

GREEN GEN TOWY TEIFI

Scoping Report Appendices:

Volume 1

May 2024



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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

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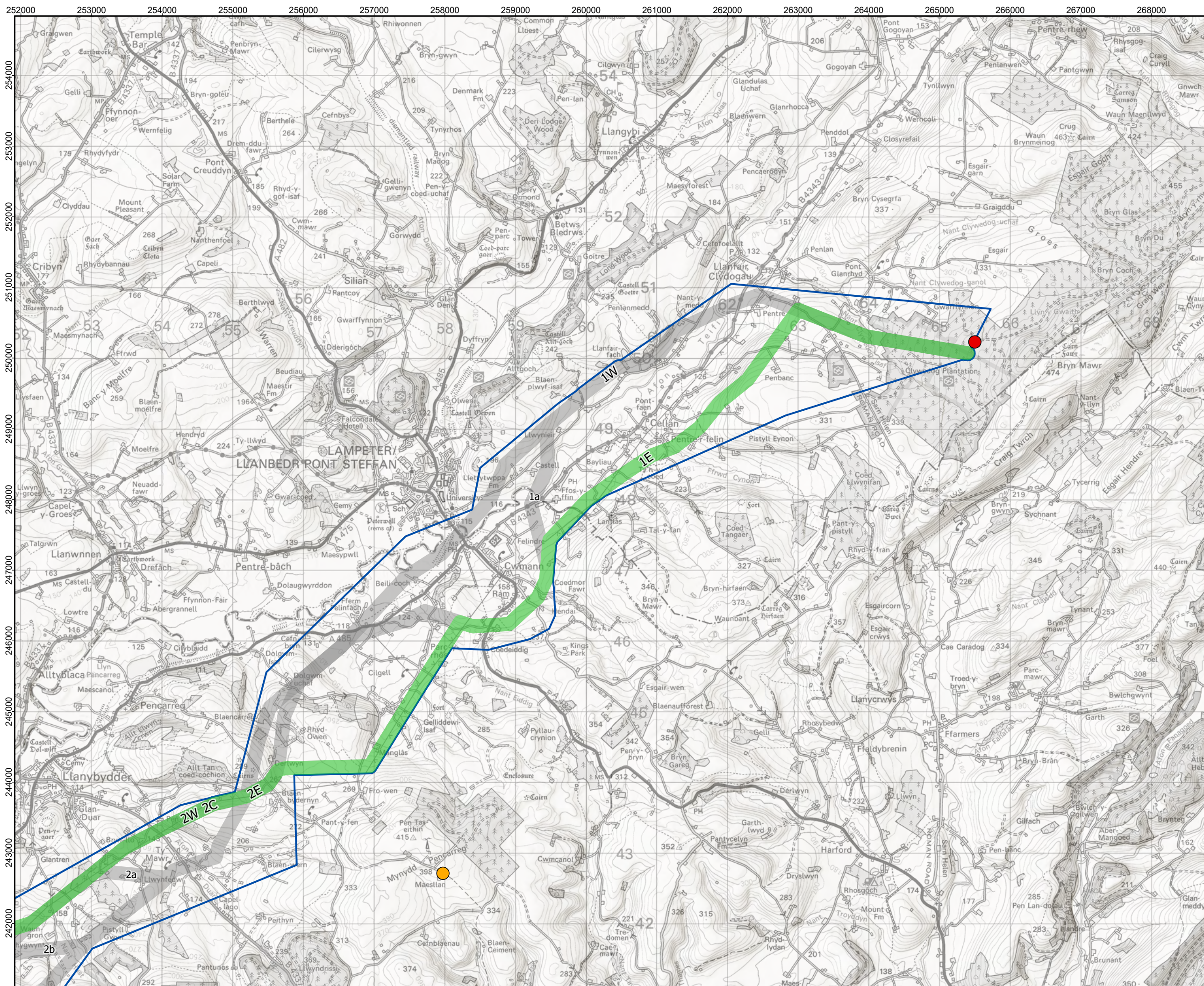
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APPENDIX 1 – THE PREFERRED ROUTE



Legend:

-  Indicative location of grid connection to Lan Fawr Energy Park within the energy park site boundary
-  Nant Ceiment Energy Park
-  Preferred Corridor
-  Preferred Route
-  Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



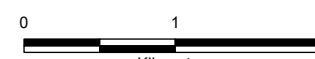
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(Sheet 1 of 6)

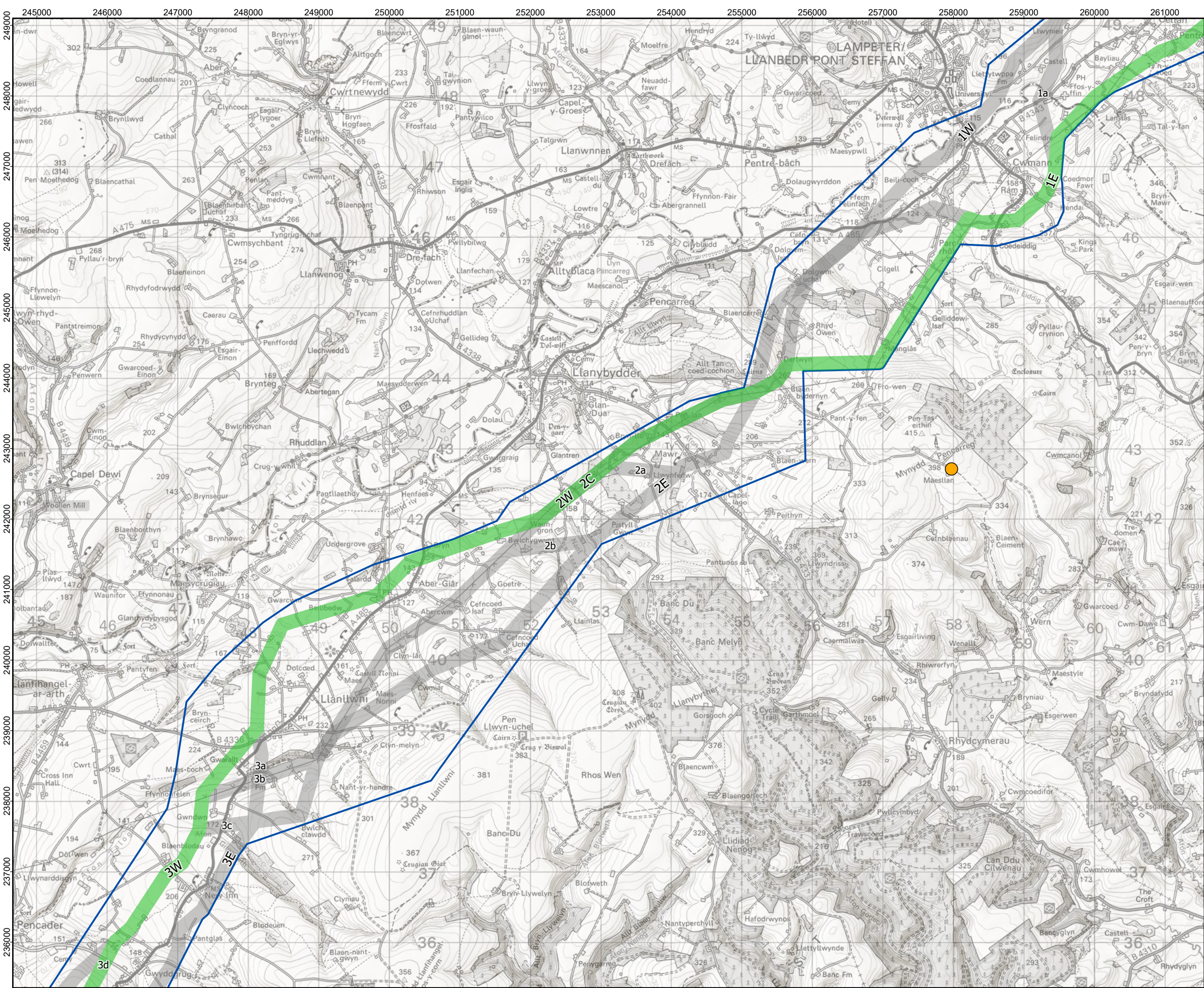
ID:P663927 RCD Fig 5.11 A3L



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REV 01



- Legend:
- Nant Ceiment Energy Park
 - Preferred Corridor
 - Preferred Route
 - Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



