



# **South Wales Metro**

A Report to Inform a Strategic Habitats  
Regulations Assessment  
Task 1 Screening

25 August 2017



Mott MacDonald  
Fitzalan House  
Fitzalan Road  
Cardiff CF24 0EL  
United Kingdom

T +44 (0)29 2046 7800  
F +44 (0)29 2047 1888  
mottmac.com

# **South Wales Metro**

A Report to Inform a Strategic Habitats  
Regulations Assessment  
Task 1 Screening

25 August 2017



# Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	19/06/17	J Bates	T Folland C Williams	C Probert	First Issue
B	15/08/17	J Bates	M Phillips L Huckstep	C Williams	Second issue with WG and Tfw comments

**Document reference:** 367590 | 0803 | B

**Information class:** Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

# Contents

Executive summary	1
<b>1 Introduction</b>	<b>3</b>
1.1 Reason for the report	3
1.2 Background	3
1.3 Structure of this report	4
1.4 Experience of the Authors	4
1.5 Limitations	4
<b>2 Description of the South Wales Metro Plan</b>	<b>6</b>
2.1 Background	6
2.2 Objectives	7
2.3 Alternatives Considered	8
2.4 Phases and Interventions	8
2.5 South Wales Metro Geographic Extent	9
2.6 South Wales Metro Timetable	9
2.7 Land Take	9
2.8 Ecological Mitigation	10
2.8.1 Construction Effects	10
2.8.2 Operational Effects	11
2.9 Links with Previous and Future Studies	11
2.10 The Well-being of Future Generation (Wales) Act 2015	12
<b>3 Methodology</b>	<b>13</b>
3.1 Data Search	13
3.2 Study Area	13
3.3 Professional Judgement	14
3.4 Assessment of Impacts	14
3.5 Identification of Potential Impacts of the Metro Plan	15
3.5.1 During Construction	15
3.5.2 During Operation	15
3.6 Constraints of the consideration of the Impacts	16
3.7 In-combination Effects	17
3.8 Outcome of the Assessment of the Plan	17
<b>4 Habitat Regulations Assessment Framework</b>	<b>18</b>
4.1 Task 1 Screening Method	20
<b>5 Identification and Management of the European Sites</b>	<b>22</b>

5.1	Identification of European Sites	22
6	Characteristics of the European Sites	28
7	Assessment of Likely Significant Effects	37
7.1	Screening	37
7.2	In-Combination Effects	45
8	Consultations	53
9	Conclusion	54
10	References	57
	Appendices	59
A.	European Sites Drawings	60
B.	Intervention Options	61

# Executive summary

This Strategic Habitats Regulations Assessment (“SHRA”) has been prepared to inform the Welsh Ministers (“the Competent Authority”) of the implications of the proposed draft Plan for the South Wales Metro on European Sites, as a requirement of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended).

Mott MacDonald Limited has been commissioned by Transport for Wales (TfW) to undertake a Habitats Regulation Assessment of the high-level study of the South Wales Metro Plan (the Plan). This report provides the Habitats Regulations Assessment in accordance with Article 6(3) of the EU Habitats Directive and the Conservation of Habitats and Species Regulations 2010 (as amended).

The vision for the Plan is to provide the basis for ‘a new transport system that will transform the way we travel around South Wales. It will provide faster, more frequent and joined-up services using trains, buses, and light rail. Metro will bring benefits to passengers, link communities together, and help transform the economy. It will have a positive social, economic, and environmental effect. It will also shape our region’s identity’.

This Task 1 Screening identified direct and indirect impacts of the Plan and pathways linking the impacts to sensitive qualifying features of the European sites and functionally linked land. This will assist the Welsh Government (the Competent Authority) to assess the implications of the plan for the South Wales Metro scheme on European sites. Possible likely direct and indirect impacts that could trigger a significant effect from the plan include:

## Direct Impacts

- Habitat loss (including loss of breeding and resting sites);
- Habitat fragmentation (including changes to habitat structure and function);
- Corridor widening (in the dualled areas);
- Wildlife casualties (due to increased frequency of trains); and
- Disturbance and/or displacement of species due to increased frequency of trains.

## Indirect Impacts

- Air pollution (dependent upon option chosen);
- Noise and vibration (dependent upon option chosen);
- Artificial lighting;
- Water pollution; and
- Contamination.

The potential effects of the Plan on the environment has been assessed through a Strategic Environmental Assessment (SEA) as a requirement of the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

Thirteen European sites were identified within the study area;

- River Usk Special Areas of Conservation (SAC);
- Usk Bat Sites SAC;
- Aberbargoed Grassland SAC;

- Cardiff Beechwood SAC;
- Severn Estuary SAC;
- North Somerset and Mendips SAC;
- Mendip Limestone Grasslands SAC;
- Wye Valley Woodlands SAC;
- Wye Valley and Forest of Dean Bat Sites SAC;
- Limestone Coast of South West Wales SAC;
- River Wye SAC;
- Severn Estuary Special Protected Area (SPA); and
- Severn Estuary Ramsar site.

The Plan was assessed for potential significant effects, both as a standalone plan and in-combination with other projects and plans.

As a standalone and in-combination the Plan is considered to result in No Likely Significant Effects as the Plan is likely to result in limited habitat fragmentation severance, with no other projects or plans that have been identified as affecting the European designated sites.

This HRA Task 1 (Screening) considers that the proposed South Wales Metro Plan, either alone or in-combination with other plans and strategies, is not likely to have a significant effect on any European Designated sites or their associated features.

Each subsequent phase of the Plan will be subject to an environmental assessment and project specific Habitats Regulation Assessment Screenings.

The potential impacts of the Plan and the associated ecological mitigation will be incorporated into future phases from design to construction. This will ensure that appropriate mitigation is developed and provided to limit the likelihood of significant adverse effects.

# 1 Introduction

## 1.1 Reason for the report

This Strategic Habitats Regulations Assessment (“SHRA”) has been prepared to inform the Welsh Ministers (“the Competent Authority”) of the implications of the proposed draft Plan for the South Wales Metro on European Sites, as a requirement of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended).

## 1.2 Background

Mott MacDonald Limited has been appointed by Transport for Wales (TfW) to undertake a high-level study of the South Wales Metro Plan, referred to as ‘the Plan’.

The South Wales Metro Plan covers existing and new railways, stations, track dualling, station enhancement, bus rapid transport (BRT) systems and park and ride facilities. The geographic extent of the proposed South Wales Metro system extends from Bridgend in the west to Monmouth and Abergavenny in the east and connects the communities to the north from Maesteg, Treherbert, Hirwaun, Merthyr Tydfil, Rhymney and Ebbw Vale.

This document has been prepared to assist the Welsh Government (the Competent Authority) to assess the implications of the Plan on European sites. As a requirement of the European Directive 2001/42/EC<sup>1</sup>, the effect of the Plan on the environment is required to be assessed through a SEA. In addition to undertaking an SEA, a Habitats Regulations Assessment (HRA) is also required under the EU Habitats Directive 92/43/EEC<sup>2</sup>. The Habitats Directive was brought into effect in Wales (and England) by the Conservation of Habitats and Species Regulations 2010 (as amended).

A plan or project cannot be given effect or consent unless it can be determined that it would not have an adverse effect on the integrity of European sites or, where there are no alternative solutions and Imperative Reasons of Overriding Public Interest (IROPI) are proven and compensatory measures are secured to ensure the coherence of the European site (Natura 2000) network. Any plan or project which is not directly connected with or necessary to the management of a European site must be subjected to an HRA if a plan or project has the potential to affect a European site, no matter how far away from that site it is located.

The Plan is regarded to have the potential to impact European sites and therefore this HRA Screening has been completed in accordance with the relevant legislation.

The legislation and process of the Habitats Regulation Assessment is further explained in Section 2 of this report.

In accordance with Provision 6 of the Environment (Wales) Act 2016, the Welsh Government must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as is consistent with the proper exercise of those functions.

---

<sup>1</sup> European Directive 2001/42/EC The assessment of the effects of certain plans and programmes on the environment.

<sup>2</sup> European Habitats Directive 92/43/EEC - Conservation of natural habitats and of wild fauna and flora.

### 1.3 Structure of this report

The findings of this Habitats Regulations Assessment Task 1 Screening document is documented in this report. The structure of this report includes the following elements:

#### Task 1 Screening

- Section 2: Methodology;
- Section 3: Habitats Regulation Assessment Framework;
- Section 4: Management of the European Site(s);
- Section 5: Description of the Project;
- Chapter 6: Characteristics of the European Site(s);
- Chapter 7: Assessment of Significance; and
- Chapter 8: Conclusion.

### 1.4 Experience of the Authors

The experience of those involved in the production of this assessment is included in Table 1 below.

**Table 1: Experience of Authors**

Name	Role	Title	Experience
Joanne Bates	Author	BSc (Hons) CEnv MIEEM	14 years across a multitude of sectors. Specific SHRA and AIES highway or linear project experience has been obtained whilst seconded to SWTRA, Highway England project schemes and employer's agent on Welsh Government major road schemes.
Tristan Folland	Checker	BSc (Hons), MSc, CBiol MRSB	10 years' experience in producing both SHRA, and Appropriate Assessment reports for a range of UK wide coastal defence and highway schemes. Experience in producing project based HRA screening assessments for RAMSAR /SPA's
Caspar Probert	Approver	BEng (Hons), MCIWEM, CWEM	Over 16 years' experience in the field of environmental consultancy and assessment of development impact. Extensive experience in the field of EIA, ecological assessment and environmental mitigation.

### 1.5 Limitations

Mott MacDonald Limited has used published data and information gathered from the project team in the production of this Screening Report. This assessment has been undertaken in accordance with information that is in the public domain.

The baseline information collected in this Screening Report is the most up-to-date information currently available. It is possible that conditions described in this report may change over time and the baseline information will be reviewed and up-dated as appropriate throughout the SEA and HRA process. The consultation process aims to address and minimise any gaps in information to ensure all potential environmental and socio-economic effects have been considered regarding the South Wales Metro Programme.

The author has used professional judgement to assess the potential impacts and the significance of these on European sites. The precautionary principal has been used where there is reasonable scientific uncertainty.

TfW have initiated a Competitive Dialogue Process with four bidders of which one will become the Operating Delivery Partner (ODP) if successful for what is termed Phase 2 of the Metro Plan covering the modernisation of the Core Valley Lines running from Cardiff to Rhymney, Merthyr Tydfil, Aberdare and Treherbert. The bidders for this phase are currently producing concept design solutions that will fulfil TfW's main objectives as outlined in Chapter 2. The Invitation to submit final tenders (ITSFT) is due for submission in September 2017. The areas of the Plan that we have covered within this SHRA includes all of the initial areas that the ODP's have collectively suggested as proposed areas that will require further assessment. However, it is likely that some scheme options will not be taken forward once the successful bidder is appointed. Further phases of the Plan have not been developed in detail.

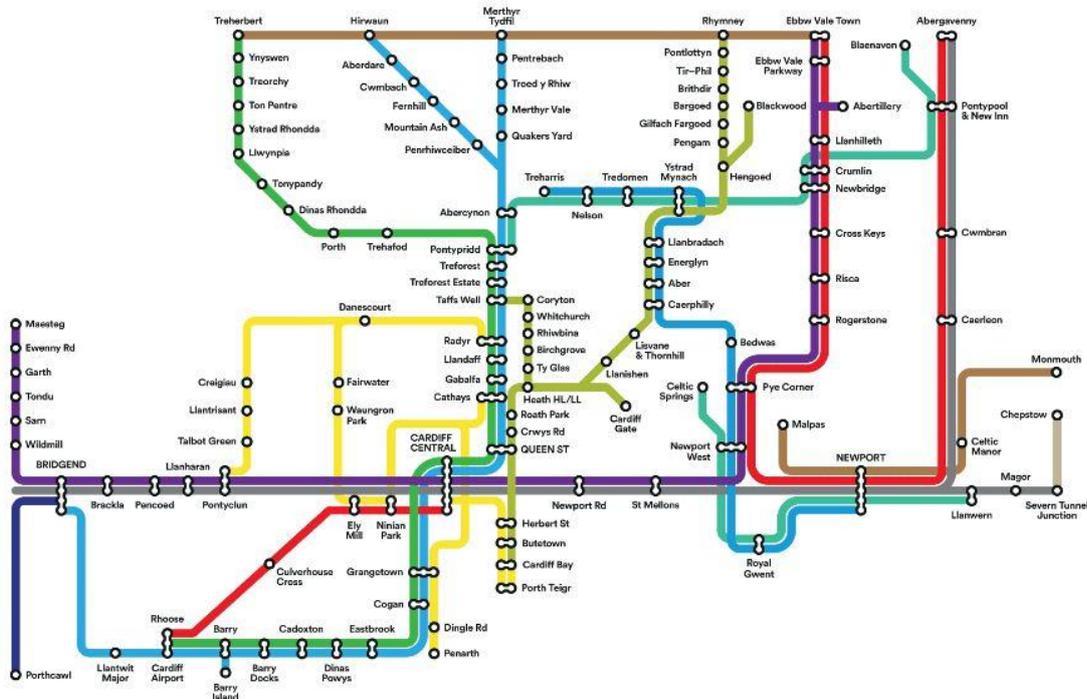
At this stage of development of the Plan, we are considering the range of most likely proposals, based on the appended constraints plans and scheme alignments. In the absence of detailed design information, (as concept designs and solutions are currently being developed) we have made assumptions (based on our experience and as outlined in the relevant sections) in order to make our assessment. This may change once the final options are available and will need to be assessed on a project specific basis. As the design is developed and options are proposed / discarded the appropriate stages of further environmental assessment will be completed as required.

## 2 Description of the South Wales Metro Plan

### 2.1 Background

The vision for Metro is ‘a new transport system that will transform the way we travel around South Wales. It will provide faster, more frequent and joined-up services using trains, buses, and light rail. Metro will bring benefits to passengers, link communities together, and help transform the economy. It will have a positive social, cultural<sup>3</sup>, economic, and environmental effect. It will also shape our region’s identity’. Figure 1 illustrates the different routes that will be offered by the South Wales Metro, each colour represents a different Metro route which could be through a combination of rail and BRT.

Figure 1: Proposed Extent of the South Wales Metro System



Source: Welsh Government

It is intended that the South Wales Metro (referred to from this point forward as Metro) will operate across the ten local authorities which form the Cardiff Capital Region. The region is currently served by rail and bus services but many of the rail services, particularly in the valleys north of Cardiff, Newport and along the Vale of Glamorgan, are operated with old rolling stock, offering infrequent and relatively slow services. Several bus companies operate local and regional services but there is limited integration of services, ticketing or passenger information.

<sup>3</sup> The vision for the South Wales Metro Programme was developed prior to the Well-being of Future Generations Act. In line with the Act ‘cultural’ has now been included in the Metro Programme vision.

As a result, many communities have poor connections with the main economic centres within the region and beyond. The primary goal of Metro is to significantly enhance all the public transport modes and offer an attractive, viable alternative to private cars.

### Higher service frequencies

Rail services in the Core Valley Network will run at up to four trains an hour. This gives a 'turn up and go' experience for passengers. Metro will also deliver a network where interchange is easy, using vehicles designed for speed and capacity.

### Integration

Heavy rail, light rail, bus, and active travel (cycling and walking) – these will be seamlessly joined to give integrated, reliable, and frequent services across the region. This transformation in sustainable urban mobility and increased accessibility will have a profound impact. It will have positive social, cultural, economic, and environmental effects. It will also shape the region's identity.

### An extendable network

A vital part of the Metro vision is that the network can grow to make it even more accessible. New stations, new routes, greater frequencies — in the future, the network can extend to bring better public transport to more communities and economic centres, such as linking with Swansea and its surrounding communities. It is a truly regional project.

### Enabling development and regeneration

Metro stations will provide better passenger facilities and become a focal point for their communities. Metro also presents an opportunity for developers and local authorities to work in partnership with transport organisations. Together, they can adopt a 'transit-oriented development' approach, directing development and regeneration to Metro transport corridors and their key stations and interchanges.

Metro is likely to comprise some, or all, of these elements:

- An electrified rail system;
- Integrated transport hubs;
- Park-and-ride facilities;
- New (including some on-street) light rail and/or bus rapid transit routes;
- Better integration of services across modes and operators; and
- Active travel interventions such as integration transport links with cycling and walking routes to encourage seamless cycling and walking as part of a journey.

Enhanced services on the Valley Lines are a core part of the project. This scope of Metro includes all the lines in and north of Cardiff, the Vale of Glamorgan line, the Ebbw Valley and Maesteg branches, the Marches line to Abergavenny and the South Wales mainline.

## 2.2 Objectives

The following objectives and outcomes were developed by Welsh Government for the Metro Programme and were published in late 2015 and early 2016 as part of a region wide engagement with the public and key stakeholders:

### Metro transport objectives

- Deliver a high-quality, reliable, efficient, economically sustainable transport network;

- Improve connectivity, linking communities with all major commercial, social and leisure attractors, enabling the region to function as a single coherent economic entity;
- Improve accessibility to public transport within city and town centres;
- Provide comparable journey times across public and private transport modes, offering realistic travel choices;
- Cater for increasing demand for public transport;
- Reduce the impact of transport on the environment; and
- Encourage active travel and social inclusion initiatives.

#### Metro transport outcomes

- Reduced generalised journey times through faster, more frequent services and better interchange;
- Increased public transport patronage through provision of more attractive services;
- Reduced operating and maintenance costs through greater efficiencies and higher demand;
- Capacity to meet demand during peak periods and special events;
- Accessibility improvements through coordination of services, Disability Discrimination Act compliance and station design;
- Reduced emissions through lower car use and more efficient, cleaner transit vehicles;
- Direct services between main residential areas and economic centres to improve connectivity;
- Improved quality of service through newer vehicles, better integration, and enhanced services; and
- Better reliability in terms of availability and punctuality of services.

### 2.3 Alternatives Considered

The exact option and / or combination of options is not yet defined, hence this assessment has been completed for each of the interventions, using the high-level data reviewed as part of the HRA process.

### 2.4 Phases and Interventions

The Metro Programme will be delivered in several phases. The phases and proposed interventions are listed below. Phase 1 has already been delivered and does not form part of this SHRA.

It should be noted that the interventions are at different stages in their development and, therefore, specific detail of each is not known. Further details about the options to be assessed under each of these interventions is provided in Appendix A.

The majority of the works are confined to existing transport corridors (potentially with widening for specific options). Some future options will require new sections of railway line. However, these new lines will mirror historic line alignments as they will be constructed on disused railway lines previously used for the coal mining industry. This reduces the impacts by confining the new lines to areas where vegetation and habitat is not likely to be well established.

#### **Phase 1 (already delivered):**

- Pye station corner;
- Rail and bus stations improvements;

- Bus Corridor schemes on A470; and
- Active Travel Park and Ride schemes.

#### **Phase 2:**

- Rhymney, Coryton and Bay line enhancements;
- Treherbert, Aberdare and Merthyr enhancements;
- Extra stations and conversion of sections of freight lines;
- Enhanced intermodal facilities and associated station improvements; and
- Ebbw Valley Line improvements and spur to Abertillery.

#### **Future Phases:**

- Newport Rapid Transit;
- Enhancements to Maesteg line and Vale of Glamorgan;
- On-street operations in Cardiff city centre;
- Extension of the Bay branch;
- Direct link Cardiff Bay to Cardiff Central;
- Capacity improvements Vale of Glamorgan;
- Capacity improvements – Cardiff Central;
- Heavy rail stations (if not delivered in Phase 2);
- Corridor from Central Cardiff to North West Cardiff development areas;
- Central Cardiff to North East and East development areas Cardiff;
- Caerphilly to Newport;
- Hengoed to Blackwood;
- Coryton to Taffs Well;
- Heads of Valleys and Pontypridd – Pontypool BRT Schemes; and
- Other schemes which may emerge.

Further detail of the ecological constraints associated with the interventions and designated sites is provided in Appendix A.

## **2.5 South Wales Metro Geographic Extent**

The geographic extent of the proposed South Wales Metro System extends from Bridgend in the west to Monmouth and Abergavenny in the east and connects the communities to the north from Maesteg, Treherbert, Hirwaun, Merthyr Tydfil, Rhymney, and Ebbw Vale.

## **2.6 South Wales Metro Timetable**

Consultation on the SEA Environmental Report and the related Habitats Regulations Assessment started in August 2017. Following on from this consultation stage, the Metro will be further developed by the successful operator on award in early 2018. The provisional timescale for the construction and the operating of the Metro Phase 2 is in 2023, the programme for phase 3 of the plan is currently unknown.

## **2.7 Land Take**

Metro as currently proposed is predominantly within existing transport infrastructure corridors. However, the construction of new stations, dualling of single track rail lines, park & ride

development, delivery of BRT along B and A-class roads, combined with re-opening of historic rail corridors and the forming of construction access roads will necessitate a degree of land-take.

The land take of any Metro option is not known and therefore this assessment assumes that the land take will be the minimum required to complete construction and also that appropriate mitigation will be applied (for example provision of compensatory habitat planting, reinstatement of vegetation etc) in the development of those options for which mitigation is likely to be required. It is assumed that (in accordance with the objectives set out in the SEA) there will be no net biodiversity loss and therefore appropriate compensatory planting and reinstatement will therefore be provided.

## 2.8 Ecological Mitigation

The next stage for the plan is to proceed to the development of sections of the plan. This will include feasibility and design of the route options, it is possible at this stage to anticipate potential construction and operational effects and ensure that mitigation is incorporated into the design and its implementation.

### 2.8.1 Construction Effects

The design of the scheme and construction areas should take into account the presence of sensitive sites (habitat and species) along a number of proposed routes (including existing routes). If avoidance is not possible, mitigation will be required.

This may take the form of (for example and non-exhaustive):

- Pre-commencement planting of compensatory habitat;
- Biodiversity enhancement in existing areas of low ecological value;
- Translocation of protected species; and
- Lighting and noise reduction measures.

TfW have commenced a programme of invasive species eradication along the railway corridors within Phase 2 of the Plan. Current good practice measures are proposed to be adopted to reduce light and noise emissions and vibration, construction effects are considered likely to be temporary. The Metro corridors also include some of the Noise Priority Areas identified in the Noise Management Plan for Wales and it is further assumed that where possible mitigation will be provided to reduce the existing impacts in these areas (where Metro scheme alignments overlap with these areas).

Overall, construction effects are considered likely to be minor on the basis that suitable mitigation will be applied.

Localised significant adverse effects may occur due to implementation of interventions requiring BRT along minor roads (Cardiff – Cardiff Gate, part of the phase 3), re-opening of historic rail lines around Creigiau and heavy rail extension or BRT to Abertillery (due to associated vegetation clearance). The latter two interventions are possible phase 2 or 3 Metro interventions. However, the only part of these interventions that may have an impact on a designated site is the Abertillery extension which is approximately 7km from the Usk Bat Sites Special Area of Conservation (SAC). There is no detailed design for this intervention and as such it has been assessed on assumed impacts from vegetation clearance that would be required for the heavy rail option as a worst-case scenario (as compared to the BRT which will require minimal changes due to on-road running). The mitigation will be determined as the design progresses (at this stage, in the absence of land take and design information it is not

possible to identify the effects accurately and this assessment is likely to be conservative). However, the proposed rail alignment largely runs along an existing footpath, therefore a degree of clearance is already complete in this area. The effects will be reduced by completion of the appropriate level of survey and development of mitigation measures.

