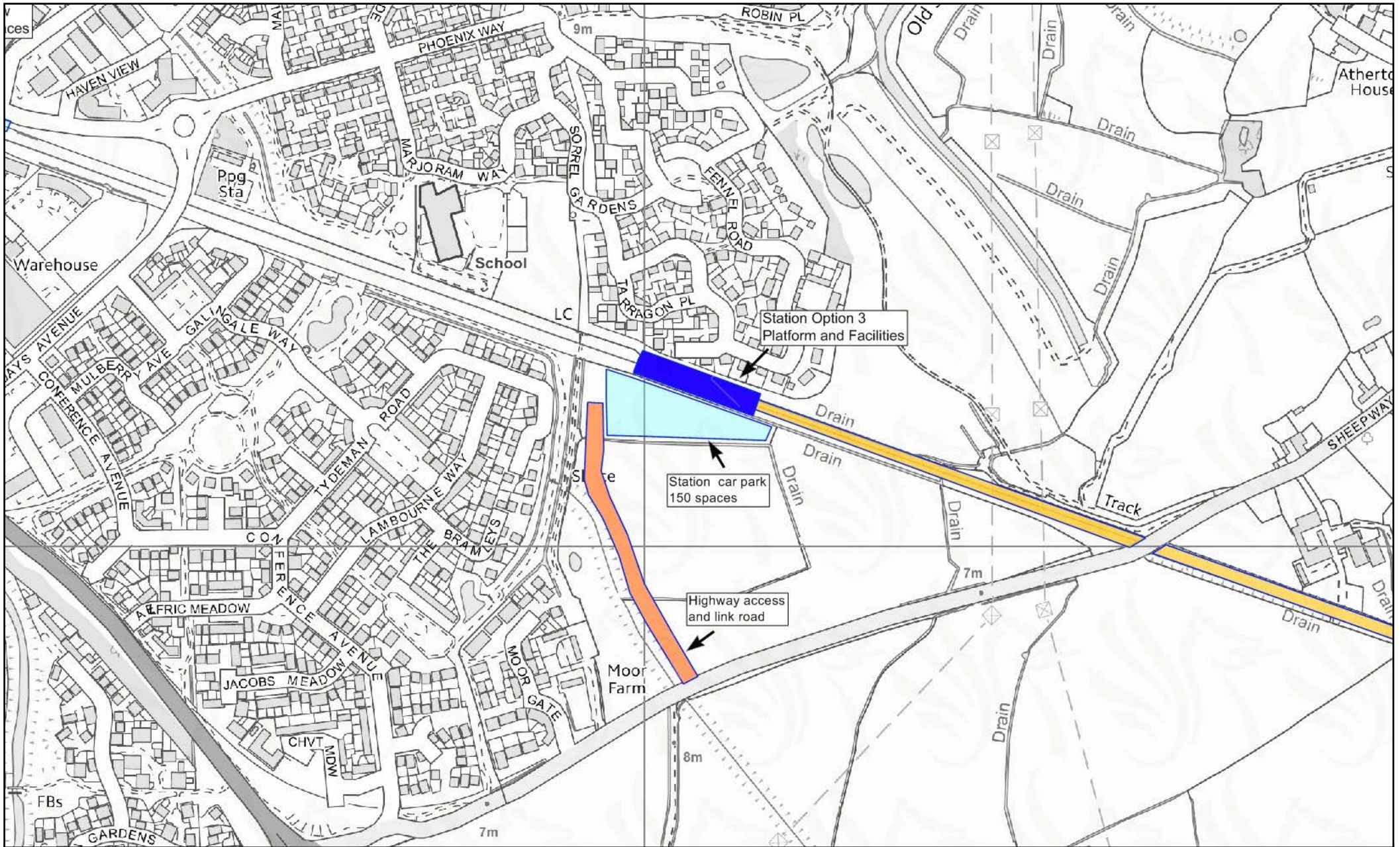
Drawing No. **METRO/HR0/2c** Revision **0**

Drawing Scale: NTS

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Portishead Station Option 3

Scale: 1:5000

Date: 21 May 2014