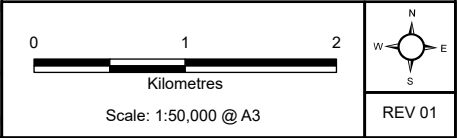
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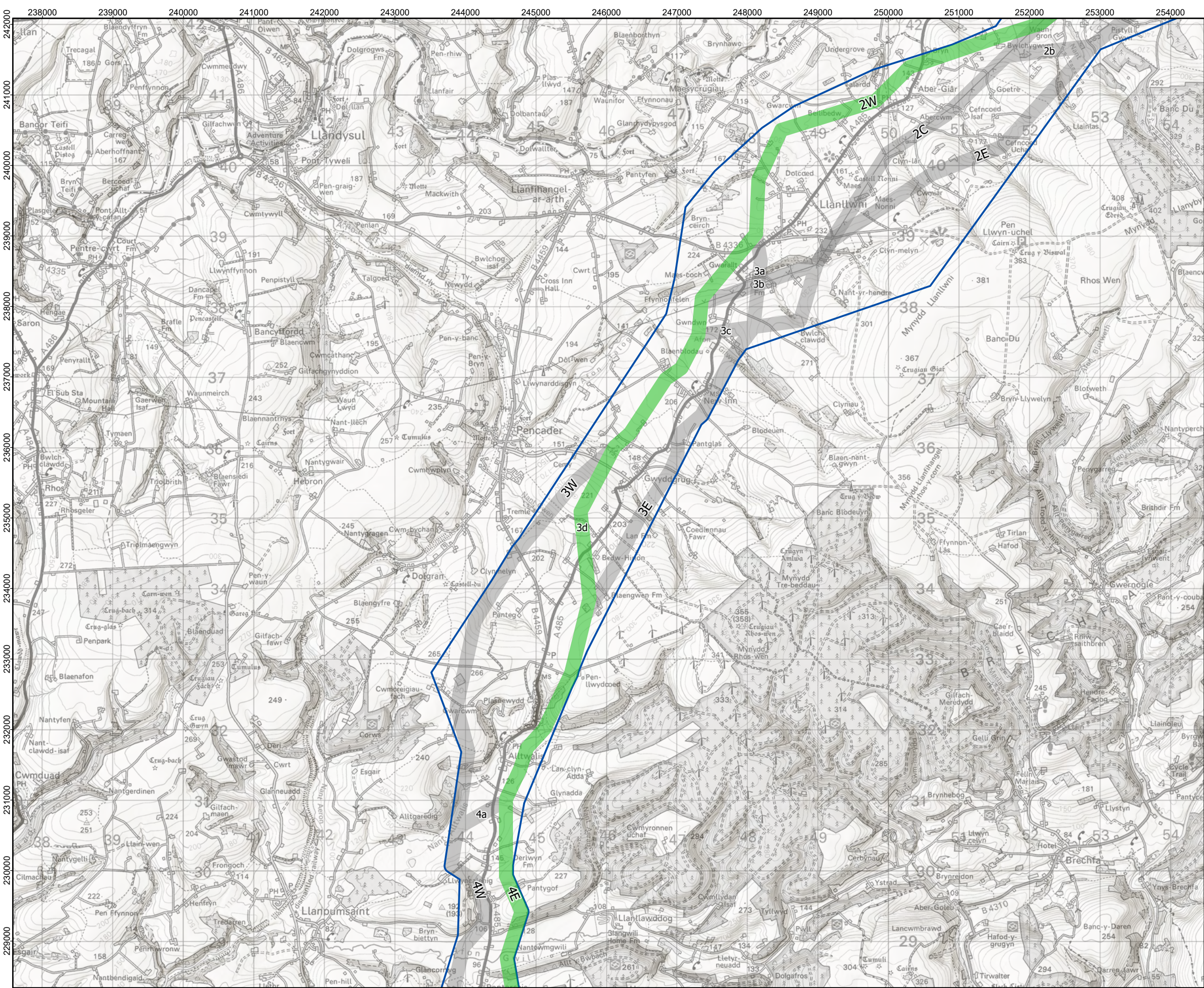
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TITLE: Preferred Route Section 2
(Sheet 2 of 6)

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Legend:

- Preferred Corridor
- Preferred Route
- Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

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(Sheet 3 of 6)

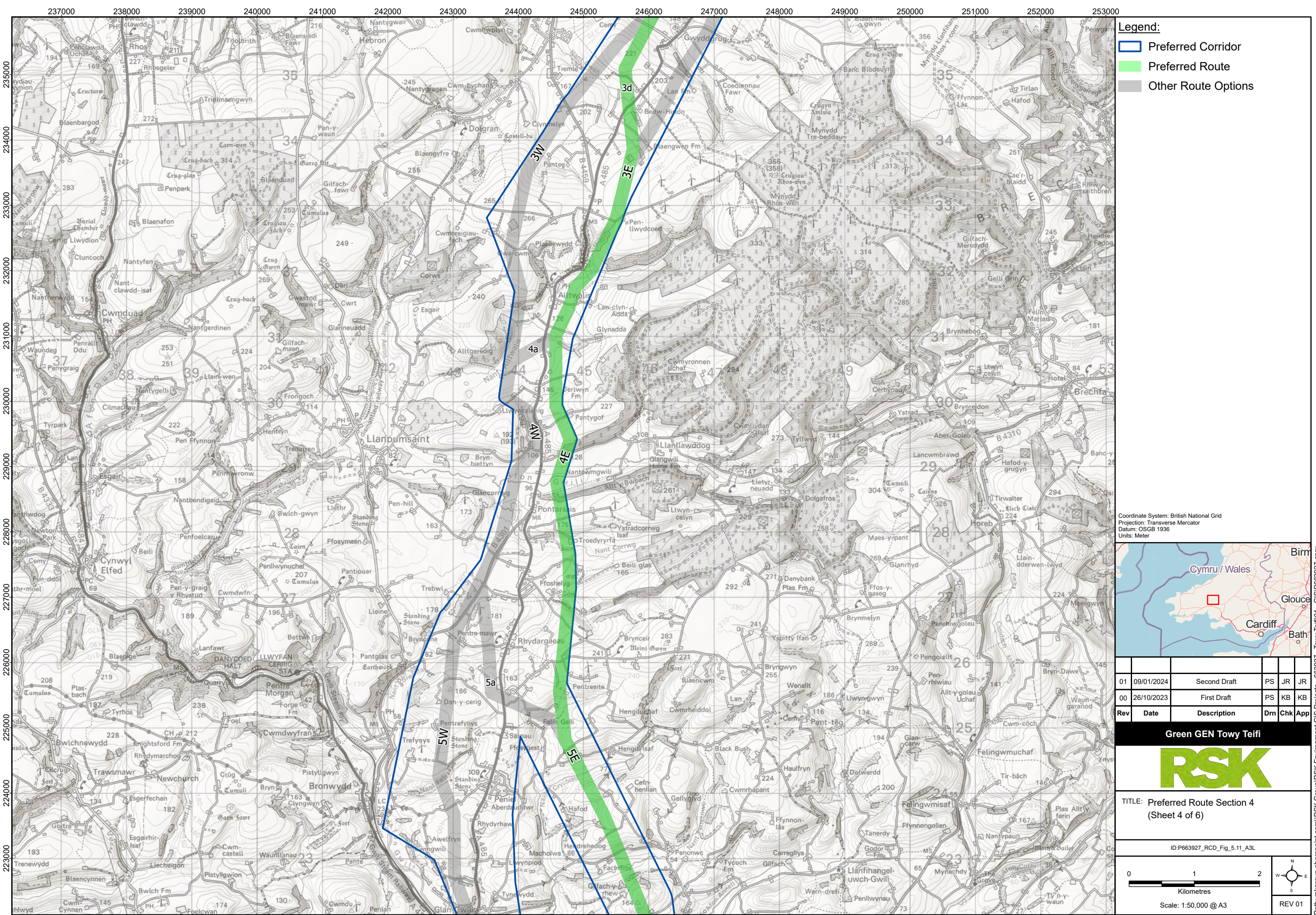
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REV 01



- Legend:**
- Preferred Corridor
 - Preferred Route
 - Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