### 2.8.2 Operational Effects

Localised adverse effects are likely if unmitigated and therefore mitigation will be required for certain number of the Metro interventions.

Equally, if Metro does successfully deliver a shift to more sustainable modes of transport positive secondary effects on biodiversity may result from:

- Reduction in vehicle collisions with wildlife;
- Improvement in air quality (assisting status of habitat affected by acidification and Nitrogen deposition); and
- The new Metro transport will also not have any toilet facilities on board which will reduce the amount of waste discharged in the rail corridors.

Overall, the operational effects of Metro are considered likely to be adverse (assuming that where habitat clearance is required that compensatory planting and / or habitat creation is agreed and implemented), with potential positive indirect effects as set out in the bullets above. The provision of compensatory habitat planting or biodiversity improvement measures (for example wildflower establishment along roads and verges to create green corridors) should be implemented to ensure that the key points outlined in this HRA are achieved:

- Habitat connectivity – Ensure that the rail track and roadside habitat is maintained and no severance of habitat occurs for more than 10m of vegetation without prescriptive mitigation (which would be detailed as the scheme design progresses and appropriate survey information becomes available); and
- Working near water – The main impact anticipated will be disturbance to otters, fish and potentially water voles using the river corridor, plus pollution incidents. Ensure that the Construction Environmental Management Plan (CEMP) includes construction best practice for pollution prevention, reduction of noise and vibration (plus seasonal restrictions on working methodologies as required). Ensure that all ecological surveys include checking of the watercourse for the presence of otters and other protected species during project design and construction to ensure that there is minimal disturbance.
- BRT routes are considered likely to encourage a modal shift away from the car, which will balance the increase in noise resulting from increased frequency of bus movements. Similarly, increased frequency of train movements (which may result in increased noise) is likely to be balanced by the transition to upgraded diesels / electrification which will generate less noise than existing train stock.
- There is likely to be a greater magnitude of effect at locations where the re-opening of historic rail lines is proposed, however these will be further assessed when the final intervention option is known.

## 2.9 Links with Previous and Future Studies

A high-level assessment of the Metro Programme options (transport modes) was undertaken in summer 2015 by TfW. The assessment was broadly based on a WeITAG approach and included an overview of the scale of environment impact of the different options being considered. The results of this exercise will be used to inform the HRA and SEA.

This SHRA is being undertaken in parallel with the SEA. The two processes will complement each other. For example, the effects identified in the SHRA will be considered primarily under the biodiversity, flora, and fauna SEA objective and indirectly through other SEA objectives such as water quality, air quality, noise and pollution control.

The Metro Programme is being delivered in phases and, therefore, there are various packages at different stages of development. For example, the Core Valley Lines package is currently undergoing a competitive dialogue process with bidders.

As part of the development of these intervention packages Environmental Impact Assessment (EIA) may be required under the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. The need for an EIA will be considered by TfW on a scheme-by-scheme basis and under consultation with the relevant planning authorities. The results of the SEA and SHRA will inform the subsequent EIAs and HRA and provide background on the assessment of options.

## 2.10 The Well-being of Future Generation (Wales) Act 2015

The Welsh Government set out the Well-being of Future Generations (Wales) Act 2015 which focuses on improving the social, economic, environmental, and cultural well-being of Wales. The Act ensures that public bodies need to make sure that when making their decisions they consider the impact they could have on people living in their lives in Wales in the future. It also puts sustainability at the forefront of local authorities and public bodies such as the National Health Service and NRW, which allows a synergistic approach to sustainable growth for the population of Wales.

The Act outlines well-being goals which include a specific ecological goal entitled as '*A resilient Wales*' with a description of '*A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).*' As part of this assessment the Habitats Regulations Assessment screening will take into account the aims of the Well-being of Future Generations (Wales) Act as part of the process of assessing the future proofing of the designated sites and their management. Overall, the aims of the Metro contribute to Section 6 of the FGA through more efficient running of the public transport system with the aim of reducing road traffic by connecting previously unconnected areas. Once further details are known of the proposed scheme, further assessment and measures that will be compliant with the well-being goals can be implemented.

## 3 Methodology

The methodology used for this assessment is broadly based on the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 4 HD44/09 – Assessment of Implications on European sites. The DMRB guidance has been used as it is a comprehensive guidance for large linear schemes which is in keeping with the Plan.

### 3.1 Data Search

A data search of available information was undertaken on 29<sup>th</sup> March 2017 of the following websites;

- Natural Resources Wales (NRW)<sup>4</sup>;
- Natural England<sup>5</sup>; and
- Joint Nature Conservation Committee (JNCC)<sup>6</sup>.

The JNCC designated sites information and NRW Core Site Management Plans were accessed to obtain data on the key features of the European sites and their management. This information was used to assess the anticipated impact of the Plan on the key species of the designated sites.

Relevant sites are those that are defined as having primary reasons and/or qualifying features that may be impacted by the implementation of the Plan.

### 3.2 Study Area

The Plan has the potential to impact ecological features such as habitats and/or species beyond the confines of the scheme area itself. The Metro Plan site extents are detailed in Figure 1 and extend from Porthcawl in the west, Chepstow in the east, Abergavenny in the north and to Barry in the south. The proposals are largely limited to the existing road and railway network with proposed new rail lines or stations in some areas. The study area has been defined taking account of the likely Zone of Influence (Zoi) the Plan has in relation to the various designated sites considered. A Zone of Influence (“Zoi”) includes:

- Areas where there is physical disturbance to European sites;
- Areas where there will be land take and habitat removal for the works which may have a direct or indirect impact on a key feature of a European site;
- Areas where there is a risk of an impact on a watercourse which may result in an impact on a key feature of on a European site; and
- Areas where there is a risk of an increase in air, noise and light pollution which may have an impact on a key feature of on a European site.

The following Zois are likely to be found within the study area, this takes into account mobile species that live in a metapopulation that may occur outside of the site (as outlined in DMRB HD44/09 Chapter 4.10<sup>7</sup>):

---

<sup>4</sup> [www.naturalresourceswales.gov.uk](http://www.naturalresourceswales.gov.uk)

<sup>5</sup> [www.gov.uk/government/organisations/natural-england](http://www.gov.uk/government/organisations/natural-england)

<sup>6</sup> [www.jncc.gov.uk](http://www.jncc.gov.uk)

<sup>7</sup> DMRB Volume 11 Section 4 Part 1 HD44/09

- An area within 30km of the route corridor for SACs or candidate SACs (cSACs) that are designated for bats;
- An area within 20km of the route corridor for crossing/adjacent to upstream of, or downstream or, watercourses designated in part or wholly as SACs, cSACs, designated for otters; and
- An area within 2km of the route corridor for SACs, cSACs, SPAs, candidate SPAs (cSPAs), and Ramsar Sites where key features do not include bat species or otters.

The Zol's above account for mobile species such as birds, bats, otters and fish species, which have ranges well outside the boundary of the designated sites. The Zol distances have been taken from the boundary of the existing or proposed railway tracks. The tracks are currently under the ownership of Network Rail but will be handed over to Welsh Government for design, construction and operation through the appointment of the ODP. This assessment is based on our understanding of the behaviour and requirements of each species on a precautionary basis. Once the design is known, further assessment of the impacts on the key species will be assessed in more detail. Zol distances also consider road based options such as BRT and on-street running. Plans showing the Zol superimposed onto the study area are presented in Appendix A.

### 3.3 Professional Judgement

The use of professional judgement has been used for the assessment of potential impacts of any anticipated effects of the South Wales Metro. The professional judgement is based on the ecological principals, scientific evidence and the qualifications and experience of the authors, checkers and approvers of this report.

In undertaking this assessment, the author has made decisions in accordance with the precautionary principle as included within the Habitats Directive, Habitats Regulations and supported in case law. This states that consent cannot be granted unless it can be ascertained that there will be no adverse effect on the integrity of the designated site and that the conservation objectives should prevail where there is uncertainty or that harmful effects will be assumed in the absence of evidence to the contrary. The precautionary principle<sup>8</sup> will apply when there is

- Identification of potentially negative effects resulting from a phenomenon, product or procedure; and
- A scientific evaluation of risks which, because of the insufficiency of the data, their inconclusive or imprecise nature, makes it impossible to determine with sufficient certainty the risk in question.

### 3.4 Assessment of Impacts

The assessment of the impacts of the plan on European sites will be undertaken using the professional judgement of the author, the checker and approver. All contributors to this assessment will assess, check and review the potential impacts, the significance of these impacts and the potential impact of the plan on the conservation objectives of the European site. The assessment of the South Wales Metro Plan is based on the interventions and the associated Zol from those interventions, developed using the author's professional judgement.

---

<sup>8</sup> DMRB Volume 11 Section 4 HD44/09.

### 3.5 Identification of Potential Impacts of the Metro Plan

The impacts of the plan are summarised and split between the options as identified in Chapter 4.

#### 3.5.1 During Construction

The anticipated impacts of the construction of the South Wales Metro Plan will be further assessed at the project stage once the preferred options are known. The Plan aims to focus improvements on the existing transport corridors and as such the anticipated construction operations assessed are:

- Dualling of the rail track;
- Installation of overhead electric power systems;
- Construction of new stations;
- Improvements to existing stations to make them compatible with the chosen options;
- Alterations to bridges to accommodate overhead electric lines (i.e. installation of stanchions, lowering of the track or raising of the bridge deck);
- Associated electrical connections with the National Grid network;
- Increase in area at terminal stations to accommodate the stabling of trains overnight;
- A new depot for the servicing of the train stock.
- BRT measures; and
- On street running.

We have assessed the current Metro proposals based on the most likely (currently included in Phase 2) and less likely (future phases) interventions. The locations of the interventions are presented in Appendix B.

#### 3.5.2 During Operation

Table 2 outlines impacts associated with the operation of the various options of the Metro Plan which will be further assessed at the project stage once the preferred options are known.

**Table 2: Anticipated associated impacts on European sites with potential transport modes**

Impact	Transport Modes		
	Traditional Diesel and Electric Heavy Rail	Light Rail	Bus Rapid Transit
Direct habitat loss and fragmentation (includes the dualled sections of the rail network)	ü	ü	ü
Disturbance to species due to increased frequency of transport	ü	ü	ü
Air quality changes affecting habitats and species	ü		
Noise and vibration disturbance to species	ü		
Impacts on watercourses affecting water quality	ü		
Increased lighting at new stations	ü	ü	ü
Collisions of species with the transport (injury or death)	ü	ü	ü

### 3.6 Constraints of the consideration of the Impacts

There are a number of considerations of impacts that have been assessed as part of the assessment, these are identified in the table below;

**Table 3: Constraint considered during construction and operation**

Identification of Impacts	Constraints During Construction	Constraints During Operation
Size and Scale of the project	The size and scale of the project can be anticipated and is considered as a whole as part of this assessment. It is anticipated that the size and scale of the project will reduce once the preferred bidder is chosen and a short list of preferred options.	No further impacts are anticipated from the size and scale of the project. Due to the improvements that are anticipated from the operation of the new methods of transport it is considered that this will be an improvement on the current situation.
Land Take	Approximate locations of known land take are considered as part of this assessment, this includes land for depot sites, new stations and areas of new track. The precise location and extents of some of these is unknown at present, especially those that are part of future phases of the South Wales Metro Plan.	No further impacts are anticipated from future land take during construction. Detailed assessments will be undertaken at the appropriate stage which will define appropriate construction land take and limit adverse effects accordingly.
Resource requirements	Resource requirements will be identified once the final design is known. This assessment assumes that during constructions there will be a requirement for substantial import of ballast stone, steel and other construction materials. No requirement of water resources from natural watercourses / groundwater are anticipated at this stage and there will be localised increases in construction worker presence during the construction of the South Wales Metro.	There are no anticipated resources requirements during operation of the South Wales Metro.
Emissions	A comprehensive Construction Environmental Management Plan will be produced as part of the construction of the South Wales Metro which will include measures to limit the construction related impacts of South Wales Metro. This document will be further assessed and updated with relevant management measures once the design and construction methods are known.	Improvements that are anticipated from the operation of the new methods of transport. It is considered that this will be an improvement on the current situation.
Excavations	During construction there will be new excavations required for the new sites. Most of the excavations that will be required will be where there are localised improvements to lower bridges or widening of the track to allow for dual tracks. It is anticipated that the ballast will be cleaned and replaced on site during construction	None anticipated.
Transportation	It is anticipated that there will be an increase in traffic during construction however this will be localised and measures to reduce construction impacts will be incorporated as part of the Construction Environmental Management Plan.	The improvements that are anticipated from the operation of the new methods of transport it is considered that this will be an improvement on the current situation.

Identification of Impacts	Constraints During Construction	Constraints During Operation
Duration of construction	Metro Phase 2 is to be delivered in 2023. Phase 3 will then follow. However, given potential disruption to existing transport during construction it is unlikely that there will be 'Metro area wide' construction. Instead construction will be focussed in isolated areas, in phases, managed by a CEMP and therefore unlikely to cause significant adverse effects.	Not relevant.

### 3.7 In-combination Effects

The in-combination effects of plans or projects within 2km of the proposed plan will be identified from a number of sources including the following;

- Welsh Government strategies and plans;
- Local and unitary development plans;
- Regional transport plans;
- Statutory environment bodies;
- Projects that are under construction or are planned; and
- Projects that are currently under consideration with the Local Authorities.

Although the plan may not influence on the key features of a European site or its management, the in-combination effects with another plan or project may result in an effect. This document will aim to identify any potential impacts of the proposed plan either alone or in-combination with the study area.

### 3.8 Outcome of the Assessment of the Plan

The outcome of the assessment of the Plan will allow those involved in the decision-making process to gain an insight into whether the Plan needs to be changed to avoid likely significant effects on a European site. These likely significant effects may be in the form of a direct impact to a key feature or the management of the features of a European site; or where mitigation is needed to maintain the key feature or their management and where compensation will be required as a last resort once all of the previous options have been exhausted.

Consultations will be undertaken as part of the SHRA process, if any of the consultees consider that a likely significant effect may occur as a result of the Metro Plan then there may be a requirement to proceed to Appropriate Assessment. If the consultees agree with our assessment then the next part of the process will be to undertake a project specific HRA once the design is known.

## 4 Habitat Regulations Assessment Framework

In accordance with Article 6 (3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive), as transposed into national law under the Conservation of Habitats and Species Regulations 2010 (as amended), a HRA is required before consent can be given to a plan (or project) not directly connected with, or necessary to the management of the site which may give rise to significant effects upon a Natura 2000 site.

In accordance with the Habitats Directive, Member States must adopt measures that maintain and restore habitats listed on Annex IVa and IVb and species listed on Annex II at a 'favourable conservation status' (as defined in Articles 1 and 2). Member States are also required to contribute to a coherent European ecological network (referred to as the 'Natura 2000 Network') by designating SACs. The Natura 2000 Network also includes SPAs based on their significant international importance as sites that host rare and vulnerable birds (as listed in Annex I of the EU Birds Directive). Other Natura 2000 sites include cSAC, pSPA, European Marine Sites (EMS) and Sites of Community Importance (SCIs) which have been adopted by the European Commission, but have not yet been formally designated by the government of the Member State.

In the UK, Ramsar sites (as protected under the Ramsar Convention 1971) are afforded the same level of protection as designated Natura 2000 sites as a matter of policy. These sites, which are considered to be 'wetlands of international importance' are designated based on criteria set out in the Ramsar Convention. They are sites that either 'contain representative rare or unique wetland types' or are sites of international importance for conserving biological diversity'. Species and habitats involved in the 'Ramsar Selection Criteria' also require consideration under the Habitats Regulations as if they were designated Natura 2000 features.

Hereafter all of the above designated nature conservation sites are referred to as "European sites". The HRA process consists of four parts and is termed differently dependent upon whether it is a plan or project. The term 'Task' is used in reference to a step of a HRA of a plan and the term 'Stage' in reference to a step of a HRA of a project.

A Competent Authority is defined under Regulation 7 within the Habitats Regulations to include any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office. They have a duty to ensure that the requirements of the Habitats Regulations are satisfied prior to giving consent or other authorisation for a plan or project. The Competent Authority must consult with a Statutory Nature Organisation (eg NRW or Natural England) when deciding whether a plan or project will have an adverse effect. For this Strategic HRA, the Welsh Government will act as the Competent Authority.

There are four principle tasks in the HRA Process (Table 4), this report and subsequent consultations will aid Welsh Government in deciding whether the next task is required.

**Table 4: HRA Screening Process for a plan**

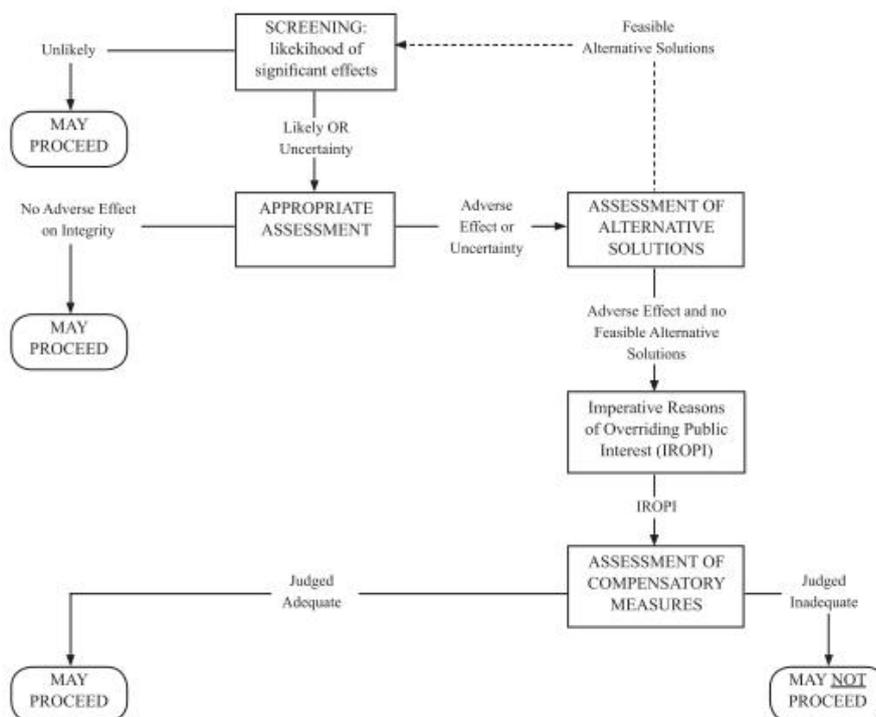
Task	Description
1. Screening	<p>Screening is the determination of whether there are likely significant effects upon the relevant features of European Designated Sites.</p> <p>The first task comprises the identification of designated sites within the search area / study area. Following this, an assessment of the conservation objectives for each site is then completed (based on the management plans or the SSSI objectives as appropriate).</p> <p>A further task comprises the identification of in-combination effects (identification of potential increased effects in combination with other plans and projects. At the level of a Strategic Habitats Regulations Assessment, this comprises an assessment of other plans and proposals on the wider scale (i.e. national, regional and local development plans or similar scale proposals) which are likely to overlap in terms of spatial and temporal effects.</p> <p>The screening itself comprises identification of whether the proposed scheme / development is a source of likely significant effects on the identified European sites. A significant effect on a European site is that which could undermine the conservation objectives and/or management of the site. The likelihood of it occurring is judged on a case-by-case basis, taking account of the precautionary principle and the local circumstances of the site.</p> <p>Note that proposals to mitigate any significant effects (where effectiveness can be proven), are considered as part of Task One (Screening) as it may be possible to avoid likely significant effects and therefore the need for undertaking Task 2 (Appropriate Assessment). N.B. given that limited design / mitigation information is available for the South Wales Metro, we have made assumptions using appropriate experience and professional judgement regarding the mitigation that is likely to be incorporated into the final development. This mitigation is not exhaustive and appropriate mitigation measures must be developed during the detailed design and following the appropriate project-level environmental assessments.</p>
2. Appropriate Assessment	<p>Task 2 (Appropriate Assessment) is triggered if Screening identifies the potential for Likely Significant Effects resulting from the proposed development / scheme / plan. This can be either as a standalone effect, or in-combination with other developments / schemes / plans (including alterations to existing proposals).</p> <p>With regards to South Wales Metro, Screening did not identify the potential of Likely Significant Effects and therefore Task 2 (and following Tasks as briefly outlined below) have therefore not been completed.</p>
3. Assessment of Alternative Solutions	<p>If the further mitigation measures prescribed at Task 2 cannot avoid adverse effects on the integrity of a European site, this process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. This stage also includes consideration of the effects of there being no scheme at all – the ‘do nothing’ approach, which serves to identify the likely future environmental baseline in the absence of the scheme.</p>
4. Imperative Reasons of Overriding Public Interest	<p>If no suitable alternative solutions are identified, Task 4 requires an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed. The IROPI justification may relate to either:</p> <ul style="list-style-type: none"> <li>· Human health, public safety, or beneficial consequences of primary importance to the environment; or</li> <li>· Any other imperative reasons of overriding public interest, having sought a prior opinion from the European Commission.</li> </ul> <p>Consultation with other competent authorities will be required.</p> <p>In making this assessment, it is important to recognise that it will be appropriate to the likely scale, importance and impact of the proposed plan or project. A key outcome of the Appropriate Assessment is to identify whether the integrity of the European site(s) is likely to be adversely affected by the plan/project and whether the conservation status of the primary interest features of the site could be impacted. If it is impossible to avoid or mitigate the adverse impact, it must be demonstrated that there is IROPI. This is a last resort and should be avoided if possible.</p>
5. Compensatory Measures	<p>Task 5 would involve the identification of compensatory measures and the assessment of the effects of these measures. The Habitats Directive requires that such measures employed ‘ensure the overall coherence of the network of European sites as a whole is protected’.</p> <p>Compensation measures can include (for example and non-exhaustively):</p>

Task	Description
	<ul style="list-style-type: none"> <li>The creation of or re-creation of a comparable habitat which can in time be designated as a European site (and in the meantime is protected as a matter of government policy as if it were a fully designated European site); or</li> <li>The creation or re-creation of a comparable habitat as an extension to an existing European site.</li> </ul> <p>Evidence must be provided to ensure that the compensatory measures are sufficient to offset the likely harm caused by the proposed development.</p>

Each task determines whether further tasks in the process are required. The first task identifies likely significant effects by identifying the presence or absence of significance indicators. If the conclusion of Task 1 is that there will be no significant effects on the European site, there is no requirement to undertake further tasks.

All the Tasks of the HRA process, including those beyond appropriate assessment are shown in Figure 2.

**Figure 2: The Habitats Regulations Assessment Process**



Source: DMRB Volume 11 Section 4 Part 1 HD44/09

### 4.1 Task 1 Screening Method

This report includes the information required to facilitate the Task 1: Screening. Through this process, the likelihood of significant effects as a result of the plan are assessed. If it is identified that any of the options is likely to result in a significant effect, then this triggers the next task of the assessment - Task 2: Appropriate Assessment.