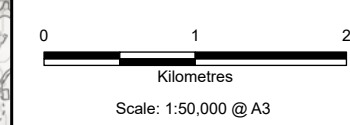
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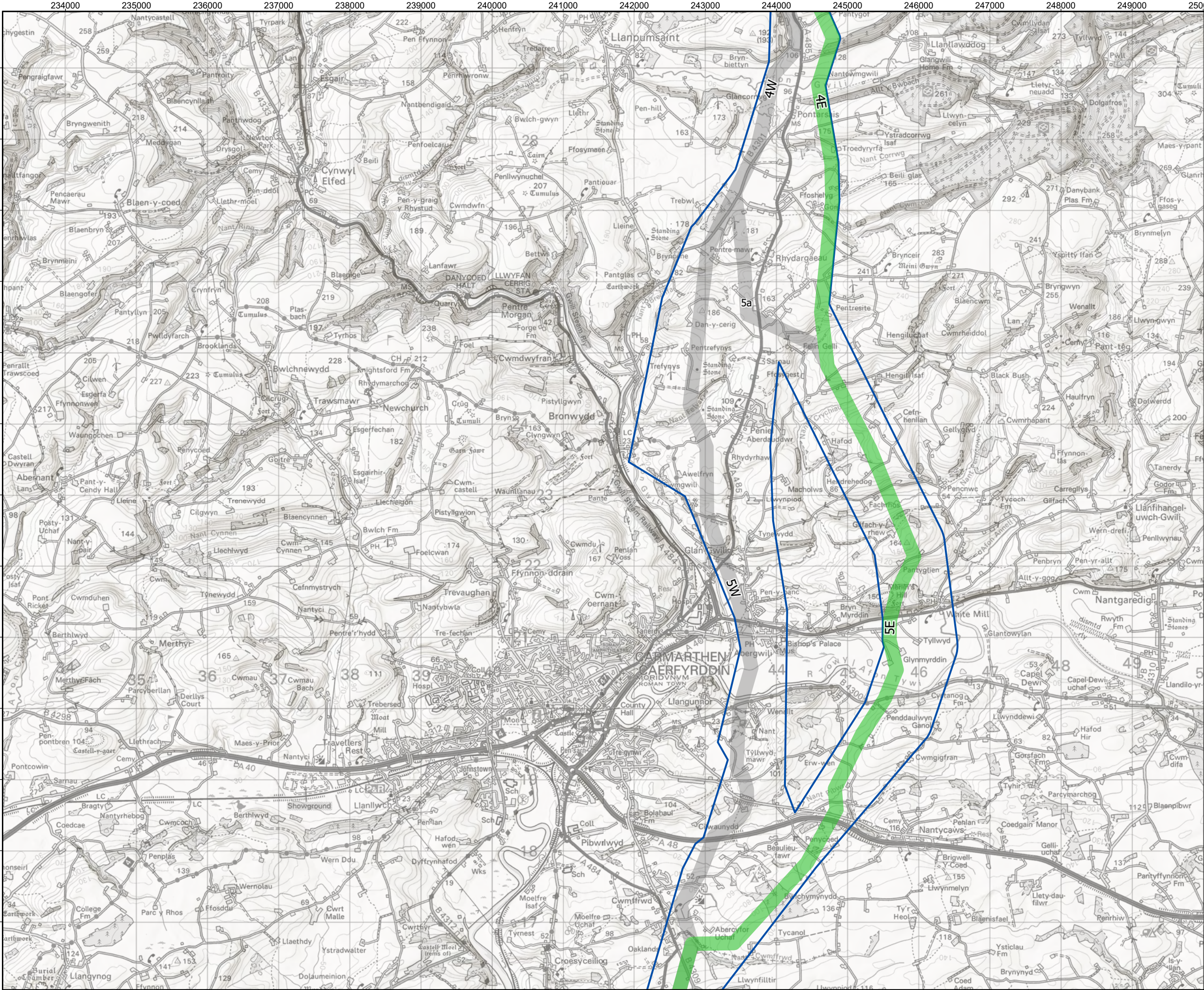


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REV 01



Legend:

- Preferred Corridor
- Preferred Route
- Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



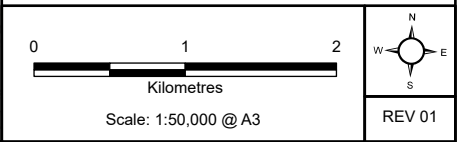
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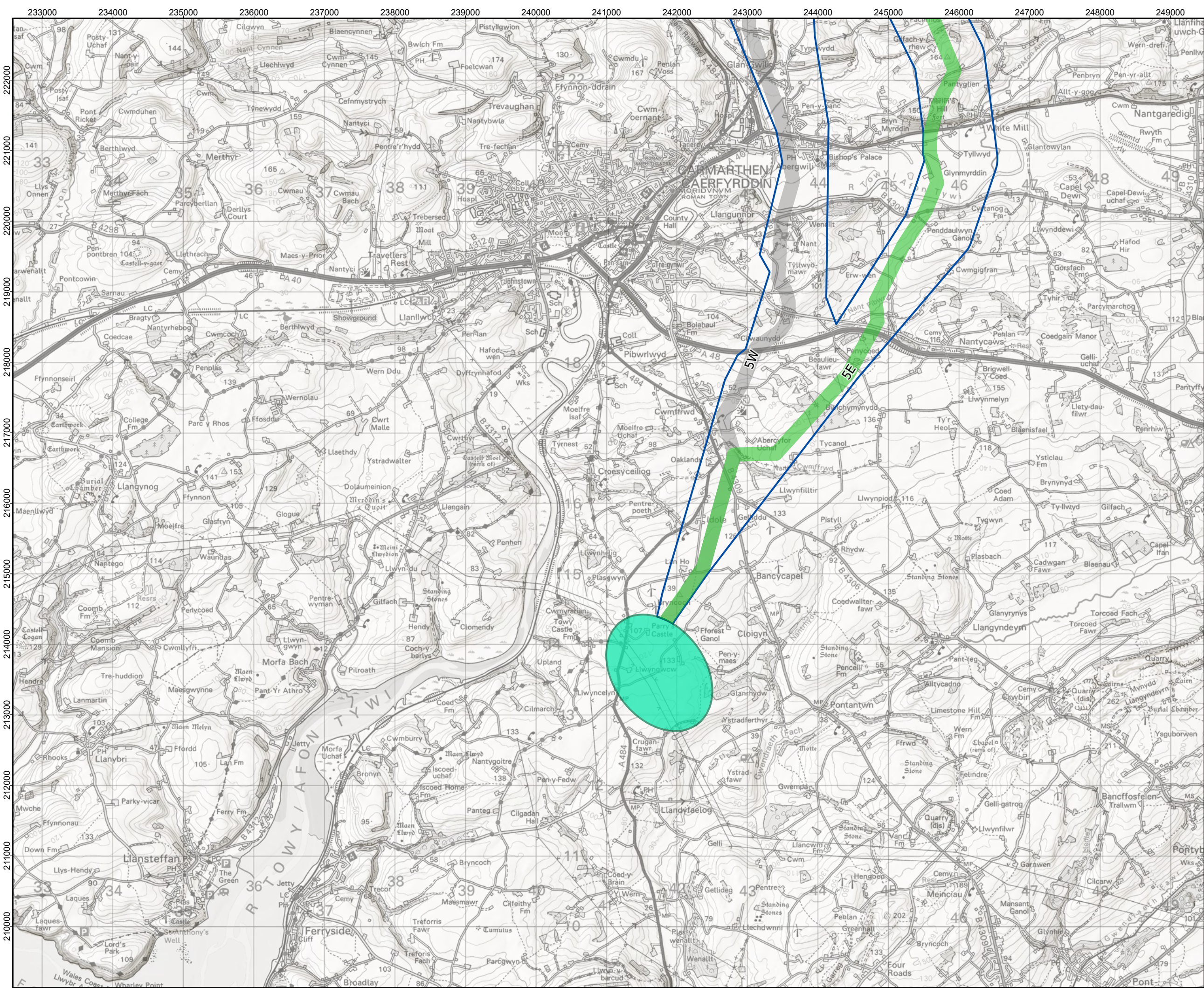
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TITLE: Preferred Route Section 5
(North) (Sheet 5 of 6)

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- Legend:**
- Substation Siting Area
 - Preferred Corridor
 - Preferred Route
 - Other Route Options