Task 1 consists of the following key steps as detailed below:

1. Conducting a desktop study and obtaining background data to identify European site(s) and their qualifying features which occur within the Zol of the extent of the plan;
2. Identifying the Conservation Objectives of the identified sites;
3. Reviewing and assessing the sensitivity of the qualifying features and the likely significant effects of the implementation of the plan on the conservation objectives of the European site(s); and
4. Assessing in-combination effects of the proposed development with other plans and projects in the area.

## 5 Identification and Management of the European Sites

### 5.1 Identification of European Sites

The following European sites are within the ZOI (as outlined in Section 4) and will therefore be assessed

**Table 5: Special Areas of Conservation and their key qualifying features**

Special Area of Conservation	Distance from the closest part of the plan	Annex I habitats that are a primary reason for selection of this site	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	Annex II species that are a primary reason for selection of this site	Annex II species present as a qualifying feature, but not a primary reason for site selection
<b>River Usk SAC</b>	Train line runs over the River in Newport.	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>Sea lamprey (<i>Petromyzon marinus</i>),</li> <li>Brook lamprey (<i>Lampetra planeri</i>),</li> <li>River lamprey (<i>Lampetra fluviatilis</i>),</li> <li>Twaite shad (<i>Alosa fallax</i>),</li> <li>Atlantic salmon (<i>Salmo salar</i>),</li> <li>Bullhead (<i>Cottus gobio</i>); and</li> <li>Otter (<i>Lutra lutra</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Allis shad (<i>Alosa alosa</i>).</li> </ul>
<b>Usk Bat Sites SAC</b>	4.8km from the closest part of the plan in Blaenavon	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	<ul style="list-style-type: none"> <li>European dry heaths;</li> <li>Degraded raised bogs still capable of natural regeneration;</li> <li>Blanket bogs (*if active bog);</li> <li>Calcareous rocky slopes with chasmophytic vegetation;</li> <li>Caves not open to the public; and</li> <li>Tilio-acerion forests of slopes, screes and ravines.</li> </ul>	<ul style="list-style-type: none"> <li>Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
<b>Aberbargoed Grassland SAC</b>	0.9km, from the closest part of the	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Marsh fritillary butterfly (<i>Eurodryas aurinia</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>

Special Area of Conservation	Distance from the closest part of the plan	Annex I habitats that are a primary reason for selection of this site	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	Annex II species that are a primary reason for selection of this site	Annex II species present as a qualifying feature, but not a primary reason for site selection
	plan in Cefn Forest				
<b>Cardiff Beech Woods SAC</b>	0.4km, from the closest part of the plan in Taffs Well	<ul style="list-style-type: none"> <li>Asperulo-Fagetum beech forests.</li> </ul>	<ul style="list-style-type: none"> <li>Tilio-Acerion forest of slopes, screes and ravines.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
<b>Severn Estuary SAC</b>	0.28km from the closest part of the plan in Penarth train station	<ul style="list-style-type: none"> <li>Estuaries, mudflats and sandflats not covered by seawater at low tide &amp; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Sandbanks which are slightly covered by sea water all the time &amp; Reefs.</li> </ul>	<ul style="list-style-type: none"> <li>Sea lamprey;</li> <li>River lamprey; and</li> <li>Twaite shad.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
<b>River Wye SAC</b>	The railway line runs over the River Wye in Chepstow	<ul style="list-style-type: none"> <li>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>Transition mires and quaking bogs.</li> </ul>	<ul style="list-style-type: none"> <li>White-clawed (or Atlantic stream) crayfish;</li> <li>Sea lamprey;</li> <li>Brook lamprey;</li> <li>River lamprey;</li> <li>Twaite shad;</li> <li>Atlantic salmon;</li> <li>Bullhead; and</li> <li>Otter.</li> </ul>	<ul style="list-style-type: none"> <li>Allis shad</li> </ul>
<b>Wye Valley Woodlands SAC</b>	2.0km from the closest part of the plan in Chepstow	<ul style="list-style-type: none"> <li>Asperulo-Fagetum beech forests;</li> <li>Tilio-Acerion forests of slopes, screes and ravines; and</li> <li><i>Taxus baccata</i> woods of the British Isles.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Lesser horseshoe bat.</li> </ul>
<b>Wye Valley Woodlands and Forest of Dean Bat Sites SAC</b>	1.1km from the closest part of the plan in Chepstow	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Lesser horseshoe bat; and</li> <li>Greater horseshoe bat.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>

Special Area of Conservation	Distance from the closest part of the plan	Annex I habitats that are a primary reason for selection of this site	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	Annex II species that are a primary reason for selection of this site	Annex II species present as a qualifying feature, but not a primary reason for site selection
<b>North Somerset and Mendip Bats SAC</b>	27km from the closest part of the plan in to Penarth Train Station	<ul style="list-style-type: none"> <li>Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites); and</li> <li>Tilio-Acerion forests of slopes, screes and ravines.</li> </ul>	<ul style="list-style-type: none"> <li>Caves not open to the public.</li> </ul>	<ul style="list-style-type: none"> <li>Lesser horseshoe bat; and</li> <li>Greater horseshoe bat.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
<b>Mendip Limestone Grasslands SAC</b>	15.0km from the closest part of the plan in Penarth Train Station	<ul style="list-style-type: none"> <li>Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites).</li> </ul>	<ul style="list-style-type: none"> <li>European dry heaths;</li> <li>Caves not open to the public; and</li> <li>Tilio-Acerion forests of slopes, screes and ravines.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>	<ul style="list-style-type: none"> <li>Greater horseshoe bat.</li> </ul>
<b>Limestone Coast of South West Wales SAC</b>	25km from the closest part of the plan in Maesteg	<ul style="list-style-type: none"> <li>Vegetated sea cliffs of the Atlantic and Baltic Coasts; and</li> <li>"Fixed coastal dunes with herbaceous vegetation ("grey dunes")".</li> </ul>	<ul style="list-style-type: none"> <li>European dry heaths;</li> <li>Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites);</li> <li>Caves not open to the public; and</li> <li>Submerged or partially submerged sea caves.</li> </ul>	<ul style="list-style-type: none"> <li>Greater horseshoe bat; and</li> <li>Early gentian.</li> </ul>	<ul style="list-style-type: none"> <li>Petalwort.</li> </ul>

Source: JNCC website ([www.jncc.gov.uk](http://www.jncc.gov.uk))

**Table 6: Special Protection Areas and Ramsar sites and their key qualifying features**

Special Protection Area and Ramsar Site	Distance from the closest part of the plan	Key Qualifying Features
<b>Severn Estuary SPA</b>	1.1km from the closest part of the plan in Cardiff	<p><b><u>Over winter</u></b>            Bewick's swan <i>Cygnus columbianus bewickii</i>, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5-year peak mean 1991/2 - 1995/6).</p> <p>This site also qualifies under <b>Article 4.2</b> of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species.</p> <p><b><u>On passage</u></b>            Ringed Plover <i>Charadrius hiaticula</i>, 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5-year peak mean 1991/2 - 1995/6).</p> <p><b><u>Over winter</u></b>            Curlew <i>Numenius arquata</i>, 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5-year peak mean 1991/2 - 1995/6).</p> <p>Dunlin <i>Calidris alpina alpina</i>, 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5-year peak mean 1991/2 - 1995/6).</p> <p>Pintail <i>Anas acuta</i>, 599 individuals representing at least 1.0% of the wintering Northwestern Europe population (5-year peak mean 1991/2 - 1995/6).</p> <p>Redshank <i>Tringa totanus</i>, 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5-year peak mean 1991/2 - 1995/6).</p> <p>Shelduck <i>Tadorna tadorna</i>, 3,330 individuals representing at least 1.1% of the wintering Northwestern Europe population (5-year peak mean 1991/2 - 1995/6).</p> <p><b><u>Assemblage qualification: A wetland of international importance.</u></b>            The area qualifies under <b>Article 4.2</b> of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.</p> <p>Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall <i>Anas strepera</i>, Shelduck <i>Tadorna tadorna</i>, Pintail <i>Anas acuta</i>, Dunlin <i>Calidris alpina alpina</i>, Curlew <i>Numenius arquata</i>, Redshank <i>Tringa totanus</i>, Bewick's Swan <i>Cygnus columbianus bewickii</i>, Wigeon <i>Anas penelope</i>, Lapwing <i>Vanellus vanellus</i>, Teal <i>Anas crecca</i>, Mallard <i>Anas platyrhynchos</i>, Shoveler <i>Anas clypeata</i>, Pochard <i>Aythya ferina</i>, Tufted Duck <i>Aythya fuligula</i>, Grey Plover <i>Pluvialis squatarola</i>, White-fronted Goose <i>Anser albifrons albifrons</i>, Whimbrel <i>Numenius phaeopus</i>.</p>

Special Protection Area and Ramsar Site	Distance from the closest part of the plan	Key Qualifying Features
<b>Severn Estuary Ramsar</b>	1.13km from the closest part of the plan in Cardiff	<p>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 present on the pSAC include:            H1110 Sandbanks which are slightly covered by sea water all the time;            H1130 Estuaries;            H1140 Mudflats and sandflats not covered by seawater at low tide; and            H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</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, sea trout, sea lamprey, river lamprey, allis shad, twaite shad, and eel 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 and twaite shad which feed on mysid shrimps in the salt wedge.</p> <p>Ramsar criterion 5 - Assemblages of international importance:            Species with peak counts in winter: 70919 waterfowl (5 year peak mean 1998/99-2002/2003).</p> <p>Ramsar criterion 6 – species/populations occurring at levels of international importance.</p> <p>Qualifying Species/populations (as identified at designation):            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).</p> <p>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).</p> <p>Common shelduck, <i>Tadorna tadorna</i>, NW Europe 3223 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-2002/3).</p> <p>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).</p> <p>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).</p> <p>Common redshank, <i>Tringa totanus totanus</i>, 2616 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-</p>

Special Protection Area and Ramsar Site	Distance from the closest part of the plan	Key Qualifying Features
		<p>2002/3).</p> <p>Species/populations identified subsequent to designation for possible future consideration under criterion 6.</p> <p>Species regularly supported during the breeding season:</p> <p>Lesser black-backed gull <i>Larus fuscus graellsii</i>, W Europe/Mediterranean/W Africa. 4167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census).</p> <p>Species with peak counts in spring/autumn: Ringed plover, <i>Charadrius hiaticula</i>, Europe/Northwest Africa. 740 individuals, representing an average of 1% of the population (5-year peak mean 1998/9-2002/3).</p> <p>Species with peak counts in winter: Eurasian teal, <i>Anas crecca</i>, NW Europe 4456 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/9-2002/3).</p> <p>Northern pintail, <i>Anas acuta</i>, NW Europe 756 individuals, representing an average of 1.2% of the population (5-year peak mean 1998/9-2002/3).</p>

Source: JNCC

## 6 Characteristics of the European Sites

Table 6 details the characteristics of the European Sites in terms of the vision, current status and the vulnerabilities of the sites. There is no status or vulnerabilities available for Mendip Limestone Grasslands SAC and North Somerset and Mendip Bats SAC and as such we have referred to the SSSI conditions and only focussed on the SAC features that are likely to be affected by the plan within 30km i.e. lesser horseshoe and great horseshoe bats.

**Table 7: Vision and Management of the European Sites**

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
River Usk / Afon Wysg SAC	The vision is to maintain, or where necessary restore the river to high ecological status, including its largely unmodified and undisturbed physical character, so that all its special features are able to sustain themselves in the long-term as part of a naturally functioning ecosystem. Allowing the natural processes of erosion and deposition to operate without undue interference and maintaining or restoring connectivity maintains the physical river habitat, which forms the foundation for this ecosystem.	Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	UNFAVOURABLE. This feature is not identified as one of the primary reasons for designation of the River Usk SAC; its distribution being apparently limited by the availability of suitable hydromorphological conditions. Important stands have been identified in the lower reaches of the main river below Abergavenny down to the tidal limit, and in the upper reaches of a headwater stream, the Afon Senni. These reaches may represent a sub-type of the feature where large submerged and floating leaved flowering plants, in particular <i>Ranunculus</i> , are dominant.
		Brook lamprey River lamprey	FAVOURABLE. Not able to distinguish between these species during monitoring. The extent and quality of suitable habitat for Brook and River lamprey must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >100mm depth in a range of water depths (0.2 to 1.5m). The currently favourable condition assessment suggests that there are no strongly adverse factors influencing these species. However, the species are likely to benefit from positive management for the other SAC features, and may see further improvement in condition as a result.
		Sea lamprey	UNFAVOURABLE. This is due to the impact of the barriers to migration such as Brecon Weir and Crickhowell Bridge. Management to reduce or remove the barriers is considered to be the most effective solution. The impact of acoustic (noise/vibration) and sediment/chemical barriers arising from plans or projects need to be assessed and timings of the activities may need to be imposed.
		Twaite shad and Allis shad	UNFAVOURABLE. Allis shad is thought to be rare, with no recent records in the Usk, while Twaite shad is relatively common. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, and from the presence of adverse factors, in particular flow depletion and physical barriers to migration. Artificial physical barriers are probably the single most important factor in the decline of shad in Europe. Impassable obstacles between suitable spawning areas and the sea can eliminate breeding populations of shad.
		Atlantic salmon	UNFAVOURABLE. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, in particular the results of juvenile surveys, and from the presence of adverse factors, in particular flow depletion and localised

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
			water quality failures. In the Usk catchment, the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Current consents for discharges entering, or likely to impact upon the site should be monitored, reviewed and altered if necessary.
		Bullhead	UNFAVOURABLE. The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Vertical drops of >180-200mm are sufficient to prevent upstream movement of adult bullheads. They will therefore prevent recolonization of upper reaches affected by lethal pollution episodes, and will also lead to constraints on genetic interactions that may have adverse consequences. The extent and quality of suitable bullhead habitat must be maintained. Elevated levels of fines can interfere with egg and fry survival. Spawning habitat is defined as unsilted coarse (gravel/pebble/cobble) dominated substrate: males guard sticky eggs on the underside of stones. Larger stones on a hard substrate providing clear spaces between the stream bed and the underside of pebbles/cobbles are therefore important.
		Otter	FAVOURABLE. The conservation status of otters in the Usk SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat outlined in the Performance Indicators. Their current condition can be considered favourable, but with scope for further improvement, if habitat and other natural factors can be maintained and enhanced.
Usk Bat Sites SAC	The vision is to sustain a viable population of lesser horseshoe bats in the River Usk area by maintaining, and improving, the structures used by bats and surrounding habitats, ensuring no loss or decline in the quality of linear features. A natural hydrological regime is to be maintained in the area and air pollution must not exceed set thresholds. Natural ecological process are to operate as far as possible and vegetation is to be allowed to regenerate naturally through restricted grazing, although the regeneration of large saplings of non-native species will not be tolerated. A mixed age structure of woodland is to be maintained.	Lesser horseshoe bat	FAVOURABLE. The conservation status of lesser horseshoe bats is evaluated through monitoring of their maternity and hibernation roosts. Commuting and foraging habitat is to be maintained and improved as outlined in the performance indicators. The currently favourable condition assessment suggests that at present there are no strongly adverse factors influencing these species. The species are likely to benefit from positive management for the other SAC features, and may see further improvement in condition as a result.
Aberbargoed Grassland SAC	The vision of the grassland is to maintain the marshy grassland habitat and the marsh fritillary food plant devil' bit scabious ( <i>Succisa pratensis</i> ).	Marsh fritillary	UNFAVOURABLE. Counts have in recent years been very low, but the species naturally undergoes significant fluctuations in population numbers due to a variety of factors, including cold and wet weather conditions and parasitic attack.
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caerulea</i> ).	UNFAVOURABLE. The habitat is not in a suitable condition for the marsh fritillary. In areas of the site the vegetation is too tall, is dominated by <i>Molinia</i> and does not have sufficient <i>Succisa</i> . Only 2.3ha of good condition habitat and 9.7ha of suitable habitat is within the site.

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
Cardiff Beech Woods SAC	<p>The vision is to help secure the maintenance or restoration of habitats and species to favourable conservation status for the foreseeable future. Given that we foresee a changing climate, despite the uncertainty of the nature, degree and timing of those changes, we must address the need to ensure the resilience of each site to that changing environment. This will be achieved in the first instance by ensuring favourable condition of the important features, since a healthy feature is likely to be more resilient to the effects of climate change than one which is already stressed. Secondly, consideration must be given to those structures, functions and processes which maintain or boost the resilience of ecosystems to climate stress, including the avoidance, reduction or mitigation of other stress factors such as invasive species, nutrient enrichment, habitat and population fragmentation.</p>	Asperulo-Fagetum beech forests	FAVOURABLE. The sites were monitored in March 2004 and April-May 2009 to gather information on the extent or condition of the habitat. The current feature status for the Asperulo-Fagetum beech forests is Favourable (2009).
		Tilio-Acerion forest of slopes, screes and ravines	UNFAVOURABLE. The overall condition of the Tilio-Acerion woodland of Cardiff Beech Woods is considered to be in Unfavourable condition (January 2010).
North Somerset and Mendip Bats SAC	There is no status or vulnerabilities available for this SAC. As a result, we have referred to the SSSI conditions for multiple sites and only focussed on the SAC features that are likely to be affected by the plan within 30km i.e Lesser horseshoe and great horseshoe bats.	Lesser horseshoe bat and Greater horseshoe bat	<p>There are no status or vulnerabilities available for this SAC. As a result, we have referred to the SSSI conditions for multiple sites and only focussed on the SAC features that are likely to be affected by the plan within 30km (i.e Lesser horseshoe and great horseshoe bats).</p> <p>Compton Martin Ochre Mine SSSI – FAVOURABLE. Greater horseshoe bats. On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage. Hibernating bats present in winter. If no bats present during 6-year reporting cycle the attribute is unfavourable. Annual visits recommended- minimum every 2 years. Bats seen on at least one occasion per winter. Presence/absence used rather than population size as internal winter counts are impossible due to the instability of the mines.</p> <p>The Cheddar Gorge Complex SSSI -FAVOURABLE. Lesser and greater horseshoe bats. On this site, favourable condition requires the maintenance of the population of each designated species or assemblage.</p> <p>Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage. Hibernating bats present in winter.</p> <p>Wookey Hole SSSI – FAVOURABLE. Greater horseshoe bats. On this site, favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage. Hibernating bats present in winter. At the time of notification counts of 12 to 15 bat Greater Horseshoe Bats were usual. The latest count in 2013 recorded 90.</p>

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
Mendip Limestone Grasslands SAC	There is no status or vulnerabilities available for this SAC. As a result, we have referred to the SSSI conditions for multiple sites and only focussed on the SAC features that are likely to be affected by the plan within 30km i.e. Lesser horseshoe and great horseshoe bats.	Greater horseshoe bat	<p>There are no status or vulnerabilities available for this SAC. As a result, we have referred to the SSSI conditions for multiple sites and only focussed on the SAC features that are likely to be affected by the plan within 30km i.e Lesser horseshoe and great horseshoe bats.</p> <p>Banwell Caves SSSI – FAVOURABLE. Greater horseshoe bats. Population maintained or increasing: An overall decline of 25% or more compared with population baseline at notification, would be unfavourable.</p> <p>Banwell Ochre Mine SSSI - FAVOURABLE. Greater horseshoe bats. Population maintained or increasing: An overall decline of 25% or more compared with population baseline at notification, would be unfavourable.</p> <p>Kings Wood and Urchin Wood SSSI – FAVOURABLE. Greater horseshoe bats. On this site, favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage. Population maintained or increasing: An overall decline of 25% or more compared with population baseline at notification, would be unfavourable. Bats counted on at least one occasion per winter.</p>
Limestone Coast of South Wales SAC	<p>The Countryside Council for Wales' (NRW) vision for the Pembrokeshire end of the Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC is for the SAC habitat features to be stable or increasing in area and the SAC and SPA species features to achieve favourable conservation status. The factors that affect these habitats and species must also be under control.</p> <p>Some of the larger sea caves, not fully immersed at high tide, provide temporary roosts for bats. In other caves, where temperatures are cooler and more stable, bats hibernate during winter. All these caves should remain undisturbed by activities such as caving, climbing and coasteering and should continue to provide roost and hibernation sites for greater horseshoe bats and other bat species.</p>		<p>NO STATUS AVAILABLE AT PRESENT.</p> <p>Greater and lesser horseshoe bats roost within a number of caves along the limestone within Pembrokeshire and on Gower. There are good surveillance data for a few well-recorded sites, but for other caves data are limited. Billington (2004) being the most recent bat worker to survey them.</p> <p>Some bat caves best fit “caves not open to the public” - e.g. “Ogof Govan” perched above the sea on Saddle Head, on the Castlemartin coast. But as the entrances of many are at least partially flooded at high water, they best fit marine caves partially submerged at high water. Such a cave supports the largest known winter roost for greater horseshoe bats in Wales, with up to 200-300 bats present at times.</p> <p>This cave has large amounts of flotsam/jetsam strewn over its boulder floor and can only be visited by humans on low water spring tides. The bats can roost high up in its domed-roof if they need to. We don't know how the bats access this and other similar caves, if they need to when the entrance available to humans is flooded.</p> <p>The cave numbering system follows that used by Billington (2004) except along the Gower section where local cave names are used. For several reasons, it is difficult to set targets for the number of bats to be present within the coastal caves, both in terms of total population and in terms of targets for individual caves.</p> <p>Firstly, we are only beginning to understand how and when the bats use some of these caves so it is difficult to time any survey work to actually see bats in the caves. Secondly, the bats tend to be found in lower numbers during the winter, in a larger number of locations. This makes searching for them more difficult.</p> <p>Therefore, it is not easy to accurately determine how many bats are using the caves. Instead the performance indicators only require evidence of use by greater horseshoes. This can be the presence of a greater horseshoe bat or presence of greater horseshoe bat</p>

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
			<p>droppings; fortunately, in areas where they are not washed away by the sea, these are easy to distinguish from droppings of other species.</p> <p>The obvious exception to this is the main cave roost Castlemartin Cave (Cave 149) where, when present, bats can usually be seen quite easily. The bats can roost in dense clusters. These are not easy to count without causing disturbance.</p> <p>Two other historically important key roosts, Trevalen Cave and Ogof Govan are also highlighted in the performance indicators. In addition to this, evidence of use by greater horseshoe bats is required in eight other potentially significant caves from a large list of sites identified by Billington, along the Linney Head to Stackpole Quay section, plus two caves within the Lydstep section and two out of four caves within the Penally section. Targets have been included for Gower.</p> <p>There are data from the 1980s indicating that the caves listed have been used by very small numbers of bats (1 or 2 in each instance), other than Bacon Hole where higher numbers of bats have been recorded (maximum of 16). Targets have been set to reflect this level of use.</p>
River Wye SAC	<p>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation for which this is considered to be one of the best areas in the United Kingdom. Transition mires and quaking bogs for which the area is considered to support a significant presence. <i>Petromyzon marinus</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Lampetra fluviatilis</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Lampetra planeri</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Alosa alosa</i> for which the area is considered to support a significant presence. <i>Alosa fallax</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Salmo salar</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Cottus Gobio</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Lutra lutra</i> for which this is considered to be one of the best areas in the United Kingdom. <i>Austropotamobius pallipes</i> for which this is considered to be one of the best areas in the United Kingdom.</p>	<p>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</p>	<p>UNFAVOURABLE. The present unfavourable status of the feature results from reduced water quality in some tributaries of the Wye e.g. parts of the Ithon and Llynfi sub-catchments, due mainly to diffuse pollution from agriculture. (Note: status reported in error as Unfavourable: Declining in SAC feature status report to JNCC, 2006)</p> <p>A further adverse factor is the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. Japanese knotweed and Himalayan balsam are widespread in the catchment, including the Irfon sub-catchment.</p> <p><u>Transition mires and quaking bogs</u></p> <p>UNFAVOURABLE. This feature is currently assessed as being in unfavourable condition due to under-grazing.</p> <p><u>White-clawed (or Atlantic stream) crayfish</u></p> <p>UNFAVOURABLE: Declining. There is considerable anecdotal evidence of a major decline in the distribution and abundance of the native white-clawed crayfish in the Wye catchment over the last few decades. Native crayfish may have been lost from the main river channel, from tributaries such as the Duhonw and Ithon and have almost disappeared from the Afon Irfon.</p> <p>Significant populations within the Wye SAC are now confined to the Sgithwen, Cletwr, Edw, Llynfi Dulas and Builth Road Dulas.</p> <p><u>Sea lamprey</u></p> <p>FAVOURABLE. Sea lamprey monitoring showed that overall catchment mean ammocoete density at 2.58 ammocoetes per m<sup>2</sup> in suitable habitat considerably exceeded the target threshold of 0.1m<sup>2</sup> suggested by Harvey and Cowx (2003)1 and also complied with JNCC targets for spawning site and ammocoete distribution. Sea lamprey ammocoetes were recorded in good numbers immediately upstream of the falls at Rhayader, their most upstream recorded site on the main Wye. They were also recorded in the Irfon and Ithon tributaries.</p> <p><u>Brook lamprey</u></p> <p>UNFAVOURABLE. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold. However, <i>Lampetra</i></p>

**European Site**      **Vision of the site**

**Current status of species or habitats and vulnerabilities**

<b>Species or habitats</b>	<b>Status and vulnerabilities</b>
<u>River lamprey</u>	ammocoetes were recorded at only 30 of the 54 sample sites (56%), thus failed to meet the criterion of presence in at least two thirds of sites within their natural range. However, further clarification is needed concerning a number of sample sites in the upper reaches (Upper Wye and Elan), which may reflect unsuitable habitat and be outside the natural ranges of the species.  It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries.
<u>Twait shad</u>	UNFAVOURABLE. The method of survey does not distinguish between the two species. Allis shad is thought to be rare, with no recent confirmed records in the Wye, while twait shad is relatively common. This uncertainty is likely to be compounded by variation between years in the size of the adult run, spawning success and resulting numbers of juveniles. Poor adult runs are likely to result from unsuitable flows during the March to June migration period, in particular prolonged low flows, while poor survival of eggs and juveniles is related to spate flows in the mid to late summer which can flush them into the estuary prematurely. Physical barriers to migration are a major cause of unfavourable status of these species in Europe as a whole; however, there are not thought to be any significant barriers to shad migration in the Wye.
<u>Allis shad</u>	The current unfavourable status results from a precautionary assessment of feature abundance, and from the presence of adverse factors, in particular the potential for damaging flow depletion and entrainment/impingement in water intake.
<u>Bullhead</u>	UNFAVOURABLE. The current unfavourable status results from the presence of adverse factors, in particular localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. Quantitative information on bullhead abundance is being provided through targeted monitoring.
<u>Otter</u>	UNFAVOURABLE. The conservation status of otters in the Wye SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat as outlined in the Performance Indicators. Their current condition is considered unfavourable due a lack of suitable breeding sites around the middle reaches of the river.
<u>Atlantic salmon</u>	UNFAVOURABLE. The current unfavourable status results from failure of the Management Target for adult run size as well as a precautionary assessment of juvenile distribution and abundance and the presence of adverse factors, in particular the potential for flow depletion and localised water quality failures. Acidification due to forestry is a factor in the upper reaches of the Wye and Irfon.

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
Wye Valley Woodlands and Forest of Dean	<p>The Wye Valley and Forest of Dean Bat SAC is a cross border site, straddling the Welsh/English Border. It is made up of thirteen component SSSIs, of which four are in Wales: Llangovan Church, Mwyngloddfa Mynydd-bach, Newton Court Stable Block and Wye Valley Lesser Horseshoe Bats SSSIs. Wye Valley Lesser Horseshoe Bats SSSI is actually four separate summer bat roosts, consisting of Penallt Old Church, The Priory at Llandogo, Itton Court Stud and Tregeiriog Farm. During the summer, it is possible to see large numbers of bats coming and going from the roosts at dusk and dawn. Species numbers will vary slightly from year to year, but Penallt Old Church supports at least 250 adult lesser horseshoe bats; The Priory, Llandogo supports at least 350 adult lesser horseshoe bats; Itton Court Stud supports at least 80 adult lesser horseshoe bats; and Tregeiriog Farm supports at least 80 adult lesser horseshoe bats. Newton Court Stable Block should support a summer population of greater horseshoe bats of at least 55 adult bats and 30 juveniles. Mwyngloddfa Mynydd-bach continues to support a hibernation roost, with at least 60 adult lesser horseshoe bats. The buildings and structures that support these roosts are maintained in good condition, and improved where possible, to optimise the conditions suitable for the breeding success of these species. In order to allow the bats to enter and leave freely roost, access routes should be kept open. Tree/shrubs, which are important for bats as they act as flight paths to feeding areas, should be retained.</p>	Greater horseshoe bats	FAVOURABLE. The performance indicators for maintenance of favourable condition of the greater horseshoe bats ( <i>Rhinolophus ferrumequinum</i> ) on the Welsh side of the Wye Valley and Forest of Dean Bat Sites SAC.
		Lesser horseshoe bats	FAVOURABLE. The performance indicators for maintenance of favourable condition of the lesser horseshoe bats ( <i>Rhinolophus hipposideros</i> ) on the Welsh side of the Wye Valley and Forest of Dean Bat Sites SAC.
Wye Valley Woodlands SAC Bat Sites SAC	<p>The Wye Valley Woodland SAC is a cross border site and comprises sixteen SSSIs. Nine of these are situated in Wales. The woodland SSSIs are found along the River Wye's meandering borders. They provide a rich backdrop to the agriculturally improved farmland in the valley bottom. All nine SSSIs continue to be covered by at least 90% semi-natural broadleaved woodland. Woodland communities vary across the nine SSSIs, depending on soil conditions, thus producing a</p>	Lesser horseshoe bat	<p>Lesser horseshoe bat is a qualifying feature but is not a primary reason for the selection of this SAC site. A number of lesser horseshoe bat maternity and hibernation roosts are located within the English side of the Wye Valley Woods SAC. Natural England will consider the condition of these and provide the assessment of this feature. However lesser horseshoe bats do use caves within the Welsh side of this SAC as hibernation roosts. Also, a number of large maternity roosts are located close to this SAC and the woodland are highly likely to be important feeding areas for this species of bat. A number of these roosts are included in the Wye Valley and Forest of Dean Bat Sites SAC. The lesser horseshoe bat is a feature of this SAC. However, the roosts lie on the</p>

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
	<p>mosaic of vegetation rich in wildlife. Those particularly dominating are locally native species such as beech, ash, lime, yew and oak.</p> <p>All canopy species should be present within the field layer as seedlings and within the shrub layer as saplings. The ground layer will contain plant species typical of semi-natural broadleaf woodland such as bluebell, yellow archangel and primrose.</p> <p>In the long term the canopy will include trees of all ages and particular attention will be given to maintaining old veteran trees. Dead wood, standing and fallen, will be retained to provide habitat for invertebrates, fungi and other woodland species.</p>		<p>English side of the SAC. Assessment of this feature shall be based on data collected by Natural England through the associated SSSI condition for Upper Wye Gorge SSSI.</p> <p>Upper Wye Gorge SSSI – FAVOURABLE recovering. This variety of habitats supports a diverse fauna including badger <i>Meles meles</i>, fallow deer <i>Dama dama</i> and greater and lesser horseshoe bats <i>Rhinolophus ferrumequinum</i> and <i>R. hipposideros</i>, which use a series of caves and mines within the site as a winter roost.</p>
Severn Estuary SAC	<p>This site does not contain a description of the vision for the SAC. The site improvement plan for the Severn Estuary has been used to inform this section.</p> <p>This site does not contain a description of the vision for the SAC. The site improvement plan for the Severn Estuary has been used to inform this section.</p> <p>Measures include reducing, removing and preventing barriers to migratory species. Measure is to identify/reduce impacts of disturbance to birds, and damage to habitats through public access/disturbance. Inform strategic planning decisions to minimise impacts of development. Limit coastal squeeze, provide sustainable coastal defences, improve existing structures, deliver compensatory habitat. Maintain appropriate levels and timing of grazing, and management of intertidal saltmarsh habitat. Understand/ prepare for changes in species distribution (caused by climate change/ other events). Identify existing issues and prevent/reduce decline in water and sediment quality. Air quality, develop a site nitrogen action plan. Establish levels and location of activity (recreational bait digging, recreational fishing/angling and potential for impact). Establish in combination/cumulative impacts from aggregate extraction, maintenance dredging and disposal are fully considered. Identify any threats to site features and habitats from commercial fisheries activity, and</p>	<p>Estuaries, mudflats and sandflats not covered by seawater at low tide, Sandbanks which are slightly covered by sea water all the time &amp; reefs. Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>), Sea lamprey, river lamprey &amp; twaite shad.</p>	Current status not defined within the management plan document.
Severn Estuary SPA		<p>Bewick's swan</p> <p>Ringed plover</p> <p>Curlew</p> <p>Dunlin</p> <p>Pintail</p> <p>Redshank</p> <p>Shelduck</p> <p>Gadwall</p> <p>Wigeon</p> <p>Lapwing</p> <p>Teal</p> <p>Mallard</p> <p>Shoveler</p> <p>Tufted duck</p>	Current status not defined within the management plan document.

European Site	Vision of the site	Current status of species or habitats and vulnerabilities	
		Species or habitats	Status and vulnerabilities
Severn Estuary Ramsar	<p>establish and ensure compliance with any necessary management measures. Assess the risks from, and control the spread of invasive non-native species. Investigate sources of marine litter and implement actions for removal/shoreline clean up and minimise impact from marine pollution incidents and clean up response.</p>	<p>Grey plover</p> <hr/> <p>White-fronted goose</p> <hr/> <p>Whimbrel</p> <hr/> <p>Sandbanks which are slightly covered by sea water all the time, Estuaries, mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (Glauco-Puccinellietalia maritimae),</p> <hr/> <p>Migratory fish (including Salmon, sea trout, sea lamprey, allis shad, twaite shad and eel)</p> <hr/> <p>Waterfowl of international importance (including Tundra swan, greater white-fronted goose, common shelduck, Gadwall, Dunlin, common redshank, ringed plover, Eurasian teal, northern pintail and lesser black-backed gull)</p>	<p>Current status not defined within the management plan document.</p>

Source: JNCC

## 7 Assessment of Likely Significant Effects

The following tables document the screening exercise to assess if the project, alone or in combination with other projects, will have a potential impact on the European site or the conservations objectives of the key designated features in order to maintain the features in a favourable condition.

### 7.1 Screening

The plan is likely to involve a variety of construction and operation activities which could, result in a likely significant effect on a European site. The screening table documents the assessment process and the anticipated likely significant impacts of the plan during construction, operation and decommissioning of the Metro. This is based on the anticipated direct and indirect impacts considered as part of this screening. These are as follows: -

- Direct Impacts
- Habitat loss (including loss of breeding and resting sites);
- Habitat fragmentation (including changes to habitat structure and function);
- Corridor widening (in the dualled areas);
- Wildlife casualties (due to increased frequency of trains); and
- Disturbance and/or displacement of species due to increased frequency of trains.
- Indirect Impacts
- Air pollution for designated sites within 200m (DMRB Vol 11 Section 3 Part 1);
- Noise and vibration (dependent upon option chosen);
- Artificial lighting;
- Water pollution; and
- Contamination.

**Table 8: Screening Table**

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
River Usk / Afon Wysg SAC	<u>Book lamprey</u> <u>River lamprey</u> <u>Sea lamprey</u> <u>Twaite shad and Allis shad</u> <u>Atlantic salmon</u> <u>Bullhead</u> <u>Otter</u> Water courses of plain to montane levels with the Ranunculion	<p>The River Usk and associated tributaries are directly under the plan. The impact pathway for this site would likely be water pollution through tributaries, runoff and disturbance to key species. However, with the proposed CEMP mitigation plan, it is unlikely that should there be a pollution incident to the river and its tributaries. The project stage of the plan will be assessed on a project basis once the design is known and will be required to incorporate strict water pollution prevention measures.</p> <p>During operation, the train stock will be improved so that there will be less emissions and no direct discharge of sewage onto the track, as such watercourse and groundwater quality is likely to improve.</p> <p>It is not reasonably foreseeable that the Plan will have NO LIKELY SIGNIFICANT EFFECT on the river or any of its tributaries.</p>	No likely significant effect	No likely significant effect	No likely significant effect
River Wye SAC	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation <u>Transition mires and quaking bogs</u> <u>White-clawed (or Atlantic stream) crayfish</u> <u>Sea lamprey</u> <u>Brook lamprey</u> <u>River lamprey</u> <u>Twaite shad</u> <u>Allis shad</u> <u>Bullhead</u> <u>Otter</u> <u>Atlantic salmon</u>	<p>The River Wye and associated tributaries are directly under the plan footprint. The impact pathway for this site would likely be water pollution through tributaries, runoff and disturbance to key species. However, with the proposed CEMP mitigation plan, it is unlikely that should there be a pollution incident to the river and its tributaries. The project stage of the plan will be assessed on a project basis once the design is known and will be required to incorporate strict water pollution prevention measures.</p> <p>During operation, the train stock will be improved so that there will be less emissions and no direct discharge of sewage onto the track, as such watercourse and groundwater quality is likely to improve.</p> <p>It is not reasonably foreseeable that the Plan will have NO LIKELY SIGNIFICANT EFFECT on the river or any of its tributaries.</p>	No likely significant effect	No likely significant effect	No likely significant effect
Usk Bat Sites SAC	<u>Lesser horseshoe bat</u> <u>European dry heaths</u> Blanket bog	<p>The Plan (Phase 2 interventions) includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
	<p>Calcareous rocky slopes with chasmophytic vegetation</p> <p>Caves not open to the public</p> <p>Tilio-Acerion forests of slopes, screes and ravines</p>	<p>may affect access to roosts. This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation clearance and is not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>During operation, the main impact on bats will be through collision with trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats.</p> <p>However, we can use the same principals of the impacts of bats on roads to assess the impact of the Plan. The frequency of the trains are to increase to four trains per hour. The speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the trains but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result. Therefore any future interventions which may require clearance would need to provide appropriate measures to ensure connectivity.</p>			
Aberbargoed Grassland SAC	<p>Marsh fritillary</p> <p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae).</p>	<p>The closest approach of the Plan extends to the Aberbargoed grassland SAC is approximately 0.86km and as such is considered not to be affected by nitrification (DMRB Vol 11 Section 3 Part 1). As such, the options within the Plan are considered to not have an impact pathway. As such, there are no anticipated additional direct or indirect impact pathways that would affect the SAC as a result of the Plan. It is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC.</p>	No likely significant effect	No likely significant effect	No likely significant effect
Cardiff Beech Woods SAC	<p>Asperulo-Fagetum beech forests</p>	<p>Cardiff Beech Woods SAC is approximately 0.4km from the nearest section of the railway within the Plan which runs along both sides of the SAC and as such is considered not to be affected by nitrification (DMRB Vol 11 Section 3 Part 1). As such, the options within the plan are considered to not have an impact pathway. It is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC.</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
North Somerset and Mendip Bats SAC	Lesser horseshoe bat and Greater horseshoe bat	<p>The Plan includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which may affect access to roosts.</p> <p>During operation, the main potential impact on bats will be through collision with the trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats. However, we can use the same principals of the impacts of bats on roads to assess the impact of the plan. The frequency of the trains are to increase to four trains per hour, the speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the train but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation clearance and not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result.</p>	No likely significant effect	No likely significant effect	No likely significant effect
Mendip Limestone Grasslands SAC	Greater horseshoe bat	<p>The Plan includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which may affect access to roosts. This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation clearance and not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>During operation, the main potential impact on bats will be through collision with the trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats. However, we can use the</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
Limestone Coast of South West Wales SAC	Greater horseshoe bat	<p>same principals of the impacts of bats on roads to assess the impact of the plan. The frequency of the trains are to increase to four trains per hour, the speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the train but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result.</p> <p>The Plan includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which may affect access to roosts, this site is over 24km from the nearest station of the Plan (Maesteg) and outside the core sustenance zone for greater horseshoe bats. This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation clearance and not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>During operation, the main potential impact on bats will be through collision with the trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats. However, we can use the same principals of the impacts of bats on roads to assess the impact of the plan. The frequency of the trains are to increase to four trains per hour, the speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the train but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result.</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
	Early gentian	The Limestone Coast of South West Wales SAC is approximately 25km from the nearest section of the railway within the Plan which runs along both sides of the SAC. The site is over 200m from the proposed plan and as such is considered not to be affected by nitrification (DMRB Vol 11 Section 3 Part 1). As such, the options within the plan are considered to not have an impact pathway. It is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC.	No likely significant effect	No likely significant effect	No likely significant effect
Wye Valley Woodlands SAC	Lesser horseshoe bat	<p>The Plan includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which may affect access to roosts. This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation clearance and not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>During operation, the main potential impact on bats will be through collision with the trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats. However, we can use the same principals of the impacts of bats on roads to assess the impact of the plan. The frequency of the trains are to increase to four trains per hour, the speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the train but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result.</p>	No likely significant effect	No likely significant effect	No likely significant effect
Wye Valley and Forest of Dean Bat sites SAC	Lesser and greater horseshoe bat	The Plan includes the possible option of dualling of track and installation of stanchions which may result in a requirement for vegetation clearance. The impact pathway would therefore be the loss of commuting features for bats which may affect access to roosts. This will be assessed fully in the project specific HRA once the final design is decided and if there are large areas of vegetation clearance required to assess for likely significant effect however at present this is likely to result in minimal vegetation	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
		<p>clearance and not anticipated to result in a reduction of connectivity of habitat features for lesser horseshoe bats.</p> <p>During operation, the main potential impact on bats will be through collision with the trains. A report by Berthinussen, A. and Altringham, J. (2015) reported that railways have a comparable impact on bats to roads, although further research is needed to assess the impacts of railways on bats. However, we can use the same principals of the impacts of bats on roads to assess the impact of the plan. The frequency of the trains are to increase to four trains per hour, the speed of the trains will not increase and the aim of the plan is to reduce the use of vehicle travel on the road. As such, there may be a slight increase in strike rate as a direct result of the train but there will be a reduction in the vehicular strike rate as a result of the reduction in road use.</p> <p>As a result, it is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this SAC. If significant vegetation clearance resulting in severance of connective features is required then it is possible that a LIKELY SIGNIFICANT EFFECT will result.</p>			
Severn Estuary SAC	<p>River lamprey</p> <p>Estuary</p> <p>Mudflats and sandflats not covered by seawater at low tide</p> <p>Sandbanks which are slightly covered by sea water all the time</p> <p>Reefs</p> <p>Atlantic salt meadows (Glauco-Puccinellietalia maritimae)</p>	<p>The Severn Estuary SAC, SPA and Ramsar is approximately 1.6km from the nearest station within the Plan. The project stage of the plan will also incorporate strict water pollution prevention measures which will ensure that there are no impact pathways through watercourses feeding into the estuary. There are no anticipated direct or indirect impact pathways that would affect the designated site as a result of the Plan.</p> <p>During operation, the train stock will be improved so that there will be less emissions and no direct discharge of sewage onto the track, as such watercourse and groundwater quality is likely to improve.</p> <p>It is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this designated site.</p>	No likely significant effect	No likely significant effect	No likely significant effect
Severn Estuary SPA	<p>Estuaries, mudflats and sandflats not covered by seawater at low tide,</p> <p>Sandbanks which are slightly covered by sea water all the time &amp; reefs.</p> <p>Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Sea lamprey,</p>	<p>The Severn Estuary SAC, SPA and Ramsar is approximately 1.6km from the nearest station within the Plan. The project stage of the plan will also incorporate strict water pollution prevention measures which will ensure that there are no impact pathways through watercourses feeding into the estuary. There are no anticipated direct or indirect impact pathways that would affect the designated site as a result of the Plan. It is considered that NO</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
	<ul style="list-style-type: none"> <li>river lamprey &amp; twaite shad.</li> <li>Bewick's swan</li> <li>Ringed plover</li> <li>Curlew</li> <li>Dunlin</li> <li>Pintail</li> <li>Redshank</li> <li>Shelduck</li> <li>Gadwall</li> <li>Wigeon</li> <li>Lapwing</li> <li>Teal</li> <li>Mallard</li> <li>Shoveler</li> <li>Tufted duck</li> <li>Grey plover</li> <li>White-fronted goose</li> <li>Whimbrel</li> </ul>	<p>LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this designated site.</p>			
Severn Estuary Ramsar	<ul style="list-style-type: none"> <li>Sandbanks which are slightly covered by sea water all the time, Estuaries, mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows (Glauco-Puccinellietalia maritimae)</li> <li>Migratory fish (including Salmon, sea trout, sea lamprey, allis shad, twaite shad and eel)</li> <li>Waterfowl of international importance (including Tundra swan, greater</li> </ul>	<p>The Severn Estuary SAC, SPA and Ramsar is approximately 1.6km from the nearest station within the Plan. The project stage of the plan will also incorporate strict water pollution prevention measures which will ensure that there are no impact pathways through watercourses feeding into the estuary. There are no anticipated direct or indirect impact pathways that would affect the designated site as a result of the Plan. It is considered that NO LIKELY SIGNIFICANT EFFECT is reasonably foreseeable on any of the key features of this designated site.</p>	No likely significant effect	No likely significant effect	No likely significant effect

Site	Qualifying Feature	Assessment of significance	Likely significance of impacts of the plan during		
			Construction	Operation	Decommissioning
	white-fronted goose, common shelduck, Gadwall, Dunlin, common redshank, ringed plover, Eurasian teal, northern pintail and lesser black-backed gull)				

## 7.2 In-Combination Effects

The main in-combination effects of projects or plans on European sites (within 2km of the proposed plan) that are a considered along with the proposed Plan are listed in Table 8.