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



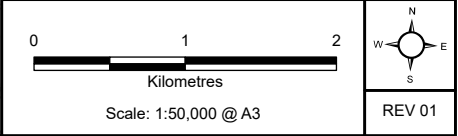
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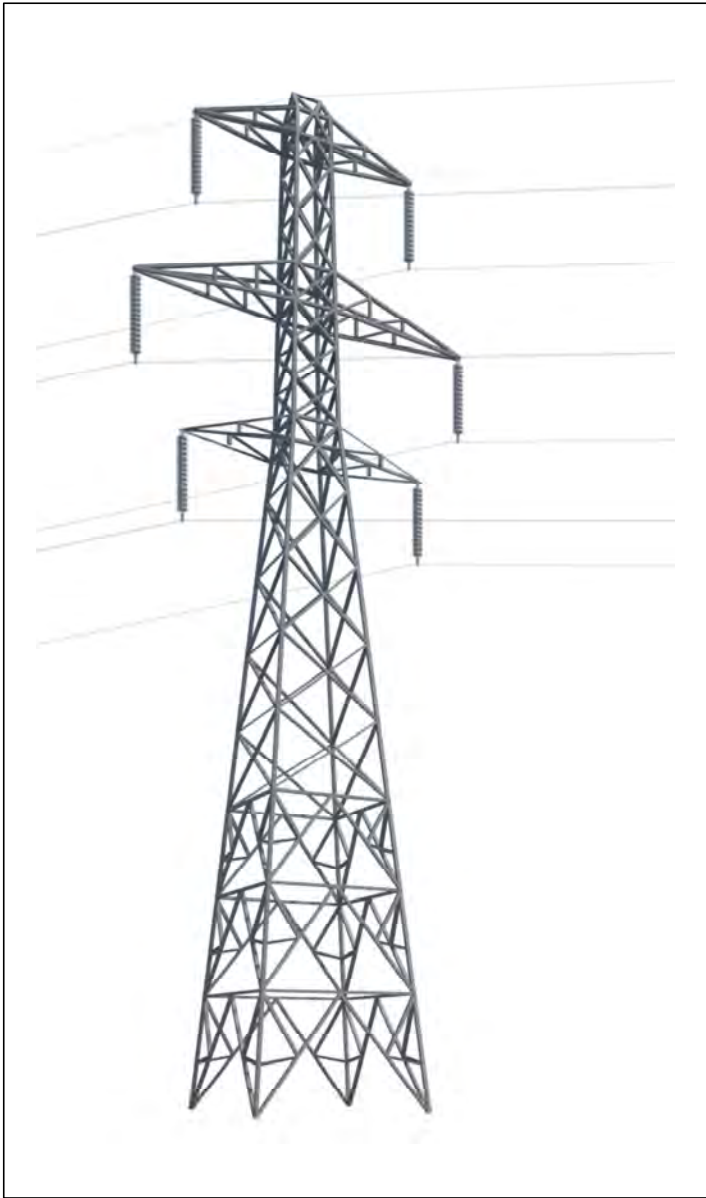
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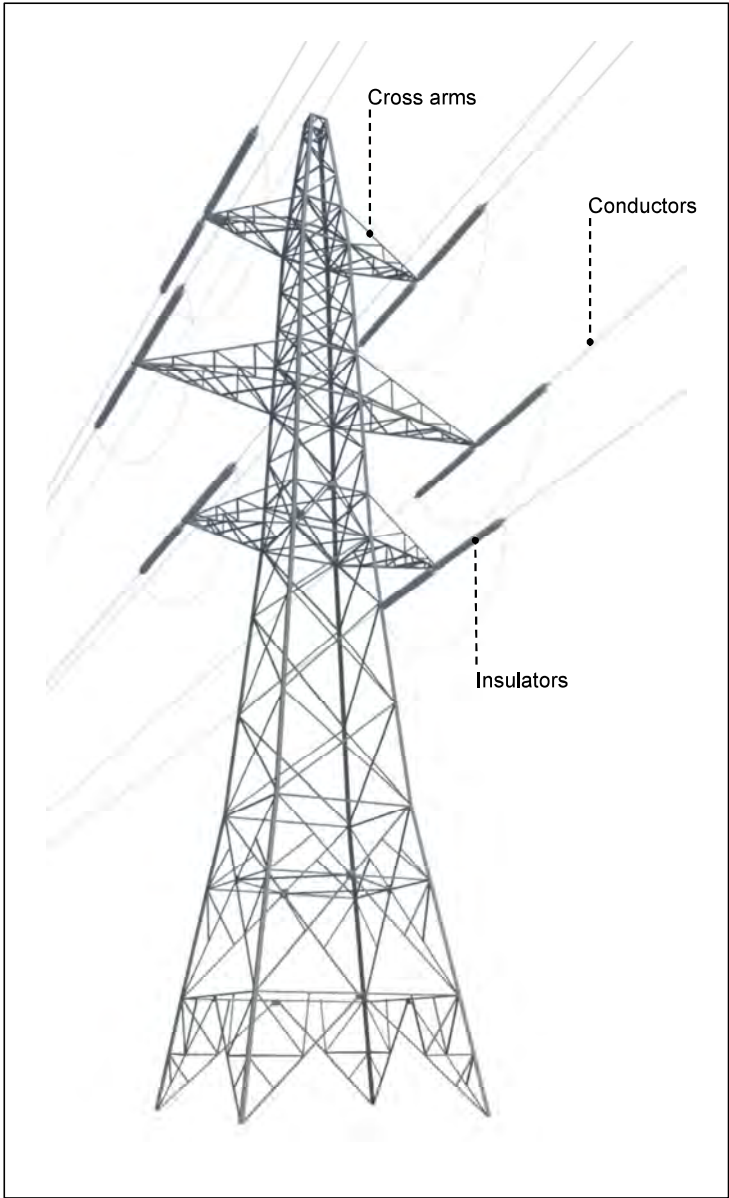


APPENDIX 2 – PROPOSED TOWER TYPES

Figure 2.1: Proposed Tower Type



Component parts of 132kV steel lattice tower L7: Suspension tower



Component parts of 132kV steel lattice tower L7: Angle tower



Component parts of 132kV steel lattice tower L7: Terminal tower

NOT TO SCALE



APPENDIX 3 – SUMMARY OF THE HOLFORD RULES

The Holford Rules

Guidelines on overhead line routeing were first formulated in 1959 by Sir William later Lord, Holford, who was a part-time member of the CEGB. National Grid has reviewed these guidelines, known as the 'Holford Rules', and concluded that they have stood the test of time. National Grid therefore intends to continue to employ them as a basis of the company's approach to overhead line routeing.

Since the formulation of the original Rules, formal requirements for environmental assessment have been introduced. Whilst environmental assessment for overhead lines addresses wider topics than the visual amenity issue on which the Rules concentrate, they remain a valuable tool in the selecting and assessing potential route options as part of the environmental assessment process. The original Rules and their added notes of clarification are set out below.

GUIDELINES FOR THE ROUTEING OF NEW HIGH VOLTAGE OVERHEAD TRANSMISSION LINES

Rule 1:

Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the first line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

Investigate the possibility of alternative routes, avoiding if possible the areas of the highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements.

Areas of highest amenity value are:

Areas of Outstanding Natural Beauty
National Parks
Heritage Coasts
World Heritage Sites

Rule 2:

Avoid smaller areas of high amenity value, or scientific interests by deviation; provided that this can be done without using too many angle towers, ie the more massive structures which are used when lines change direction.

Note on Rule 2

Some areas (e.g. Site of Special Scientific Interest) may require special consideration for potential effects on ecology (e.g. to their flora and fauna).

Where possible choose routes which minimise the effects on the setting of areas of architectural, historic and archaeological interest including Conservation Areas, Listed Buildings, Listed Parks and Gardens and Ancient Monuments.

Rule 3:

Other things being equal, choose the most direct line, with no sharp changes of direction and thus with fewer angle towers.

Note of Rule 3

Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.

Rule 4:

Choose tree and hill backgrounds in preference to sky backgrounds wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5:

Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.

Note on Rules 4 & 5

Utilise background and foreground features to reduce the apparent height and domination of towers from pan viewpoints.

Minimise the exposure of numbers of towers on prominent ridges and skylines.

Where possible avoiding cutting extensive swathes through woodland blocks and consider opportunities for skirting edges of copses and woods.

Protecting existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6:

In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration or 'wirescape'.

Note on Rule 6:

In all locations minimise confusing appearance.

Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance; where routes need to diverge, allow where practicable sufficient separation to limit the effects on properties and features between the lines.

Rule 7:

Approach urban area through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of the undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.

Alignments should be chosen after consideration of effects on the amenity of existing development and on proposals for new development.

When siting substations take account of the effects of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

SUPPLEMENTARY NOTES

Residential Areas

Avoid routing close to residential areas as far as possible on grounds of general amenity.

Designations of County, District and Local Value

Where possible choose routes which minimise the effect on Special Landscape Areas, areas of Great Landscape Value and other similar designations of County, District or Local value.

Alternative Tower Designs

In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative tower designs now available where these would be advantageous visually, and where the extra cost can be justified.



APPENDIX 4 – PROPOSED STRUCTION OF THE ENVIRONMENTAL STATEMENT

PROPOSED STRUCTURE OF THE ENVIRONMENTAL STATEMENT

Volume 1 – Non-Technical Summary

Volume 1 will form a non-technical summary, a concise document that will detail the EIA process and the significant environmental effects of the proposed scheme. The document will be presented in an easily accessible format and is intended to provide the general public with information regarding the proposed scheme.

Volume 2 – The Environmental Statement (main report)

Front End Chapters

Chapter 1: Introduction

Chapter 1 will introduce the proposed scheme and briefly explain the underlying objectives of the proposal.

Chapter 2: Environmental Impact Assessment Approach

Chapter 2 will describe the statutory basis for EIA, outline the structure of the Environmental Statement and identify the team responsible for the undertaking and reporting of the EIA.

Chapter 3 : The Proposed Scheme

Chapter 3 will detail the location of the proposed scheme and characterise the site and its surroundings. The section will establish the need for the proposed scheme, summarise reasonable alternatives that have been considered in the development of the preferred route, provide a detailed description of the key design components and the characteristics of the proposed scheme. This section will also outline planned construction and operational time scales.

Chapter 4 : Consultation

Chapter 4 will summarise statutory and non- statutory consultation that has been undertaken as part of the EIA process and the development of the proposed scheme.

Chapter 5 : Environmental Assessment Process

Chapter 5 will outline the scoping process undertaken to establish the scope of the EIA, the adopted approach of the EIA and the format of the individual technical assessments. This section also provides an opportunity to highlight any modifications to the scope that have arisen as the proposed scheme design has evolved.

Technical Chapters

Chapters 6 – 13 will report the findings of the detailed environmental assessments relevant to each factor and any residual effects on the environment that are predicted to occur as a result of the implementation of the proposed scheme.

Chapter 6: Landscape and Visual

Chapter 7: Biodiversity

Chapter 8: Cultural Heritage

Chapter 9: Air

Chapter 10: Noise and Vibration

Chapter 11: Transport and Movement

Chapter 12: Geology and Hydrogeology

Chapter 13: Land and Soils

Chapter 14: Water

Concluding Chapters

Chapter 15: Cumulative Effects

Chapter 15 will highlight cumulative effects arising from the proposed scheme operating in combination with other existing and approved developments in the locality, and the interactions of predicted effects on the environment.

Chapter 16: Environmental Management

Chapter 16 will contain a schedule of the environmental commitments including design commitments as well as secondary and tertiary mitigation measures that are identified in each of the technical assessments.

Volume 3 – Figures

Volume 3 will include all figures and photographs referenced in Volume 2, that illustrate the relationship between the existing environment and the proposed scheme.

Volume 4 – Technical Appendices

Volume 4 will include factor-specific technical data, assessment reports and other relevant supporting documentation.