Many of the projects or plans involve a variety of construction and operation activities which could, in-combination, result in a likely significant effect on a European site. The regional projects and plans have been assessed for in-combination effects (both direct, in-direct and residual effects) based on the sensitivities as stated in Section 6. The in-combination assessment will relate to only those which could make the possible adverse effects of the plan more significant or add to an effect. The in-combination assessment will only apply to relevant stages of other plans or projects.

**Table 9: Other plans and projects**

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
Bryn Defaid Surface Coal Mine	SO 007 068	Approximately 0.3km south of the proposed scheme.	Planning permission (ref: 13/0421/10) was approved in August 2015 for the development.	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	Bryn Defaid Surface Coal Mine proposes the extraction of coal and associated ancillary activities including restoration and subsequent aftercare of the site. The site covers an approximately 104ha of coniferous forestry and moorland. The ecological surveys for the environmental statement for this project did not identify any lesser horseshoe roost or activity within the site which may impact the Usk Bat SAC. With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Brun Defaid Surface Coal Mine.
Creation of tourist holiday park comprising 74 camping and caravan pitches on Blaen-y-Garth Farm	Beacons Leisure Limited Unit 1 Pengarnddu Dowlais Top	Adjacent to NE of Merthyr Town and approximately 2.0km from Merthyr Tydfil train station.	P/16/0094 Planning application expired 2016.	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC	The restoration and change of use of the farm house to accommodate an office, store rooms and shop. Conversion and extension to existing barn to provide tourist information area and cafe. Erection of two amenity buildings and construction of a

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
Blaen-Y-Garth Access Road Pant Merthyr Tydfil CF48 2UY	Merthyr Tydfil CF48 8AD			Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	new vehicular access road, landscaping and associated infrastructure works. NRW has significant concerns regarding the AONB, bat surveys and heritage. Planning documents do not include bat surveys or any other ecological survey. This project seems to have not been constructed to date. With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the tourist holiday park.
Former Ardagh Site, Dragon Parc.	Huntley Wood Investments Ltd Unit 17 Marchington Industrial Estate, Stubby Lane, Marchington, Uttoxeter, Staffordshire, ST14 8LP	Approximately 2.0km from Merthyr Tydfil train station.		Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	The proposals are for up to 160 new homes: a mix of 1-2 bedroom apartments (10%), 2 bedroom homes (20%) and 3-4 bedroom homes (70%). Employment space: up to 1 hectare of employment land for offices, research and development and light industrial uses. Public open space: including a sports pitch and local equipped play area (LEAP). No HRA was undertaken. Bat surveys did not record any Lesser horseshoe bats on site. With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Former Ardagh site.
Monmouthshire County Council Deposit LDP	Monmouthshire County Council	LDP is throughout the Monmouthshire County	LDP adopted February 2014. HRA June 2011, HRA addendum June 2014.	River Usk SAC River Wye SAC Severn Estuary SAC, SPA and Ramsar Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	The LDP HRA (Appropriate Assessment (AA)) identified that the LDP alone would not have a likely significant effect on the SAC, SPA or Ramsar provided that recommended policy safeguards were followed. In Combination with other projects, there were four main areas of impact arising that may have the potential for significant in combination effects on the integrity of the identified European sites: water resources, water, quality, disturbance and air quality. These issues were assessed; the LDP's AA recommended policy safeguards that protect biodiversity and were determined to not have a likely significant effect provided the policies are followed. This plan (Metro), along with the Monmouthshire County Council LDP is considered to have no impact on the key features or their management of the designated sites. This is due to the limitations of impacts as a result of the implementation of the LDP biodiversity policy and limitations of the plan to not severe vegetation connective features and ensuring that there are protective measures on watercourses. With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
Blaenau Gwent County Borough Council LLDP	Blaenau Gwent County Borough Council	LDP is throughout the Blaenau Gwent County	LDP adopted November 2012, HRA April 2011	River Usk SAC Wye Valley Woodlands SAC River Wye SAC Wye Valley and Forest of Dean SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	Plan in-combination with the Monmouthshire County Council LDP.  The HRA Appropriate Assessment identified five sites that may have been impacted by the policies and objectives of the LDP. Mitigation to reduce or remove the impacts were included and the assessment determined that there are no likely significant effects.  There are several Plans/Projects that may in-combination have an effect on a designated site, however mitigation measures/features were incorporated at design and development stages. Most of these Plans and Plan components were subject to the HRA process to comply with Habitats Directive (Council Directive 92/43/EEC) and considered that is unlikely that there will be any adverse contribution from the LDP when considered "in-combination" with other relevant plans and projects  With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Blaenau Gwent County Borough Council LDP.
Caerphilly County Borough Council LDP	Caerphilly County Borough Council	LDP is throughout Caerphilly County	LDP adopted November 2010, HRA November 2015.	River Usk SAC Aberbargoed Grasslands SAC Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC	The screening assessment found that individually, the majority of policies proposed within the Deposit JLDLP are unlikely to have significant effects on European sites. Any proposed development is likely to come forward through lower level planning applications and there are legal mechanisms in place to ensure that development will not have significant effects on any European sites. The screening also found that the majority of proposed allocations are either in a location (distance from European sites or within an existing settlement) and/or at a scale of proposed development that is not likely to result in any impacts of significance on European sites, or that there are no pathways for any impacts alone. It was determined that these policies are not likely to have significant effects on any European sites alone.  With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Caerphilly County Borough Council LDP.
Rhondda Cynon Taff County Borough Council LDP	Rhondda Cynon Taff County Borough Council	LDP is throughout Rhondda Cynon Taff County	LDP adopted March 2011, HRA	Wye Valley and Forest of Dean SAC	The HRA did not look at the bat SAC's within 30.0km of their county boundary. Based on the policies and objectives of the LDP it is considered that there are no impacts on the bat SAC's.

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
			on draft LDP January 2009	Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC Limestone Coast of South West Wales SAC	With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Rhondda Cynon Taff County Borough Council LDP.
Merthyr Tydfil County Borough Council LDP	Merthyr Tydfil County Borough Council	LDP is throughout the Merthyr Tydfil County	LDP adopted in 2011 however a new LDP is in production	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC River Usk SAC	The existing 2011 LDP has been assessed in the absence of a more up to date LDP. There is no accompanying HRA. The main policies and objectives that may affect a designated site are the development of land for either residential or commercial uses. Each development will be screened at a project level with appropriate mitigation measures for each project. With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Merthyr Tydfil County Borough Council LDP.
Torfaen County Borough Council LDP	Torfaen County Borough Council	LDP is throughout Torfaen County	LDP adopted in December 2013, HRA February 2011 and Assessment of further focussed changes December 2012	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC River Usk SAC River Wye SAC	Torfaen does not contain any European sites, but the assessment of the Deposit LDP considered the Usk Bat site SAC and the River Usk SAC located in neighbouring authorities. Following initial assessment of the LDP Preferred Strategy in 2008, a further screening of European sites undertaken in April 2009 concluded that in relation to the Usk Bat sites SAC there would be no likely significant effects on the SAC (subject to the LDP including specific wording to ensure that site level HRA is applied to specific development proposals) resulting from the implementation of the Deposit LDP. In respect of the River Usk SAC, an Appropriate Assessment of the LDP was undertaken as the HRA could not conclude with certainty that the level of development proposed in the Deposit LDP and surrounding areas would not have adverse in-combination effects on the integrity of the River Usk SAC through reduced water quality and increased water resource demand. Mitigation measures were incorporated into the Deposit LDP to ensure that water resources for new developments are supplied sustainably and water quality monitoring indicators have been added to the

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
Cardiff Council LDP	Cardiff Council	LDP is throughout Cardiff City	LDP adopted January 2016, HRA September 2012	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC Mendip Limestone Grasslands SAC Severn Estuary SAC, SPA and Ramsar	<p>Monitoring Framework. This was supported by policies promoting the protection of the water environment. The AA therefore concluded that with the monitoring and mitigation measures in place, the implementation of the Deposit Plan will not result in adverse in combination effects on the integrity of the River Usk SAC.</p> <p>For the sites not assessed within the LDP HRA, any proposed development is likely to come forward through lower level planning applications and there are legal mechanisms in place to ensure that development will not have significant effects on any European sites.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Torfaen County Borough Council LDP.</p> <p>An assessment was made of the likelihood of significant impact of the Preferred Strategy on eight international sites in and around Cardiff, namely Cardiff Beech Woods SAC, Severn Estuary SAC, SPA, Ramsar Site, the River Usk SAC, the River Wye SAC, Blackmill Woodlands SAC (not within the 2km buffer for the Metro HRA screening) and Aberbargoed Grasslands SAC. Elements of the Preferred Strategy which were judged to have the potential to affect some or all of these sites were considered. Following this screening assessment, none of these policies were considered likely to have a significant effect on any of the international sites either alone or in combination with other plans, projects or programmes.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with The County Council of the City and Council of Cardiff LDP.</p>
Newport City Council LDP	Newport City Council	LDP is throughout Newport City	LDP adopted January 2015, Initial HRA screening January 2010, further screening of revised LDP January 2012 and HRA of the	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC	<p>The initial screening report concluded that the Deposit LDP has the potential for likely significant effects on European and international sites through several pathways. Recommendations were made at this point including amendment of the policy wording and the addition of text to the Policies.</p> <p>In January 2012, further screening of the revised Deposit LDP was carried out by Newport City Council's Ecology Officer. The 2012 screening identified thirteen policies that would require</p>

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
			matters arising from change 2014.	North Somerset & Mendip Bats SAC Severn Estuary SAC, SPA and Ramsar River Wye SAC River Usk SAC	<p>further research to determine if any likely significant effect on European/International sites.</p> <p>To address the issues raised during the screening process, a number of recommendations including additional text into the Plan, were made to ensure that the policies would not cause likely significant effects on the designated sites. An update of the assessment has now been carried out to assess the Matters Arising Changes LDP – June 2014.</p> <p>The HRA concluded that with mitigation, (this includes various policies and caveats found within the plan), there would be no likely significant effect of the Newport Deposit LDP on any of the internationally designated sites within Newport or within a 15km radius of the Newport boundary.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the Newport City Council LDP.</p>
Bridgend County Borough Council LDP	Bridgend County Borough Council	Throughout the Bridgend County	LDP adopted September 2013, HRA September 2013	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC Limestone Coast of South West Wales SAC	<p>The Habitats Regulations Assessment (HRA) of the Bridgend Local Development Plan (LDP) concludes that the plan will have no significant impacts on Natura 2000 sites, alone or in-combination. However, there is the caveat that new development must mitigate against potential adverse impacts that could adversely affect the three identified Special Areas of Conservation (SAC), Blackmill Woodlands SAC, Kenfig SAC and Cefn Cribwr SAC. There was no mention of any of the SAC's that have been screened in for the plan HRA screening. Any proposed development is likely to come forward through lower level planning applications and there are legal mechanisms in place to ensure that development will not have significant effects on any European sites.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS with the Bridgend County Borough Council LDP.</p>
City and County of Swansea Council LDP	City and County of Swansea Council	LDP is throughout Swansea County.	LDP adopted July 2014. HRA June 2011, HRA addendum June 2014.	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC	<p>The HRA assessing the LDP identified that the policies or objectives of the LDP that may have an effect on the coast, air pollution, access and recreational pressures and growth in the areas of the SAC are not considered to have any likely significant effects.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS from the Plan in-combination with the City and County of Swansea Council LDP.</p>

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
<p>People, Places, Futures. The Wales Spatial Plan 2008 Update. Welsh Government</p>	<p>Welsh Government</p>	<p>Throughout Wales</p>	<p>Wales Spatial Plan update 2008, HRA update July 2008</p>	<p>North Somerset &amp; Mendip Bats SAC            Limestone Coast of South West Wales SAC            Wye Valley and Forest of Dean SAC            Wye Valley Woodlands SAC            Usk Bat Sites SAC            Mendip Limestone Grasslands SAC            North Somerset &amp; Mendip Bats SAC            Severn Estuary SAC, SPA and Ramsar            River Wye SAC            River Usk SAC            Aberbargoed Grasslands SAC            River Usk SAC            River Wye SAC            Cardiff Beechwoods SAC            Limestone Coast of South West Wales SAC</p>	<p>The HRA screening process concluded that it was not possible to confirm that the spatial plan, alone or in combination with other plans or projects, would not have a significant effect on European and international sites in Wales, its offshore waters and across the border in England. An appropriate assessment was therefore carried out but the aspirational and non-locational nature of the Wales Spatial Plan meant that it was difficult to make an assessment. Therefore, a HRA will be carried out in greater detail in relation to the lower tier plans, action plans, programmes which enable the delivery of the Welsh Spatial Plan. The level of detail within those plans and programmes should be sufficient to enable the assessment process to be carried out.</p> <p>The screening process concluded that it was not possible confirm that the WSPU would not give rise to adverse effects upon European sites. An Appropriate Assessment was conducted, the Appropriate Assessment considered "in broad terms" the types of action that might affect European sites. The Appropriate Assessment found that the key actions and in combination effects with other plans and projects that may affect European sites are: urban and economic development activities; water abstraction and water pollution; recreation and tourist pressures; provision of energy and transport infrastructure.</p> <p>As a result of the proposed avoidance and mitigation measures included within the Delivery Framework document which have been identified in the HRA, it has been possible to conclude that the Wales Spatial Plan will not adversely affect the integrity of the European and international sites described above, either alone or in combination with other plans or projects.</p> <p>For the objectives and policies assessed within the Wales Spatial Plan, any proposed development is likely to come forward through lower level planning applications and there are legal mechanisms in place to ensure that development will not have significant effects on any European sites.</p>

Full Description	Main Location and Applicant Details	Approximate distance from the proposed plan at the nearest point	Decision Date	Sites possibly affected	Description of the project or plan and Assessment of Significance
Dŵr Cymru Welsh Water Water Resources Management Plan	Dŵr Cymru Welsh Water	Wales-wide	Water Resources Management Plan April 2014, HRA of revised draft Water Resources Management Plan December 2013	Wye Valley and Forest of Dean SAC Wye Valley Woodlands SAC Usk Bat Sites SAC Mendip Limestone Grasslands SAC North Somerset & Mendip Bats SAC Severn Estuary SAC, SPA and Ramsar River Wye SAC River Usk SAC Aberbargoed Grasslands SAC River Usk SAC River Wye SAC Cardiff Beechwoods SAC Limestone Coast of South West Wales SAC	<p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS with the Wales Spatial Plan.</p> <p>The HRA focuses on the likely outcomes of the Water Resources Management Plan, the likely effects of the specific schemes that it advocates to resolves deficits and relies on the conclusions of the Review of Consents being robust. Once a project is proposed. each project feasibility is assessed for impacts on designated sites. As such, any proposed development is likely to come forward through lower level planning applications and there are legal mechanisms in place to ensure that development will not have significant effects on any European sites.</p> <p>With the information available, it is reasonably foreseeable that there are NO LIKELY IN-COMBINATION EFFECTS with the Dŵr Cymru Welsh Water Water Resources Management Plan.</p>

## 8 Consultations

Consultations are being undertaken and will be reported in this section.

## 9 Conclusion

An assessment of likely significant effects on European sites within 2.0km (20.0km for otter SAC's and 30.0km for bat SAC's) of the Plan was undertaken. Thirteen designated sites were identified as being within the Zol of the Plan. The proposed Plan is entirely within the existing transport corridors for the majority of the route (apart from new stations, depots and re-opening of historic lines). The main impact of the proposed plan that may have an impact on European sites is considered to be potential loss of habitat and disruption to bat flight corridors. However, the vegetation clearance at this point in the project is considered likely to be minimal due to the current maintenance regime (i.e. ongoing regular clearance) of the rail operations and it is assumed that connective corridors will be left on the boundary of the railway. Where this is not the case, appropriate (prescribed) compensatory habitat creation will be provided if necessary. Also, due to the modernisation of trains we anticipate that the effects of air pollution, noise and vibration will be reduced even with a more frequent compared to the current situation. Each subsequent stage of the plan will be subject to project specific Habitats Regulation Assessment Screenings.

**Table 10: Summary table of possible impacts on designated sites**

Designated site	Key Features	Possible Impact
River Usk / Afon Wysg SAC	<ul style="list-style-type: none"> <li>Book lamprey</li> <li>River lamprey</li> <li>Sea lamprey</li> <li>Twaite shad and Allis shad</li> <li>Atlantic salmon</li> <li>Bullhead</li> <li>Otter</li> <li>Water courses of plain to montane levels with the Ranunculion</li> </ul>	No likely significant effects provided the suggested mitigation is incorporated in to the next stages of the plan delivery. Mitigation for working near this site includes producing a CEMP to ensure that working near the water course includes preventing disturbance to faunal species and pollution prevention measures are included.
River Wye SAC	<ul style="list-style-type: none"> <li>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation</li> <li>Transition mires and quaking bogs</li> <li>White-clawed (or Atlantic stream) crayfish</li> <li>Sea lamprey</li> <li>Brook lamprey</li> <li>River lamprey</li> <li>Twaite shad</li> <li>Allis shad</li> <li>Bullhead</li> <li>Otter</li> <li>Atlantic salmon</li> </ul>	No likely significant effects provided the suggested mitigation is incorporated in to the next stages of the plan delivery. Mitigation for working near this site includes producing a CEMP to ensure that working near the water course includes preventing disturbance to faunal species and pollution prevention measures are included.
Usk Bat Sites SAC	<ul style="list-style-type: none"> <li>Lesser horseshoe bat</li> </ul>	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.

Designated site	Key Features	Possible Impact
Aberbargoed Grassland SAC	Marsh fritillary Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caerulea</i> ).	No likely significant effects.
Cardiff Beech Woods SAC	Asperulo-Fagetum beech forests	No likely significant effects
North Somerset and Mendip Bats SAC	Lesser horseshoe bat and greater horseshoe bat	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.
Mendip Limestone Grasslands SAC	Greater horseshoe bat	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.
Limestone Coast of South West Wales SAC	Greater horseshoe bat	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.
Wye Valley Woodlands SAC	Lesser horseshoe bat	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.
Wye Valley and Forest of Dean Bat sites SAC	Lesser and greater horseshoe bat	No likely significant effects provided the suggested mitigation is incorporated in the next stages of the plan delivery. Mitigation for working near this site is no severance of vegetation of more than 10m in length along the length of the route. There may be exceptions to this which will be assessed on a project basis once the design is known.
Severn Estuary SAC	River lamprey Estuary Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by sea water all the time Reefs Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )	No likely significant effects
Severn Estuary SPA	Estuaries, mudflats and sandflats not covered by seawater at low tide, Sandbanks which are slightly covered by sea water all the time & reefs. Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ), Sea lamprey, river lamprey & twaite shad. Bewick's swan Ringed plover Curlew Dunlin	No likely significant effects

Designated site	Key Features	Possible Impact
	Pintail Redshank Shelduck Gadwall Wigeon Lapwing Teal Mallard Shoveler Tufted duck Grey plover White-fronted goose Whimbrel	
Severn Estuary Ramsar	Sandbanks which are slightly covered by sea water all the time, Estuaries, mudflats and sandflats not covered by seawater at low tide, Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ), Migratory fish (including Salmon, sea trout, sea lamprey, allis shad, twaite shad and eel) Waterfowl of international importance (including Tundra swan, greater white-fronted goose, common shelduck, Gadwall, Dunlin, common redshank, ringed plover, Eurasian teal, northern pintail and lesser black-backed gull)	No likely significant effects

Source: Mott MacDonald Limited 2017

The proposed Plan is not directly connected with or necessary to site management for nature conservation of any European protected site, therefore screening has been completed.

The HRA screening concludes that the Plan as a standalone Plan is unlikely to result in a likely significant effect on any European site or their associated features.

Further, the assessment of in-combination effects of the Plan and other projects or plans identified no likely in-combination effects as (assuming appropriate mitigation is applied) the plan is likely to result in limited habitat fragmentation severance No other plans or projects have been identified as affecting the designated sites.

The potential impacts of the plan and the associated ecological mitigation will be assessed as the design progresses to detailed stage and mitigation will be incorporated into future stages of the plan from design to construction to mitigate impacts which may otherwise result from fragmentation of habitat, disturbance other identified potential impacts as set out in this report.

This HRA Task 1 screening considers that the proposed Metro Plan, either alone or in-combination, is not likely to have a significant effect on any European site or their associated features.

## 10 References

Berthinussen, A. and Altringham, J. (2015) Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure. Defra contract report WC1060

Blaenau Gwent Council. [www.blaenau-gwent.gov.uk](http://www.blaenau-gwent.gov.uk). (accessed on the week commencing 25/07/17 to review the LDP)

Bridgend County Borough Council. [www.bridgend.gov.uk](http://www.bridgend.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Caerphilly County Borough Council. [www.caerphilly.gov.uk](http://www.caerphilly.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Cardiff Council. [www.cardiff.gov.uk](http://www.cardiff.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Chapman, C. & Tyldesley, D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number 207.

Department for Communities and Local Government, 2006. Planning for the Protection of European Sites: Appropriate Assessment Under The Conservation (Natural Habitats, &C) (Amendment) (England and Wales) Regulations 2006 Guidance For Regional Spatial Strategies. [pdf] Available at:  
<http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/160442.pdf>

Department for Environment, Food and Rural Affairs (Defra), 2013. Habitats Regulations Assessments (draft for consultation) [pdf] Available at:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/82706/habitats-simplify-guide-draft-20121211.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82706/habitats-simplify-guide-draft-20121211.pdf)

Environment Act Wales (2016). <http://www.legislation.gov.uk/anaw/2016/3/contents>

European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive 92.43.EEC

European Commission (2002) Methodological guidance on the provisions of article 6.3 and 6.4 of the Habitats Directive 92.43.EEC

Highways Agency 2009, Design Manual for Roads and Bridges (DMRB) Volume 11 HD 44/09. Assessment of Implications on European Sites.

European Commission, 2001. Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. [pdf] Office for Official Publications of the European Communities. Available at:  
[http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura\\_2000\\_asses\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_asses_en.pdf)

JNCC website - [www.JNCC.gov.uk](http://www.JNCC.gov.uk) (All data was accessed during week commencing 25<sup>th</sup> May 2017)

Merthyr County Borough Council. [www.merthyr.gov.uk](http://www.merthyr.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Monmouth County Council. [www.monmouthshire.gov.uk](http://www.monmouthshire.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Natural England, 2017. Designated Sites View. [online] Available at: <https://designatedsites.naturalengland.org.uk/>

Natural Resources Wales, 2017. Designated Sites Search and Core Management Plans. [online] Available at: <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/designated-sites/?lang=en>

Neath Port Talbot County Borough Council. [www.npt.gov.uk](http://www.npt.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Newport City Council. [www.rctcbc.gov.uk](http://www.rctcbc.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Rhondda Cynon Taff County Borough Council. [www.rctcbc.gov.uk](http://www.rctcbc.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Swansea County Council. [www.swansea.gov.uk](http://www.swansea.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Torfaen County Borough Council. [www.torfaen.gov.uk](http://www.torfaen.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

Tyldesley, D. 2011 Assessing projects under the Habitats Directive: guidance for competent authorities. Report to the Countryside Council for Wales, Bangor.

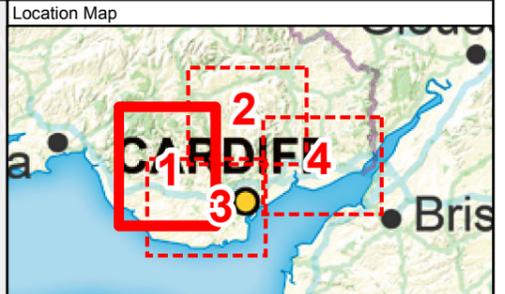
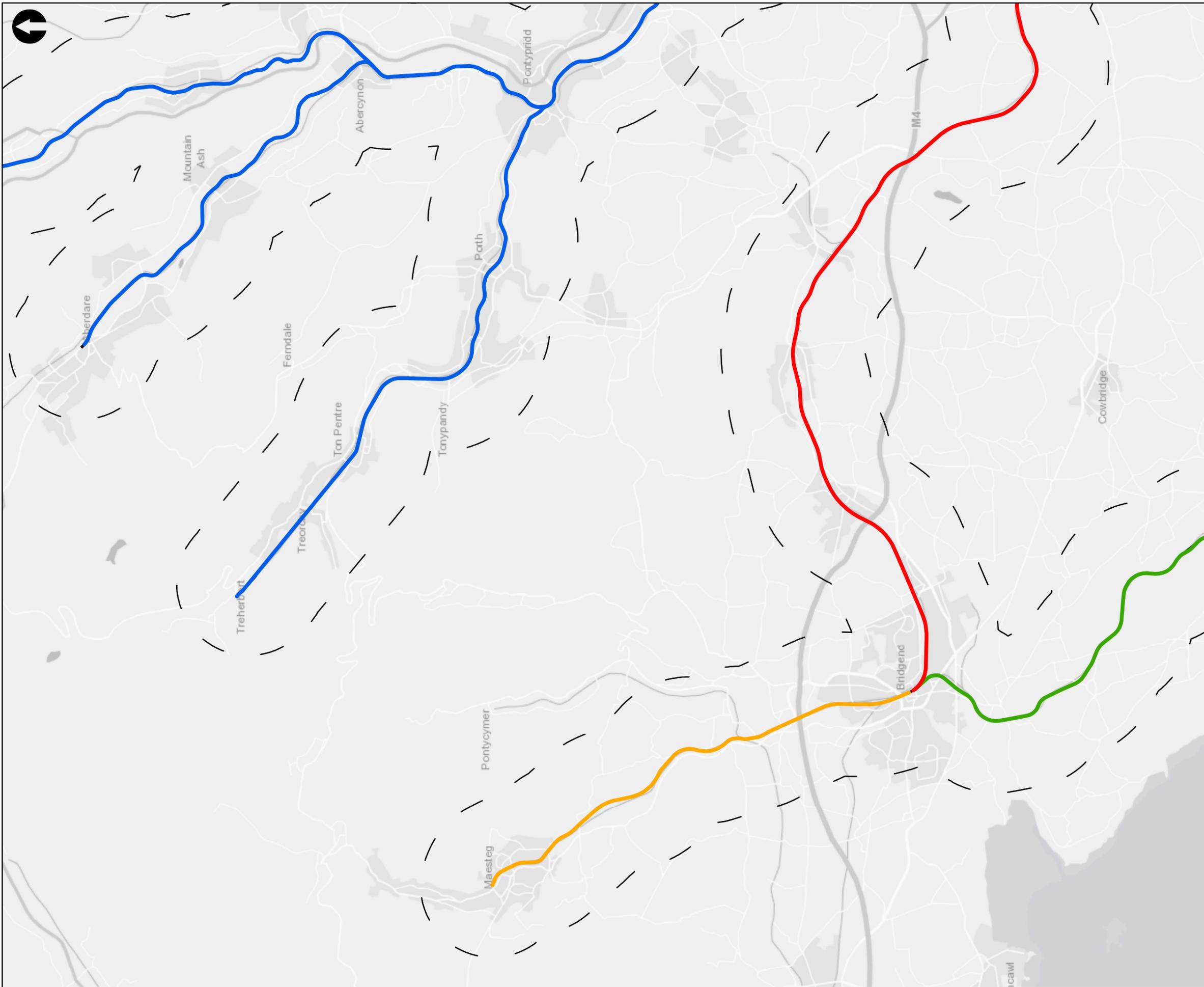
Tyldesley, D., 2012, Draft Guidance for Plan Making Authorities in Wales: The Appraisal of Plans under the Habitats Regulations. Report to the Countryside Council for Wales CCW Bangor.

Vale of Glamorgan Council. [www.valeofglamorgan.gov.uk](http://www.valeofglamorgan.gov.uk) (accessed on the week commencing 25/07/17 to review the LDP)

# Appendices

A.	European Sites Drawings	60
B.	Intervention Options	61

## A. European Sites Drawings



**Key to Symbols**

- █ River Usk SAC
- Transit Route Scheme**
- █ Included in Phase 2
- █ Possible inclusion in Phase 2 or follow up phases
- █ Requires further study before inclusion in future phases
- █ Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 2km site buffer

**Notes**

1. For information only, not for construction.
2. Contains public sector information licensed under the Open Government Licence v3.0: (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)
3. Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott MacDonald 0100026791

P2	24/08/17	MH	For Information	JB	CRW
P1	22/05/17	CE	For Information	JB	CW
Rev	Date	Drawn	Description	Ch'k'd	App'd

**M M**  
**MOTT MACDONALD**

Fitzalan House  
 Fitzalan Road  
 Cardiff  
 CF24 0EL  
 T +44 (0)2920 467800  
 F +44 (0)2920 467801  
 W mottmac.com

**Client**

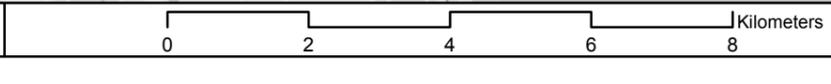
Transport for Wales  
 Southgate House  
 Wood Street  
 Cardiff, CF10 1EW  
 United Kingdom

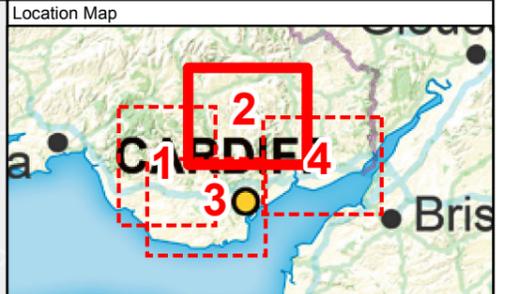
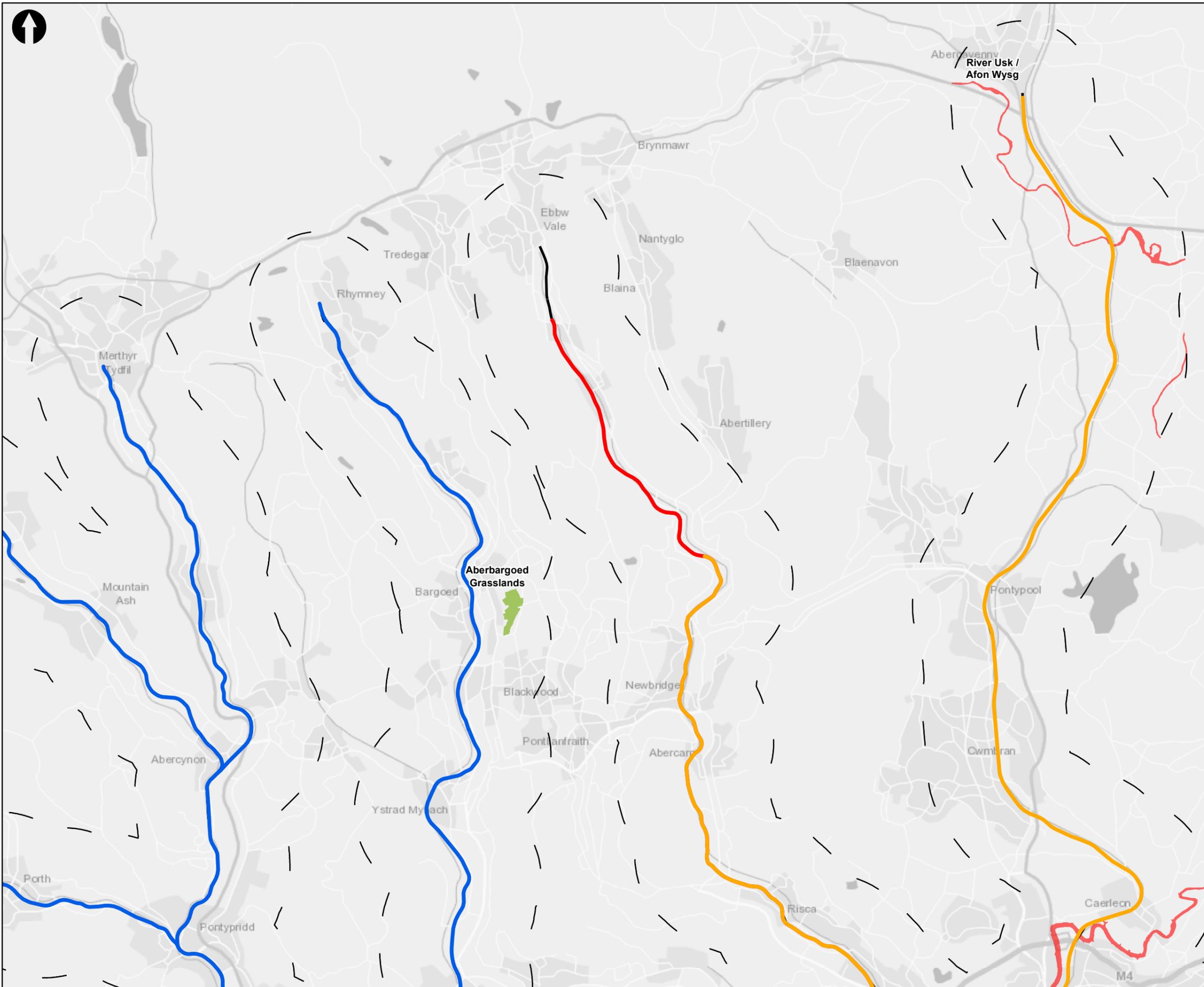
**Title**

South Wales Metro - Task Order 8  
 Designated Sites Constraints Drawing  
 European Designated Sites within 2km  
 Sheet 1 of 4

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:100,000	INF	P2	STD





**Key to Symbols**

- Aberbargoed grasslands Special Area of Conservation (SAC)
- River Usk SAC
- River Wye SAC
- Severn estuary SAC
- Severn estuary Special Protection Area (SPA)
- Severn estuary Ramsar

**Transit Route Scheme**

- Included in Phase 2
- Requires further study before inclusion in future phases
- Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 2km site buffer

**Notes**

1. For information only, not for construction.  
 2. Contains public sector information licensed under the Open Government Licence v3.0: (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)  
 3. Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott MacDonald 0100026791

P2	24/08/17	MH	For Information	JB	CRW
P1	22/05/17	CE	For Information	JB	CW
Rev	Date	Drawn	Description	Ch'k'd	App'd

**M M**  
**MOTT MACDONALD**

Fitzalan House  
 Fitzalan Road  
 Cardiff  
 CF24 0EL  
 T +44 (0)2920 467800  
 F +44 (0)2920 467801  
 W mottmac.com

**Client**

Transport for Wales  
 Southgate House  
 Wood Street  
 Cardiff, CF10 1EW  
 United Kingdom

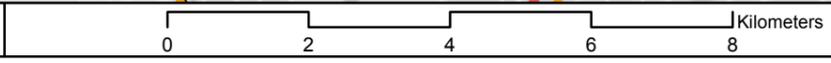
**Title**

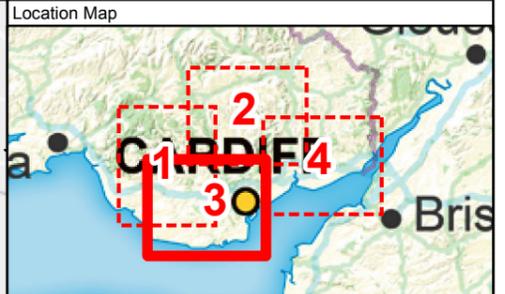
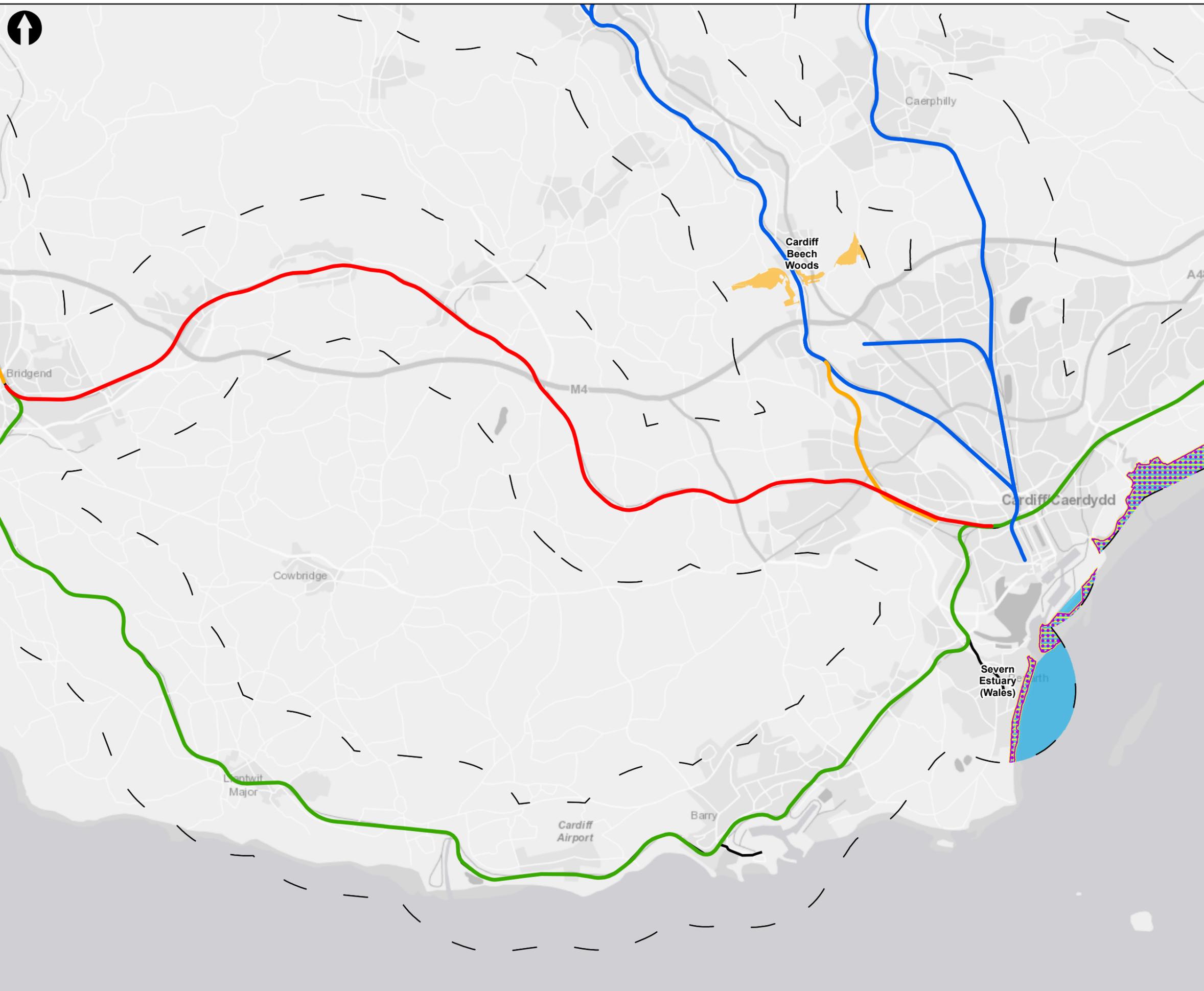
South Wales Metro - Task Order 8  
 Designated Sites Constraints Drawing  
 European Designated Sites within 2km  
 Sheet 2 of 4

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:100,000	INF	P2	STD

Drawing Number  
**367590-MMD-00-XX-DR-C-0801**





**Key to Symbols**

- River Usk SAC
- Cardiff beech woods SAC
- Severn estuary SAC
- Severn estuary Special Protection Area (SPA)
- Severn estuary Ramsar

**Transit Route Scheme**

- Included in Phase 2
- Possible inclusion in Phase 2 or follow up phases
- Requires further study before inclusion in future phases
- Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 2km site buffer

**Notes**

1. For information only, not for construction.  
 2. Contains public sector information licensed under the Open Government Licence v3.0: (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)  
 3. Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott MacDonald 0100026791

P2	24/08/17	MH	For Information	JB	CRW
P1	22/05/17	CE	For Information	JB	CW
Rev	Date	Drawn	Description	Ch'k'd	App'd

**M**  
**MOTT MACDONALD**

Fitzalan House  
 Fitzalan Road  
 Cardiff  
 CF24 0EL  
 T +44 (0)2920 467800  
 F +44 (0)2920 467801  
 W mottmac.com

**Client**

Transport for Wales  
 Southgate House  
 Wood Street  
 Cardiff, CF10 1EW  
 United Kingdom

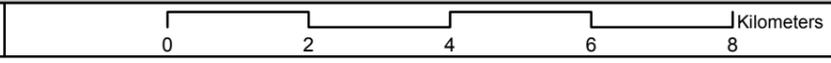
**Title**

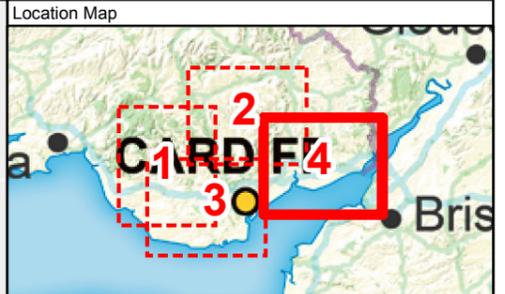
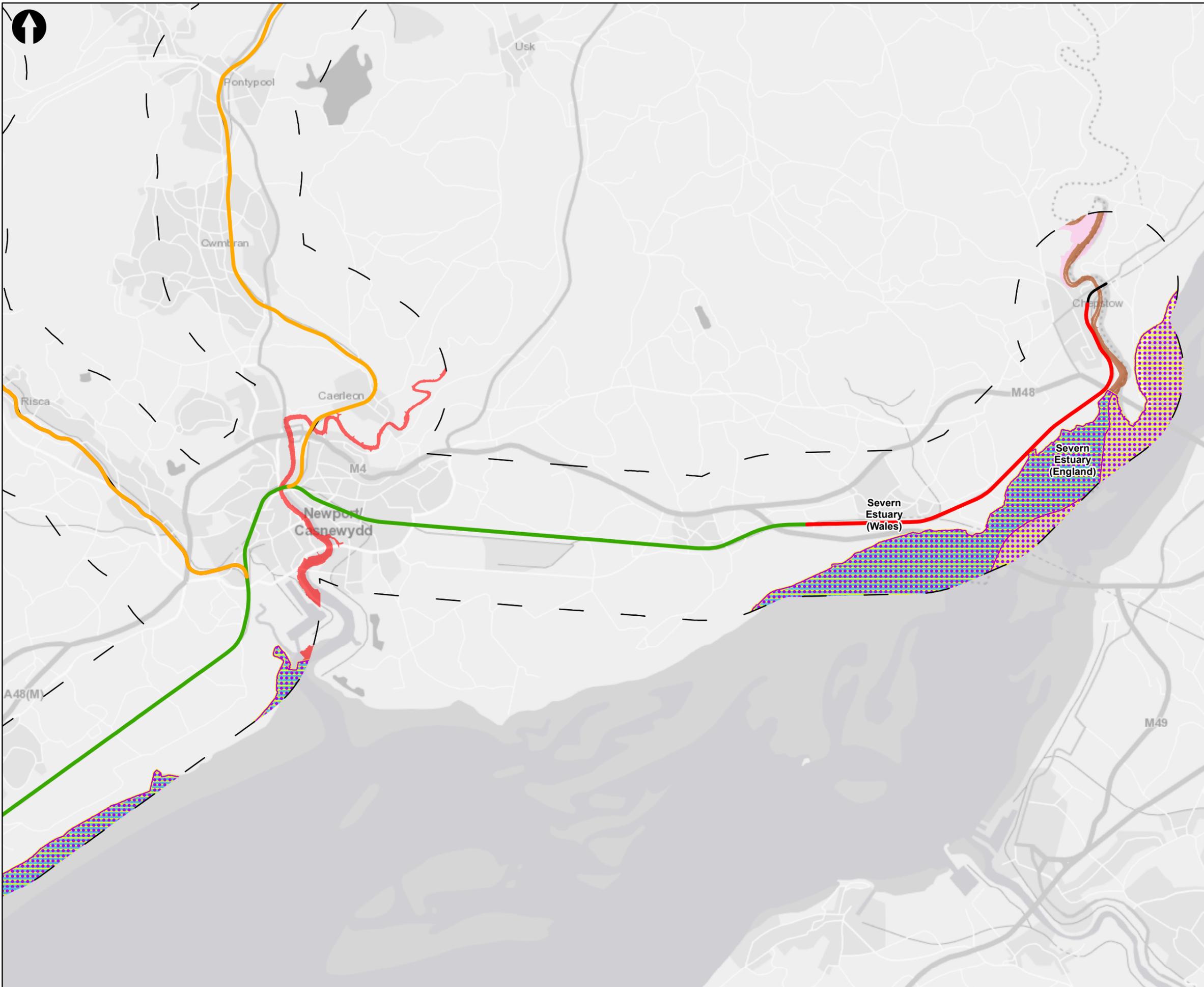
South Wales Metro - Task Order 8  
 Designated Sites Constraints Drawing  
 European Designated Sites within 2km  
 Sheet 3 of 4

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:100,000	INF	P2	STD

Drawing Number  
**367590-MMD-00-XX-DR-C-0801**





**Key to Symbols**

- River Usk SAC
- River Wye SAC
- Severn estuary SAC
- Wye valley woodlands SAC
- Severn estuary Special Protection Area (SPA)
- Severn estuary Ramsar

**Transit Route Scheme**

- Possible inclusion in Phase 2 or follow up phases
- Requires further study before inclusion in future phases
- Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 2km site buffer

**Notes**

1. For information only, not for construction.
2. Contains public sector information licensed under the Open Government Licence v3.0: (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)
3. Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott Macdonald 0100026791

P2	24/08/17	MH	For Information	JB	CRW
P1	22/05/17	CE	For Information	JB	CW
Rev	Date	Drawn	Description	Ch'k'd	App'd

**M M**  
**MOTT MACDONALD**

Fitzalan House  
 Fitzalan Road  
 Cardiff  
 CF24 0EL  
 T +44 (0)2920 467800  
 F +44 (0)2920 467801  
 W mottmac.com

**Client**

Transport for Wales  
 Southgate House  
 Wood Street  
 Cardiff, CF10 1EW  
 United Kingdom