APPENDIX 6 – LANDSCAPE AND VISUAL FIGURES

Appendix 6.1 – Preliminary Indicative Zone of Theoretical Visibility

Appendix 6.2 – National Landscape Character Areas

Appendix 6.3 – Designated Landscapes

Appendix 6.4 – LANDMAP Geological Landscape Overall Evaluation

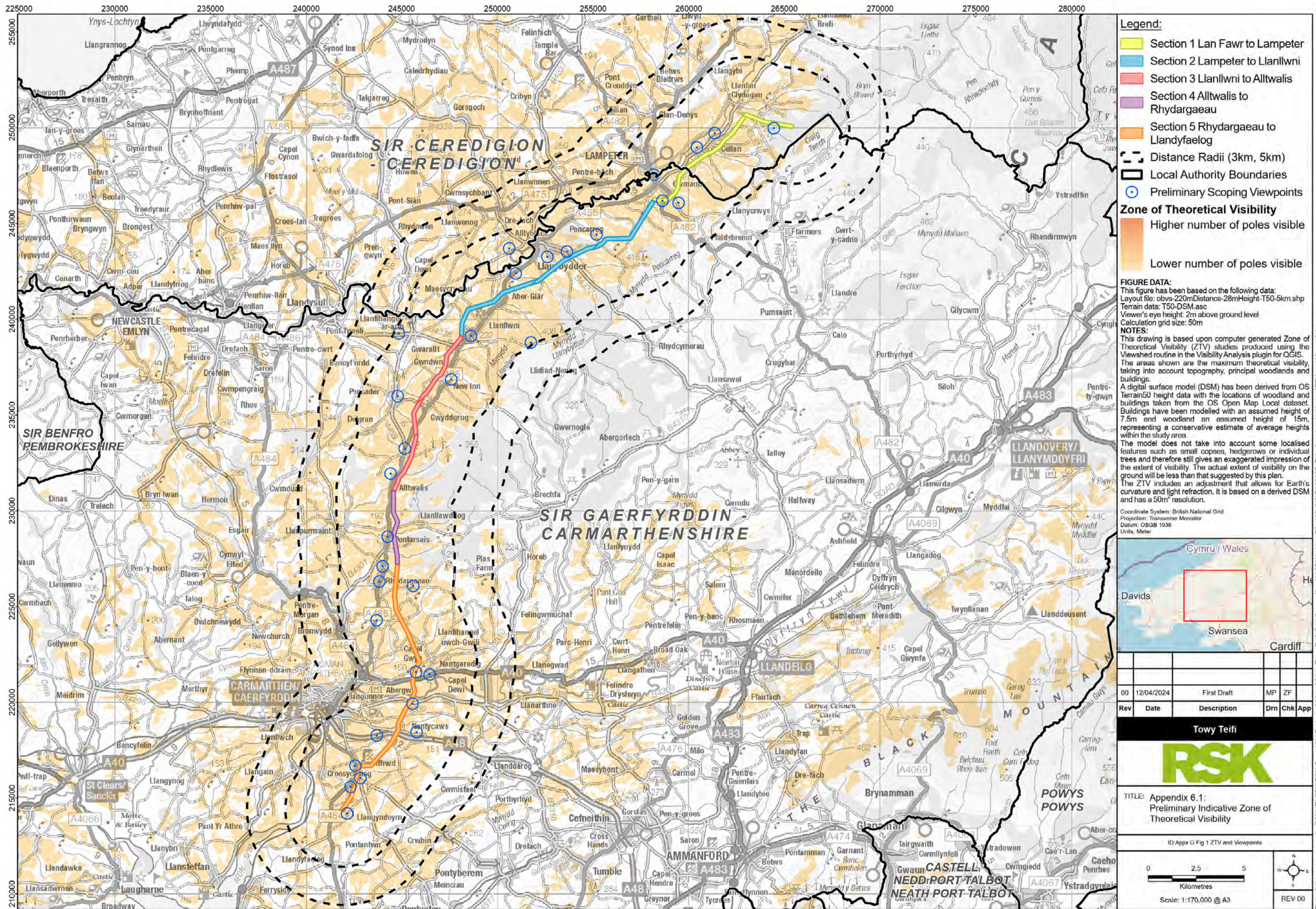
Appendix 6.5 – LANDMAP Historic Landscape Overall Evaluation

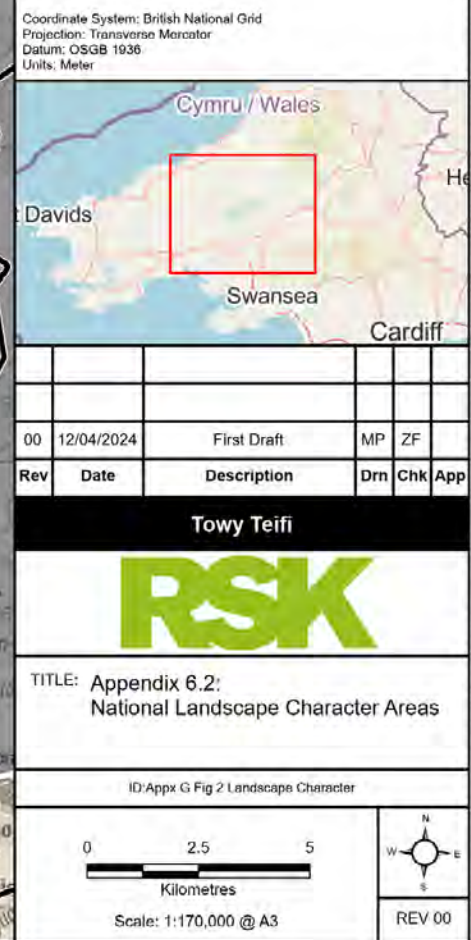
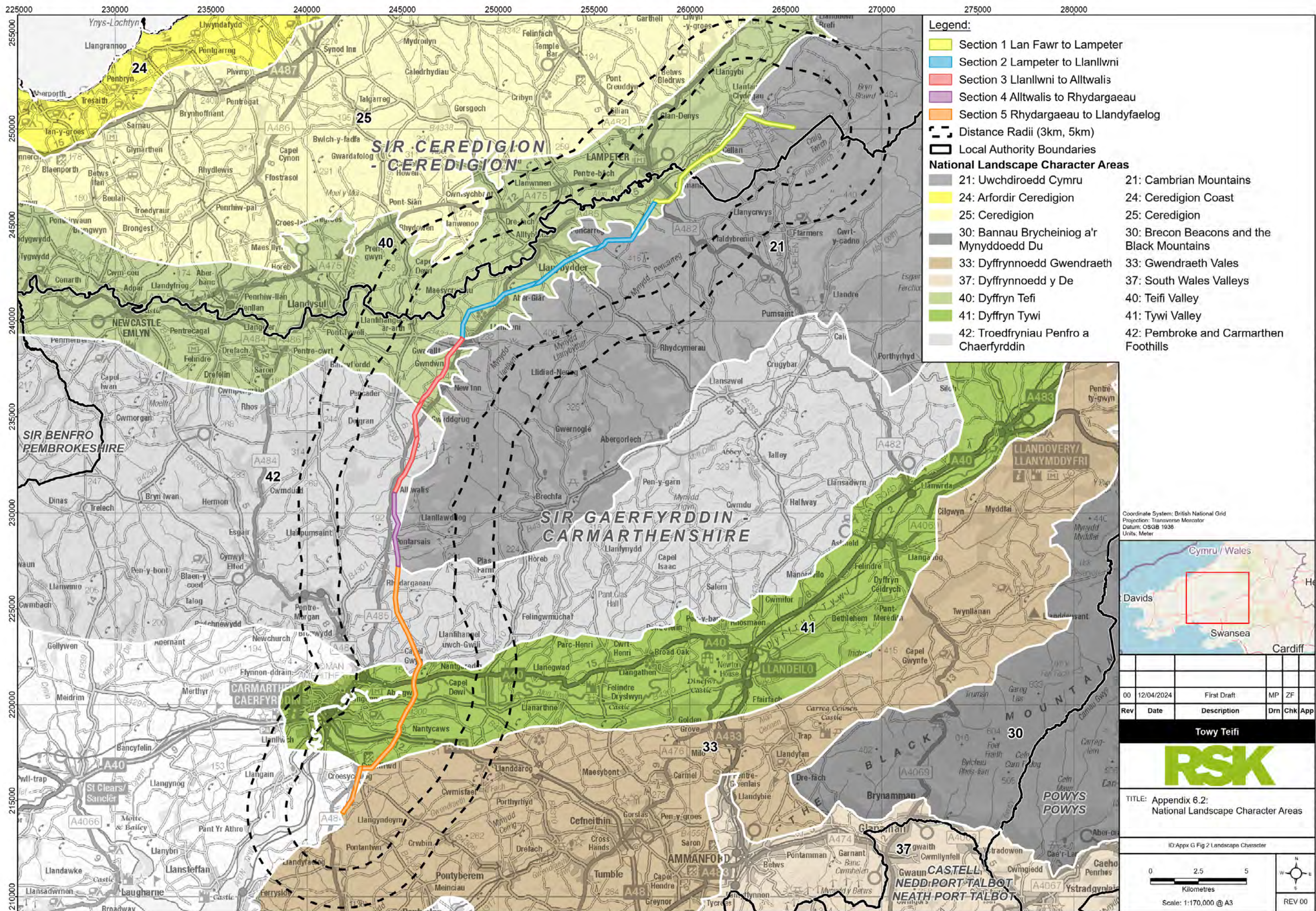
Appendix 6.6 – LANDMAP Habitats Landscape Overall Evaluation