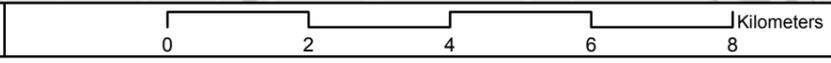
**Title**

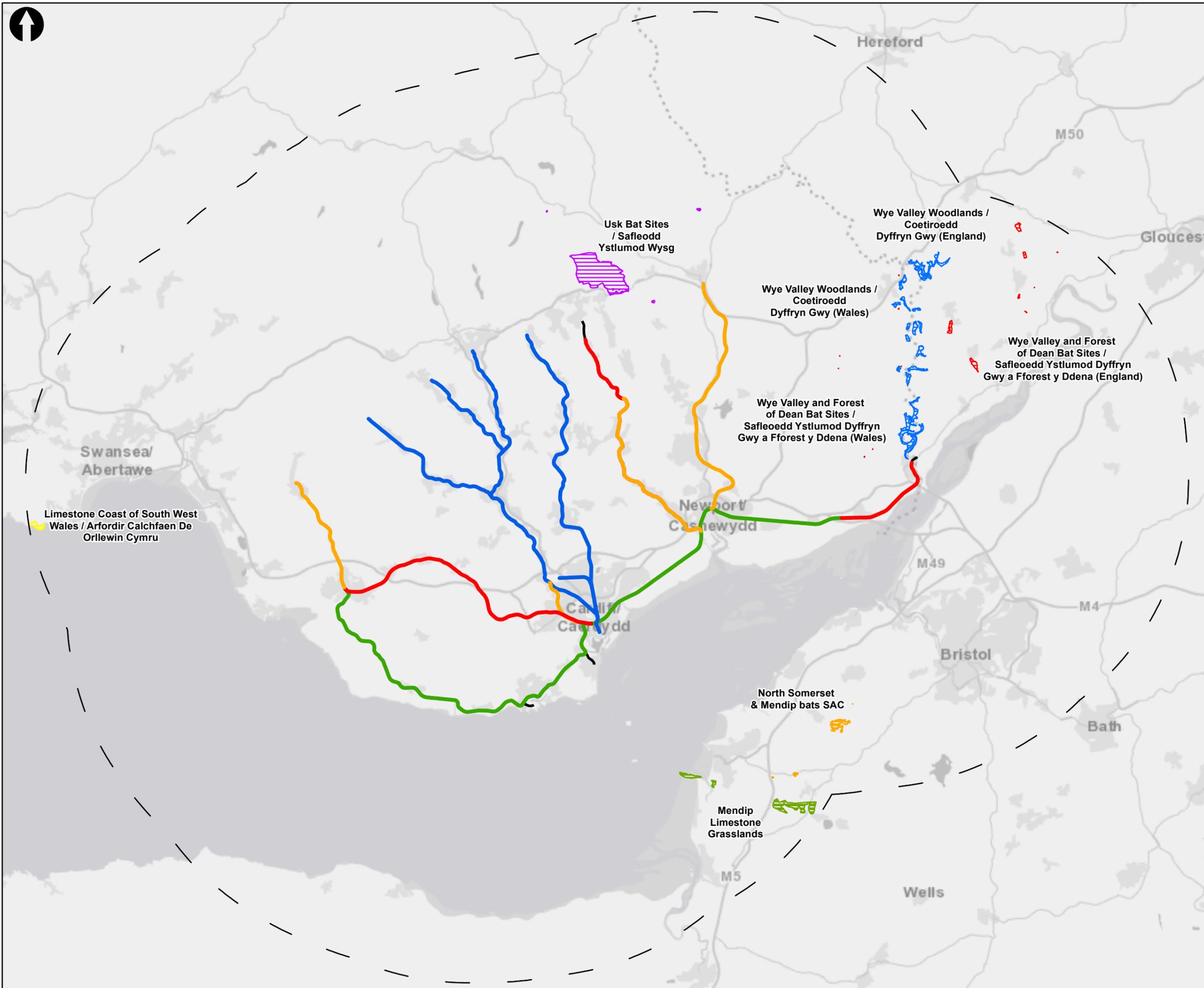
South Wales Metro - Task Order 8  
 Designated Sites Constraints Drawing  
 European Designated Sites within 2km  
 Sheet 4 of 4

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:100,000	INF	P2	STD

Drawing Number  
**367590-MMD-00-XX-DR-C-0801**





**Key to Symbols**

- Wye valley woodlands Special Area of Conservation (SAC)
- Wye valley and Forest of Dean bat sites SAC
- Limestone coast of south west Wales SAC
- Usk bat sites SAC
- Mendip limestone grasslands SAC
- North Somerset & Mendip bats SAC

**Transit Route Scheme**

- Included in Phase 2
- Possible inclusion in Phase 2 or follow up phases
- Requires further study before inclusion in future phases
- Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 30km site buffer

**Notes**

- For information only, not for construction.
- Contains public sector information licensed under the Open Government Licence v3.0. (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)
- Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott Macdonald 0100026791

P2	24/08/17	MH	For information	JB	CRW
P1	22/05/17	CE	For information	JB	CRW
Rev	Date	Drawn	Description	Ch'k'd	App'd

**M M**  
**MOTT MACDONALD**

Fitzalan House  
 Fitzalan Road  
 Cardiff  
 CF24 0EL  
 T +44 (0)2920 467800  
 F +44 (0)2920 467801  
 W mottmac.com

**Client**

Transport for Wales  
 Southgate House  
 Wood Street  
 Cardiff, CF10 1EW  
 United Kingdom

**Title**

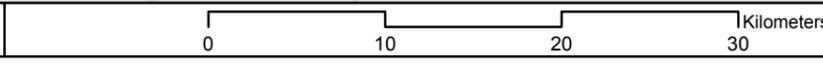
South Wales Metro - Task Order 8  
 Designated Sites Constraints Drawing  
 Bat Sites - 30km

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:400,000	INF	P2	STD

Drawing Number  
**367590-MMD-00-XX-DR-C-0802**

© Mott MacDonald Ltd.  
 This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose.  
 We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.





Key to Symbols

- River Wye Special Area of Conservation (SAC)
- River Usk SAC
- Transit Route Scheme**
- Included in Phase 2
- Possible inclusion in Phase 2 or follow up phases
- Requires further study before inclusion in future phases
- Discontinued from future consideration at present
- Unidentified Scheme Metro lines
- 20km site buffer

Notes

1. For information only, not for construction.
2. Contains public sector information licensed under the Open Government Licence v3.0: (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>)
3. Contains Ordnance Survey data © Crown copyright and database right 2017 Ordnance Survey. All rights reserved. Mott Macdonald 0100026791

P2	24/08/17	MH	For Information	JB	CRW
P1	22/05/17	CE	For Information	JB	CRW
Rev	Date	Drawn	Description	Ch'k'd	App'd

M

M

MOTT  
MACDONALD

Fitzalan House  
Fitzalan Road  
Cardiff  
CF24 0EL  
T +44 (0)2920 467800  
F +44 (0)2920 467801  
W mottmac.com

Client

Transport for Wales  
Southgate House  
Wood Street  
Cardiff, CF10 1EW  
United Kingdom

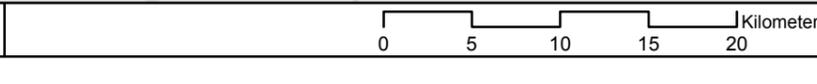
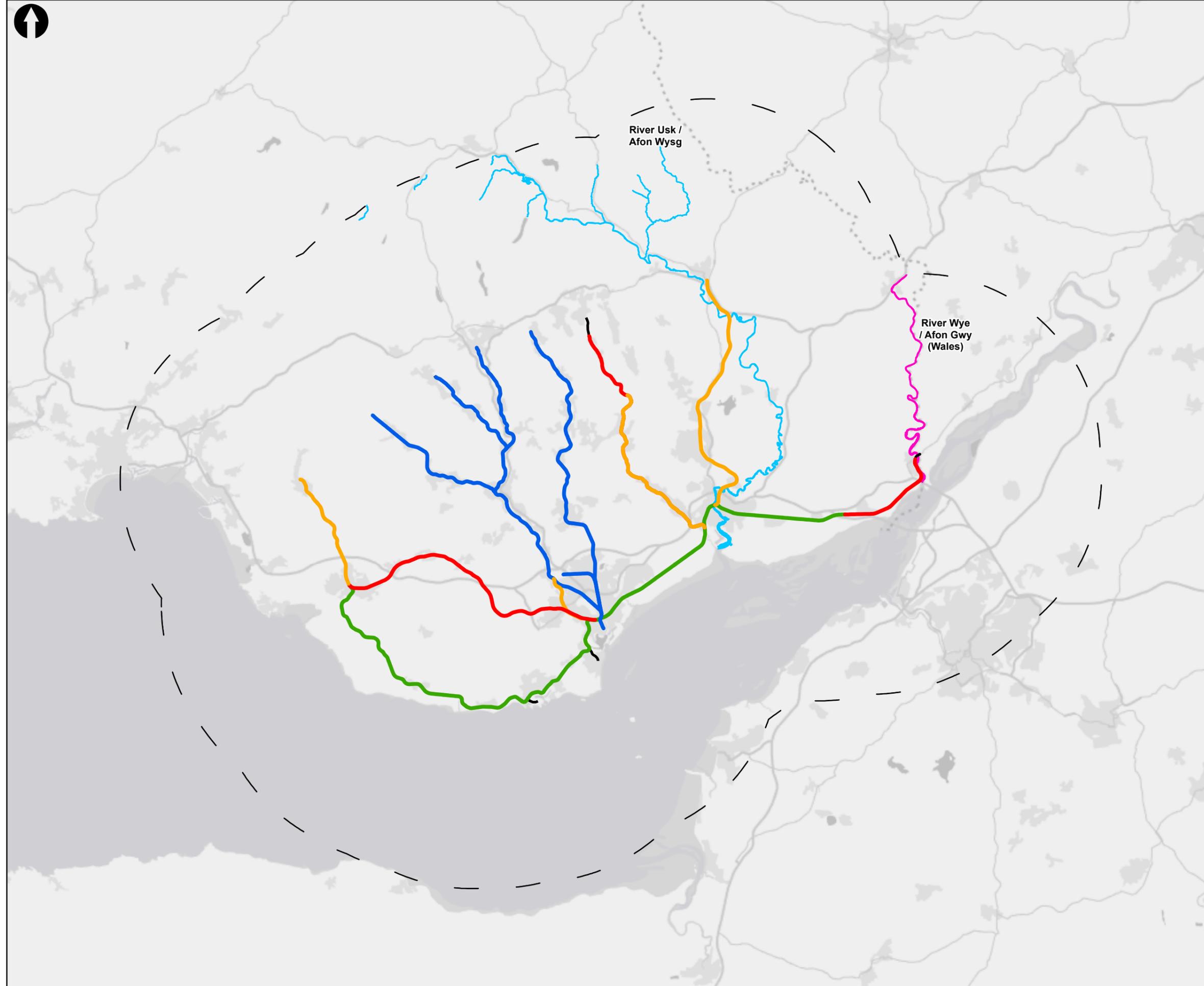
Title

South Wales Metro - Task Order 8  
Designated Sites Constraints Drawing  
Other Sites within 20km

Designed	N/A	N/A	Eng Check	J Bates	JB
Drawn	M Hayward	MH	Coordination	J Bates	JB
GIS Check	I Williams	IW	Approved	C Williams	CRW

Scale at A3	Status	Rev	Security
1:400,000	INF	P2	STD

Drawing Number  
**367590-MMD-00-XX-DR-C-0803**



## **B. Intervention Options**

# 1. Rhymney Line Package - LR Core Network >>

Scheme 1 - LR conversion of existing HR line between Cardiff Queen St & Rhymney - Cost £204.5m - Advantage over HR electric scheme (2) in most outcome criteria however lower rating for deliverability

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

Scheme 9 - LR conversion of existing HR freight line from Trelewis toward Dowlais - Cost £70m - Scores well for reduced journey times and customer experience but serves limited number of communities. Further feasibility required regarding costs and demand

Scheme 10 - LR on-street link from Trelewis to Merthyr line joining existing HR alignment near Quakers Yard - Cost £45.9m - Offers link between Valley Line network including possibility of freight service rerouting but low scoring for journey times and deliverability

Scheme 8 - LR conversion of existing HR freight line from Ystrad Mynach to Trelewis - Cost £41.9m - Scores well for reduced journey time and customer experience offering new services to existing communities

Scheme 142 - Park & Ride @ Ystrad Mynach - Cost £1.4m - Good demand and accessibility though maybe impacted by Trelewis spur proposals

Scheme 149 - Park & Ride @ Bargoed - Cost £2.1m - Good accessibility and customer benefit but low expected demand

Scheme 161 - Park & Ride @ Pengam - Cost £2.1m - Good scoring across all metrics but further work required to understand impacts of Core network proposals and Blackwood spur

Scheme 11 - LR re-instatement of old HR alignment from Hengoed to Blackwood (includes on-street to South & East of Blackwood) - Cost £96.2m - Scores well across outcome criteria though deliverability score is low and requires further investigation to progress

Scheme 211 - Ystrad Mynach station upgrade - Good rail frequency (4tph) with potential to intercept park and ride trips. Current location for rail/bus link to Blackwood. May be worth exploring as part of P&R option

Scheme 164 - Park & Ride @ Llanbradach - Cost £2.1m - Low expected demand

Scheme 127 - BRT priority measures from Cardiff to Caerphilly / Blackwood / Bargoed - Good service benefits and strong deliverability

Scheme 233 - LR from Llanishen station to Cardiff Gate via B4562 & new alignment terminating near Pentwyn Link Rd - Slightly better scoring than BRT alternatives (runtime and increased use) but further feasibility required particularly around CBA over BRT alternative (Scheme 18)

Scheme 166 - Park & Ride @ Cardiff Gate - Cost £8.7m - High expected demand and good accessibility. Major benefit relies on LR or BRT scheme to be taken forward

Scheme 13 - LR station @ Wedal Rd (Rhymney line HR alignment) - Cost £5.2m - Strong demand expected and existing bus service is weaker than at Crwys Rd

Scheme 12 - LR station @ Crwys Rd (Rhymney line HR alignment) - Cost £5.3m - Strong existing bus service impacts score however further demand forecasting recommended due to high density of surrounding housing

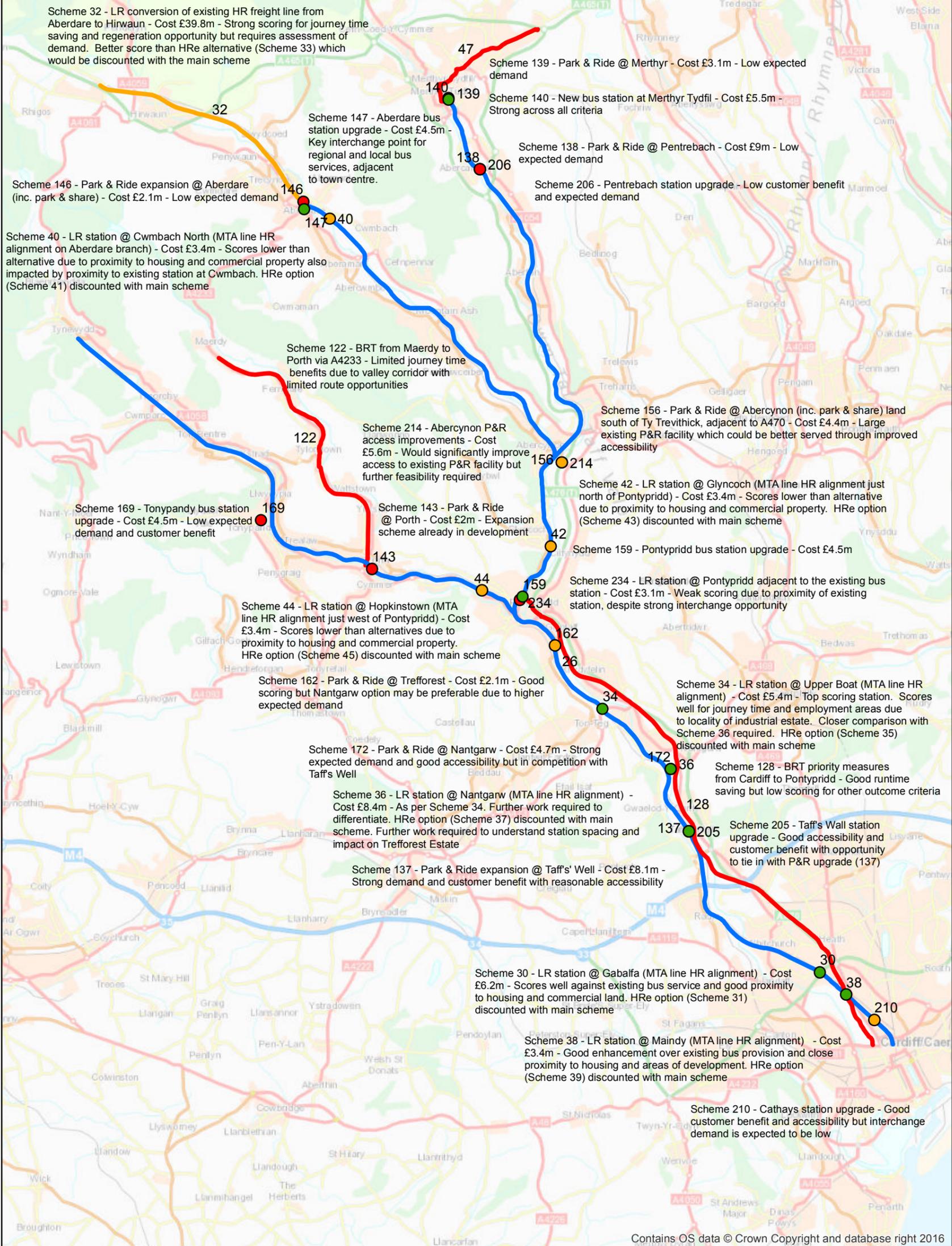
Scheme 5 - LR conversion of existing HR line from Cardiff Queen St to Cardiff Central - Cost £20m - Weakest scoring LR connection between CDF and CDQ however further feasibility on best connection is required. Limited additional accessibility benefits but required to deliver direct services to Central Station

## 2. MTA Lines Package - LR Core Network >>

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

Scheme 26 - LR conversion of existing HR lines between Cardiff Queen St and Merthyr / Treherbert / Aberdare - Cost £272m - Strong scoring compared to HRe scheme (Scheme 27) across most outcome criteria. Lower deliverability score does not impact ranking against HRe option

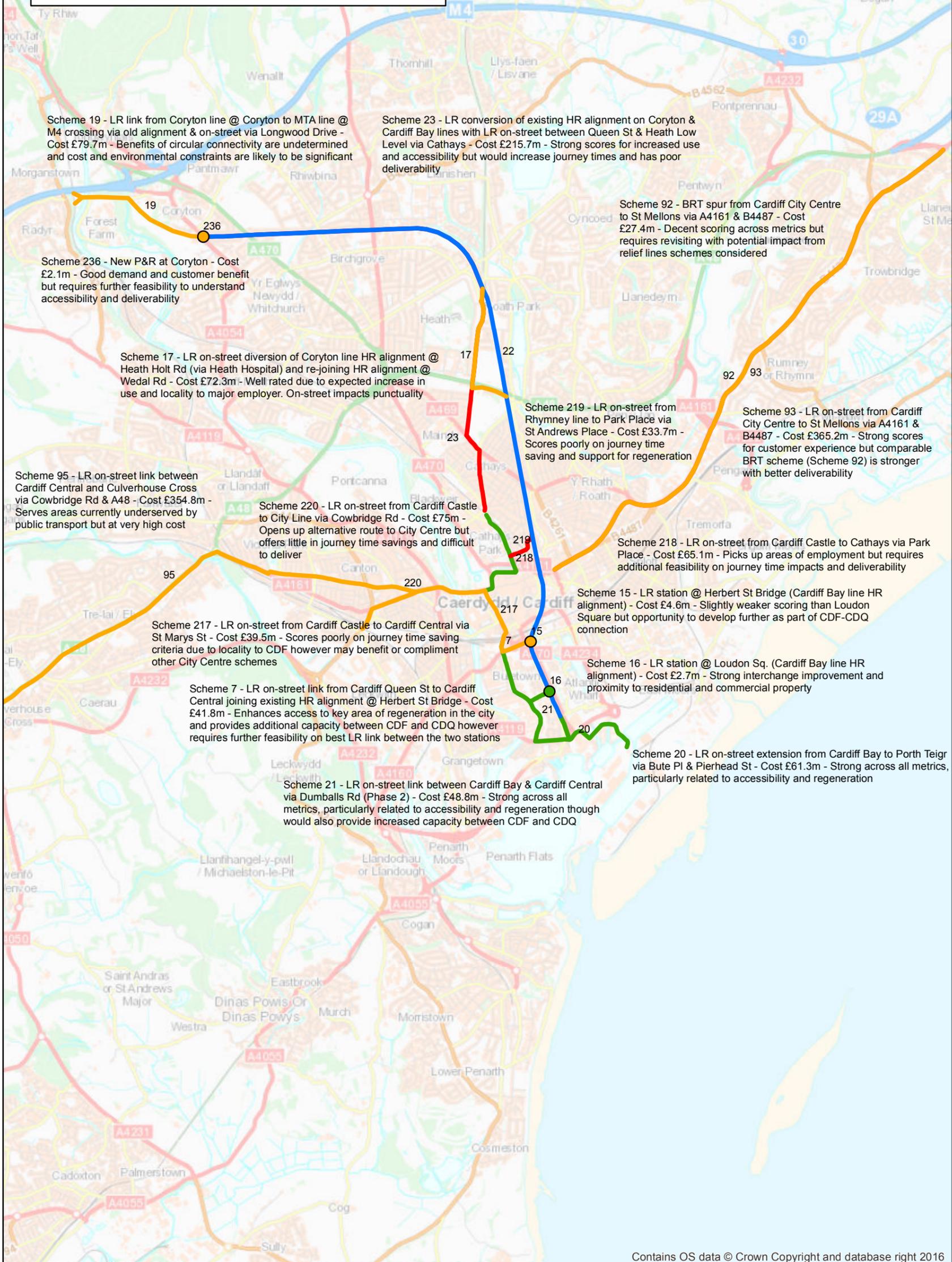


### 3. Central Cardiff On-Street Package - LR Core Network >>

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

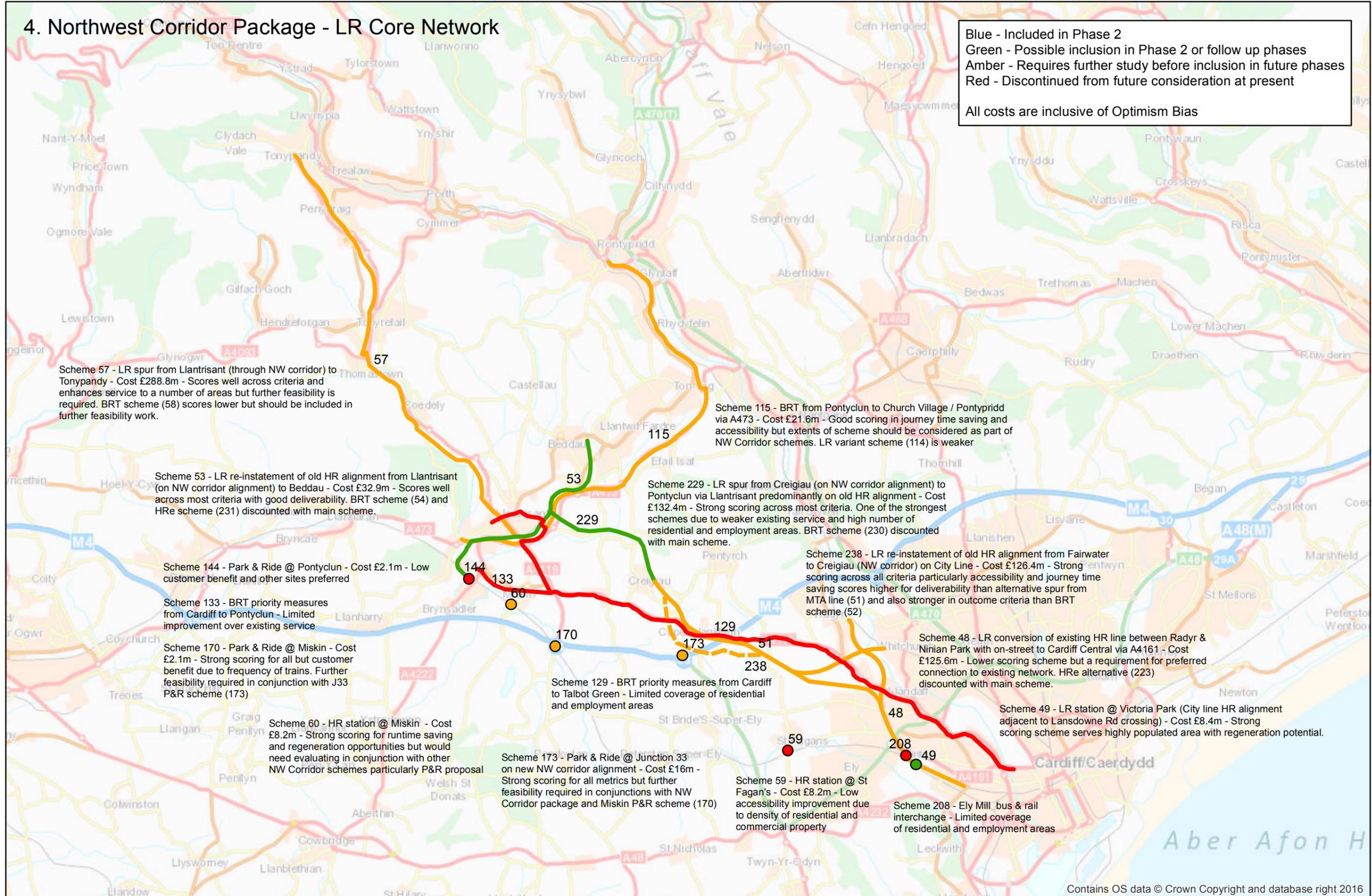
Scheme 22 - LR conversion of existing HR alignment on Coryton & Cardiff Bay lines - Cost £100.4m - Stronger score than Bay Line only schemes (Schemes 3, 4 and 222) due to strength of existing Bay service. Scores slightly lower than BRT scheme (Scheme 24) with on-street through Cathays but preferred due to network connectivity and continuity