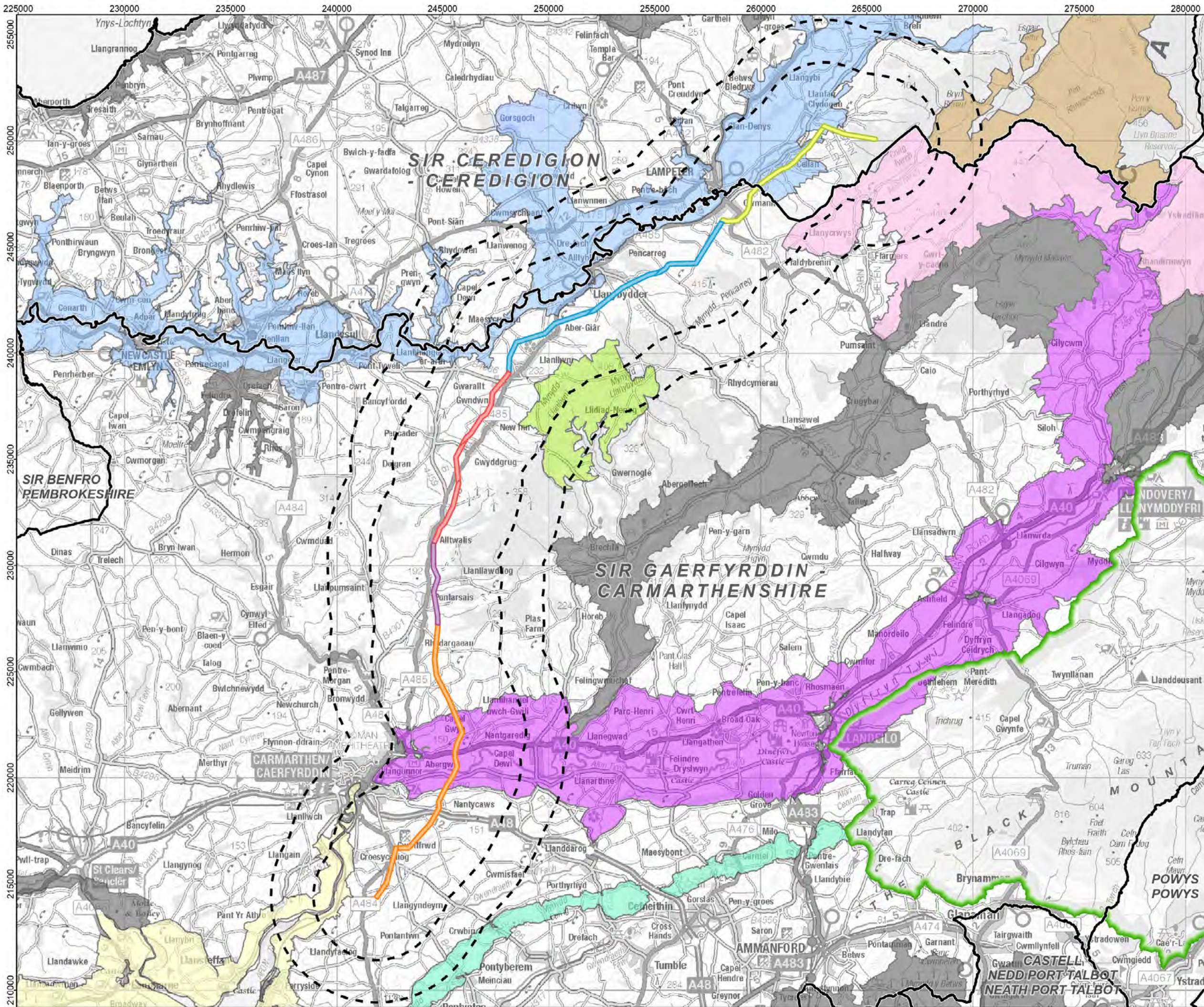
Appendix 6.7 – LANDMAP Visual Sensory Overall Evaluation

Appendix 6.8 – Access Routes Overview

Appendix 6.9 – Preliminary Viewpoints and PRow (Public Right of Way)







- Legend:**
- Section 1 Lan Fawr to Lampeter
 - Section 2 Lampeter to Llanllwni
 - Section 3 Llanllwni to Alltwalis
 - Section 4 Alltwalis to Rhydargaeau
 - Section 5 Rhydargaeau to Llandyfaelog
 - Distance Radii (3, 5km)
 - Local Authority Boundaries
 - Bannau Brycheiniog/Brecon Beacons National Park
- Special Landscape Areas**
- Carmarthenshire Bay and Estuary
 - Carmarthenshire Limestone Ridge
 - Llanllwni Mountain SLA
 - North Ceredigion Uplands
 - North Eastern Uplands
 - Teifi Valley SLA
 - Tywi Valley SLA
 - Other SLA

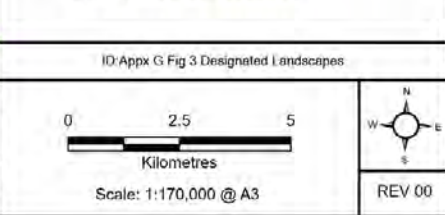
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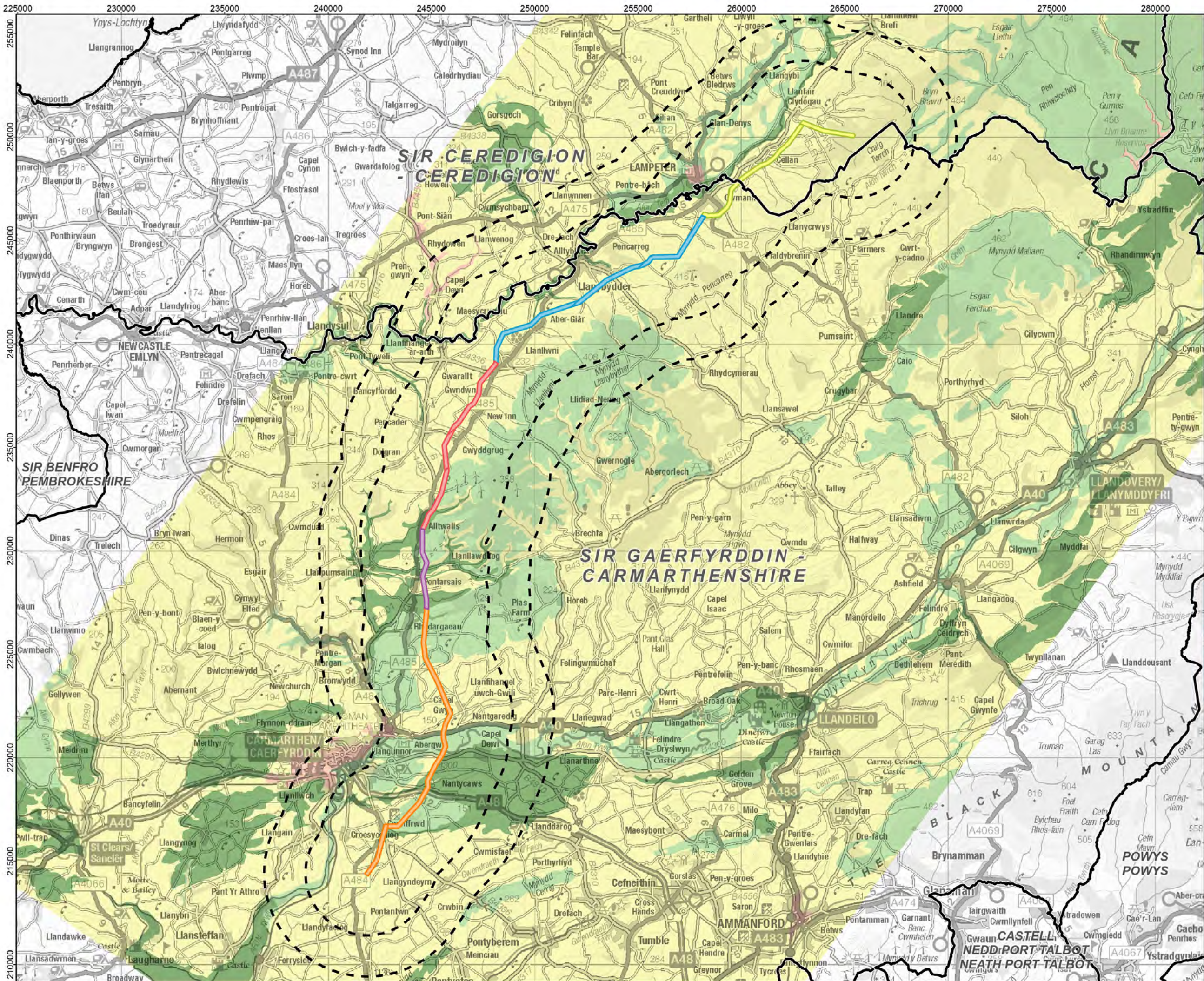