## 4. Northwest Corridor Package - LR Core Network

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias



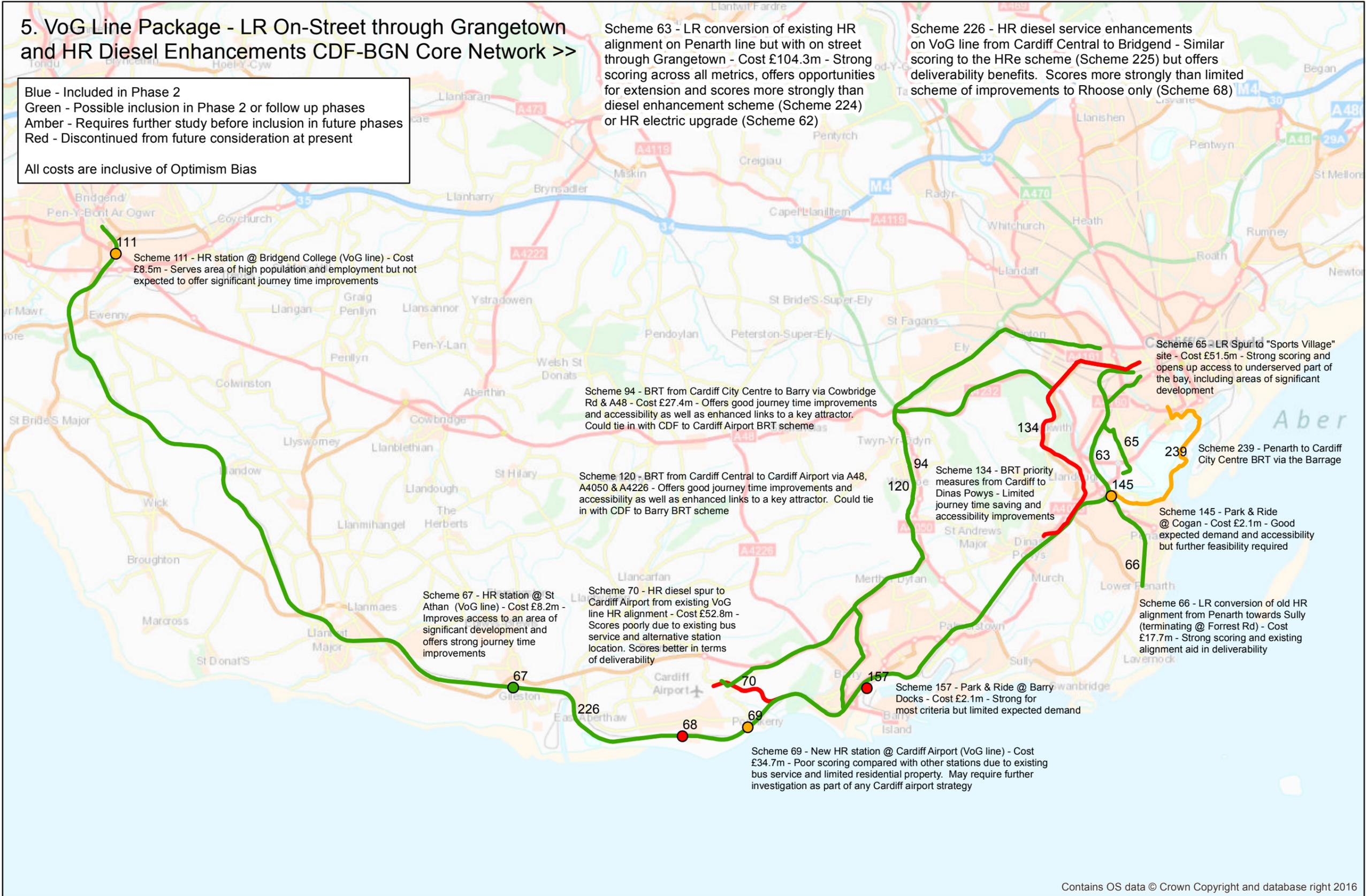
## 5. VoG Line Package - LR On-Street through Grangetown and HR Diesel Enhancements CDF-BGN Core Network >>

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

Scheme 63 - LR conversion of existing HR alignment on Penarth line but with on street through Grangetown - Cost £104.3m - Strong scoring across all metrics, offers opportunities for extension and scores more strongly than diesel enhancement scheme (Scheme 224) or HR electric upgrade (Scheme 62)

Scheme 226 - HR diesel service enhancements on VoG line from Cardiff Central to Bridgend - Similar scoring to the HRe scheme (Scheme 225) but offers deliverability benefits. Scores more strongly than limited scheme of improvements to Rhoose only (Scheme 68)



Scheme 111 - HR station @ Bridgend College (VoG line) - Cost £8.5m - Serves area of high population and employment but not expected to offer significant journey time improvements

Scheme 94 - BRT from Cardiff City Centre to Barry via Cowbridge Rd & A48 - Cost £27.4m - Offers good journey time improvements and accessibility as well as enhanced links to a key attractor. Could tie in with CDF to Cardiff Airport BRT scheme

Scheme 120 - BRT from Cardiff Central to Cardiff Airport via A48, A4050 & A4226 - Offers good journey time improvements and accessibility as well as enhanced links to a key attractor. Could tie in with CDF to Barry BRT scheme

Scheme 67 - HR station @ St Athan (VoG line) - Cost £8.2m - Improves access to an area of significant development and offers strong journey time improvements

Scheme 70 - HR diesel spur to Cardiff Airport from existing VoG line HR alignment - Cost £52.8m - Scores poorly due to existing bus service and alternative station location. Scores better in terms of deliverability

Scheme 69 - New HR station @ Cardiff Airport (VoG line) - Cost £34.7m - Poor scoring compared with other stations due to existing bus service and limited residential property. May require further investigation as part of any Cardiff airport strategy

Scheme 134 - BRT priority measures from Cardiff to Dinas Powys - Limited journey time saving and accessibility improvements

Scheme 65 - LR Spur to "Sports Village" site - Cost £51.5m - Strong scoring and opens up access to underserved part of the bay, including areas of significant development

Scheme 239 - Penarth to Cardiff City Centre BRT via the Barrage

Scheme 145 - Park & Ride @ Cogan - Cost £2.1m - Good expected demand and accessibility but further feasibility required

Scheme 157 - Park & Ride @ Barry Docks - Cost £2.1m - Strong for most criteria but limited expected demand

Scheme 66 - LR conversion of old HR alignment from Penarth towards Sully (terminating @ Forrest Rd) - Cost £17.7m - Strong scoring and existing alignment aid in deliverability

## 6. Bridgend Package - Multi-modal Core Network

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

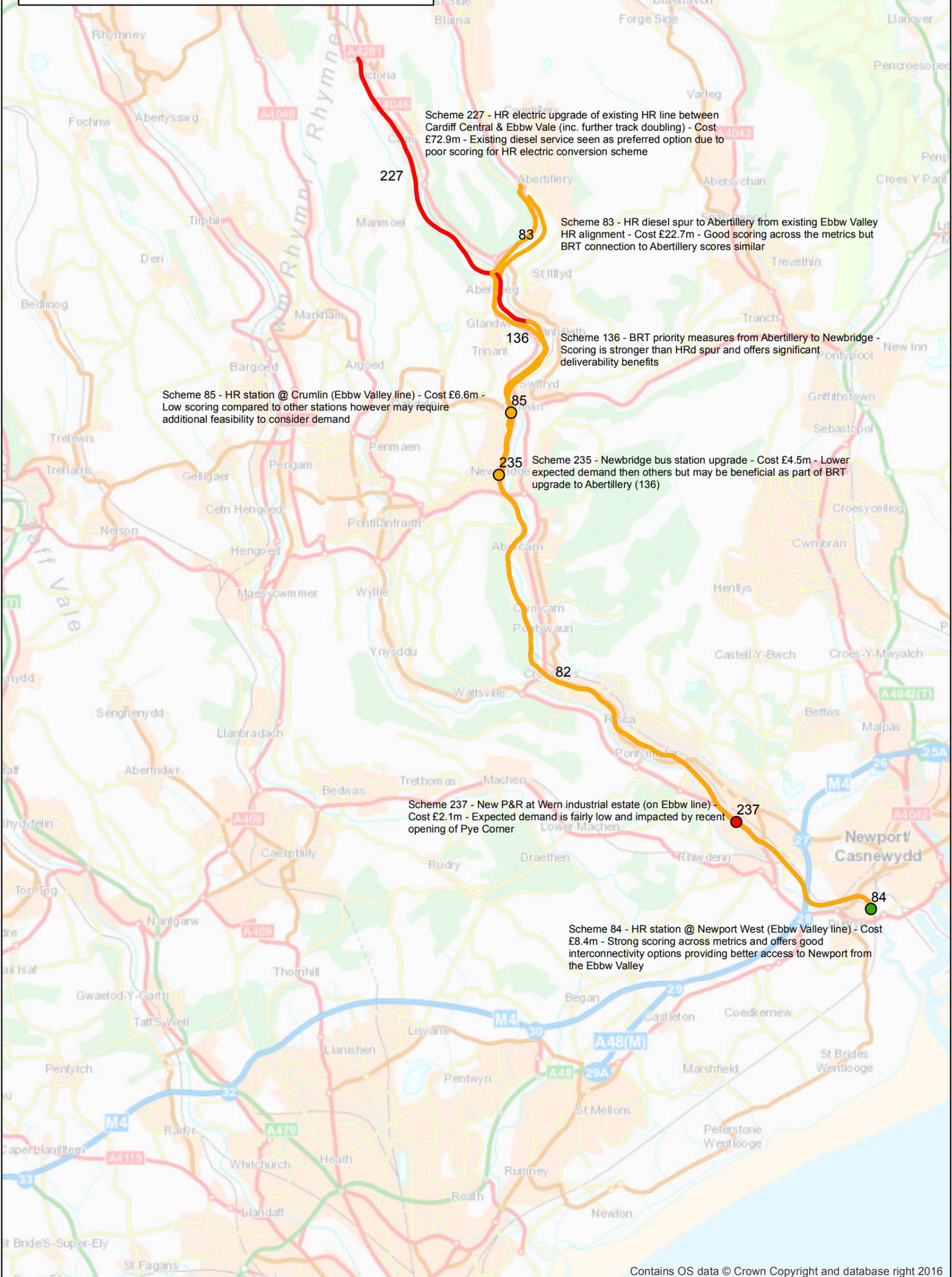


## 7. Ebbw Valley Line - HR Diesel Core Network >>

Scheme 82 - Track doubling of Ebbw Valley line from Cardiff Central to Llanhilleth (enabling 4tph) - Cost £64.7m - Core scheme required to allow wider network expansion

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

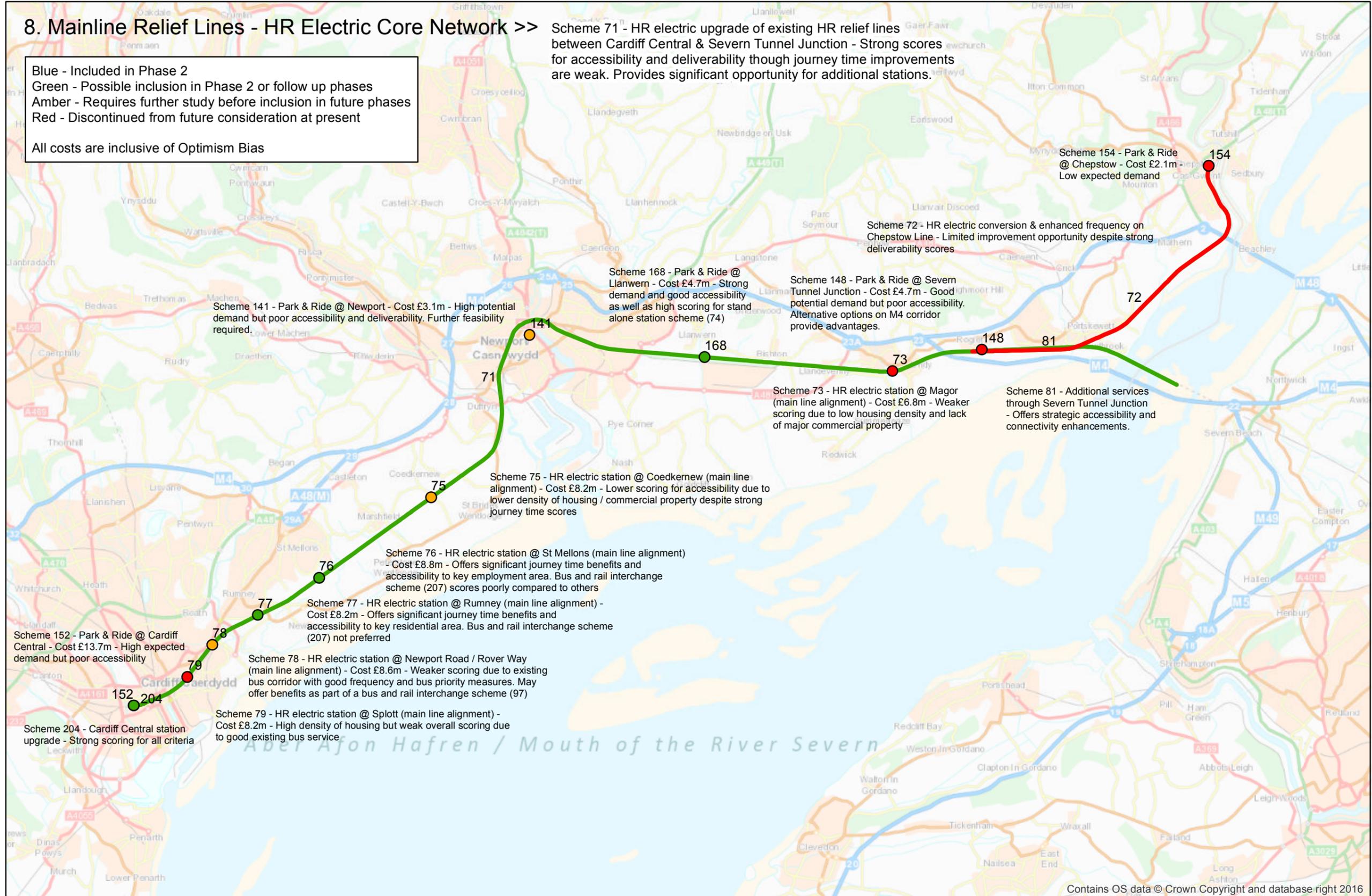


## 8. Mainline Relief Lines - HR Electric Core Network >>

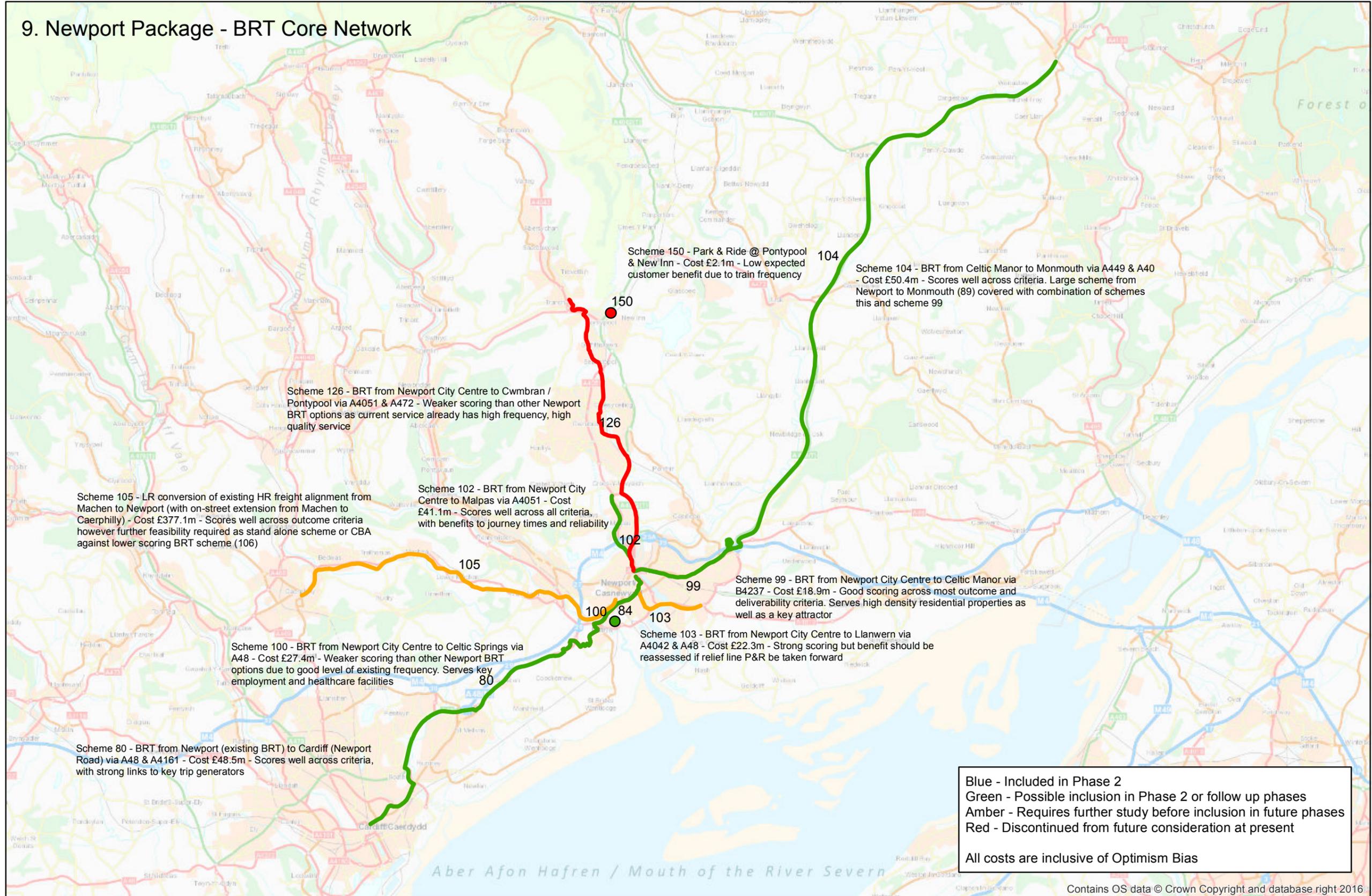
Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

Scheme 71 - HR electric upgrade of existing HR relief lines between Cardiff Central & Severn Tunnel Junction - Strong scores for accessibility and deliverability though journey time improvements are weak. Provides significant opportunity for additional stations.



# 9. Newport Package - BRT Core Network



# 10. Cross Valleys Package - BRT Core Network

Blue - Included in Phase 2  
 Green - Possible inclusion in Phase 2 or follow up phases  
 Amber - Requires further study before inclusion in future phases  
 Red - Discontinued from future consideration at present

All costs are inclusive of Optimism Bias

Scheme 118 - BRT from Abergavenny to Hirwaun via A465 - Cost £59m - Strong scoring, particularly for delivery. Good level of service benefits. Alternative scheme to Aberdare (171) is similar in scoring, but cross valleys feasibility required for best route.

Scheme 119 - BRT from Monmouth to Abergavenny via A40 - Cost £37.4m - Strong scoring compared to LR alternative (116), particularly in deliverability.

Scheme 121 - BRT from Blaenavon to Pontypool via A4043 - Good scoring due to accessibility but journey time scoring not significant. Requires further feasibility work to determine strongest route

Scheme 46 - BRT from Merthyr to Pontypridd via Cardiff Rd - Good scoring due to enhanced frequency and accessibility for settlements on alternative side of the valley to the rail line.

Scheme 117 - BRT from Pontypridd to Ystrad Mynach / Blackwood / Pontypool via A470 & A472 - Cost £91.6m - Stronger scoring than alternative Bus Priority scheme (135) which is discounted.