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TITLE: Appendix 6.3:
Designated Landscapes





Legend:

- Section 1 Lan Fawr to Lampeter
- Section 2 Lampeter to Llanllwni
- Section 3 Llanllwni to Alltwalis
- Section 4 Alltwalis to Rhydargaeau
- Section 5 Rhydargaeau to Llandyfaelog

- Distance Radii (3, 5km)
- Local Authority Boundaries

Geological Landscape

Overall Evaluation

- Outstanding
- High
- Moderate
- Low

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



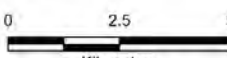
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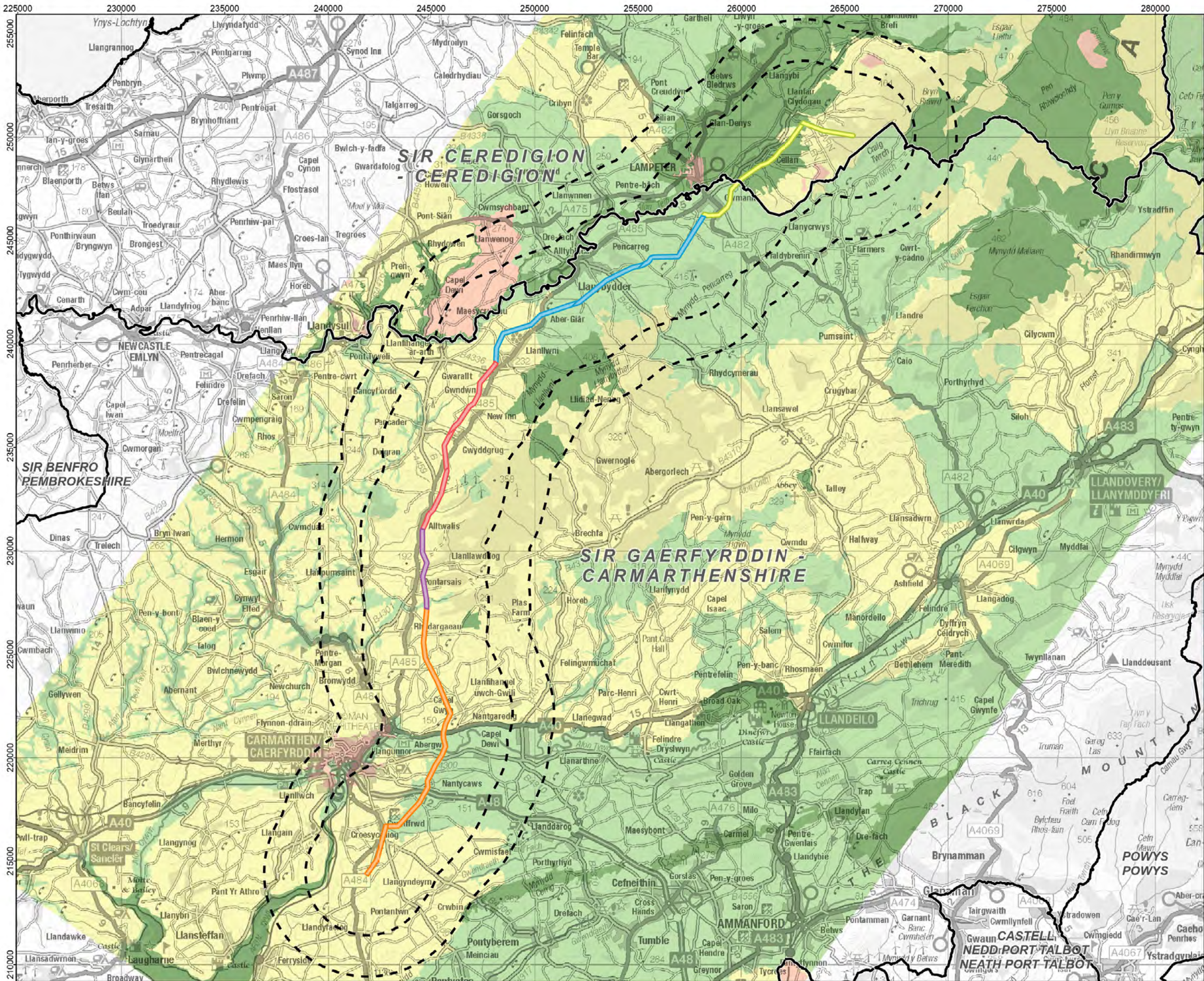
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LANDMAP Geological Landscape
Overall Evaluation

ID Appx G Fig 4 Landmap Geological Landscape



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- Section 1 Lan Fawr to Lampeter
- Section 2 Lampeter to Llanllwni
- Section 3 Llanllwni to Alltwalis
- Section 4 Alltwalis to Rhydargaeau
- Section 5 Rhydargaeau to Llandyfaelog
- Distance Radii (3, 5km)
- Local Authority Boundaries

Landscape Habitats

Overall Evaluation

- Outstanding
- High
- Moderate
- Low

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

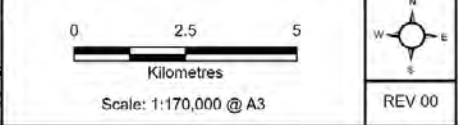


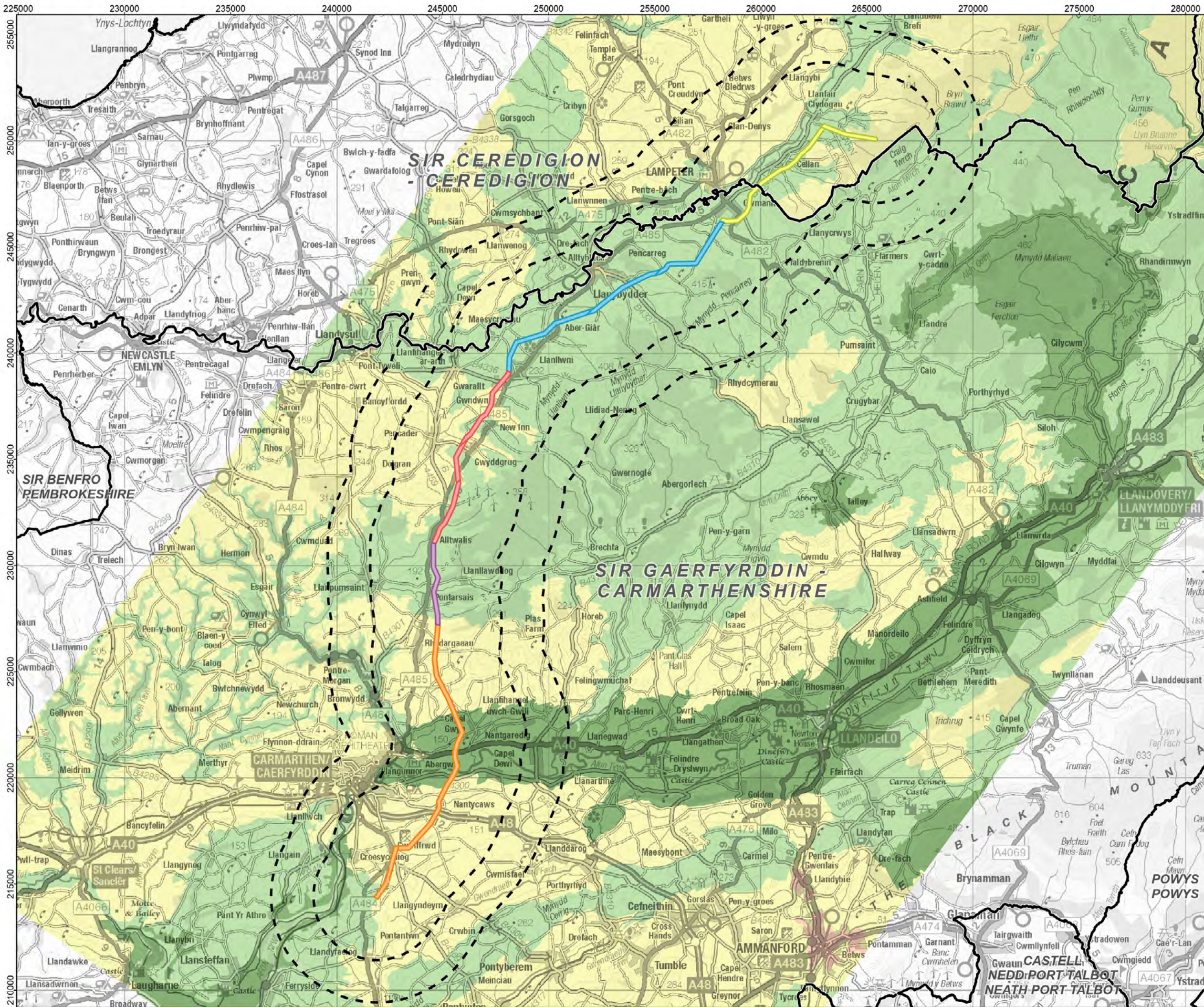
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TITLE: Appendix 6.6:
LANDMAP Landscape Habitats
Overall Evaluation

ID/Appx G Fig 6 Landmap Landscape Habitats





Legend:

- Section 1 Lan Fawr to Lampeter
- Section 2 Lampeter to Llanllwni
- Section 3 Llanllwni to Alltwalis
- Section 4 Alltwalis to Rhydargaeau
- Section 5 Rhydargaeau to Llandyfaelog
- Distance Radii (3, 5km)
- Local Authority Boundaries

Visual Sensory

Overall Evaluation

- Outstanding
- High
- Moderate
- Low

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Units: Meter

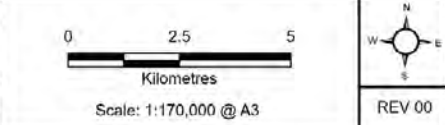


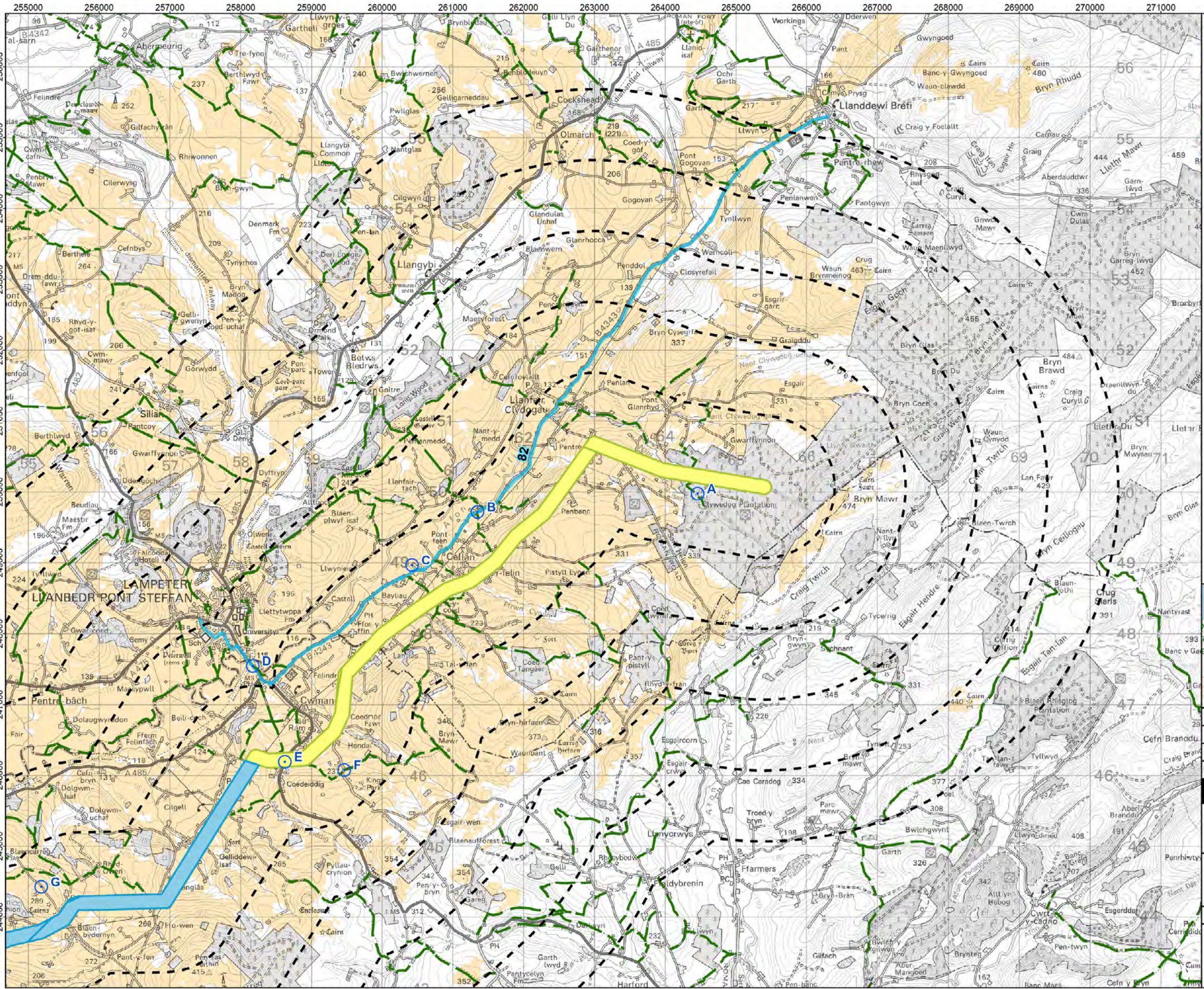
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LANDMAP Visual Sensory
Overall Evaluation

ID: App G Fig 7 Landmap Visual Sensory





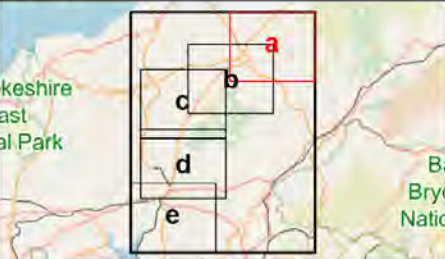
Legend:

- Section 1 Lan Fawr to Lampeter
- Section 2 Lampeter to Llanelli
- Distance Radii (1 to 5km)
- Preliminary Scoping Viewpoints
- Public Rights of Way
- National Cycle Network

Zone of Theoretical Visibility

- Higher number of poles visible
- Lower number of poles visible

FIGURE DATA:
Please refer to Appendix G Figure 1.
Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



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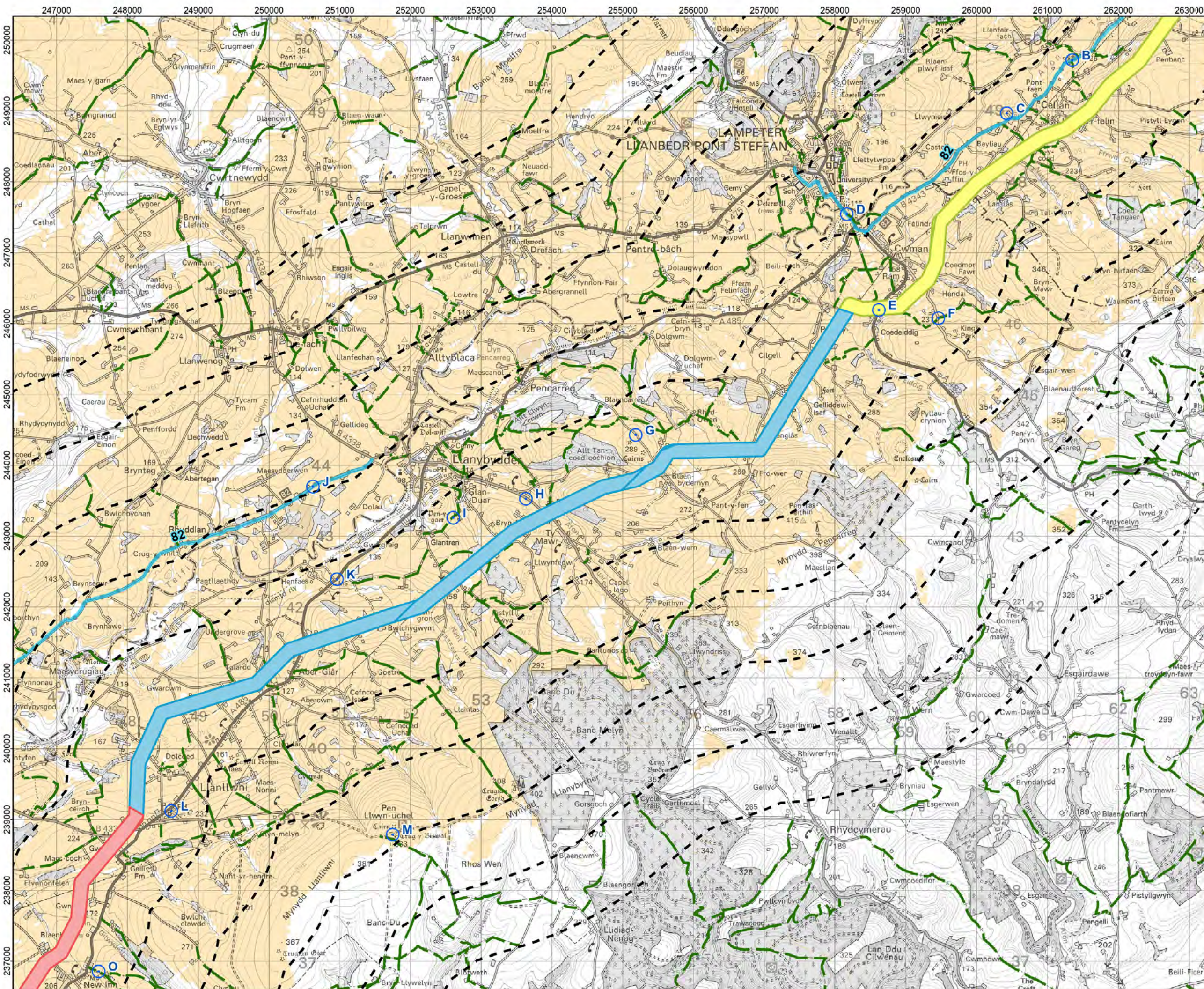
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TITLE: Appendix 6.9a:
Preliminary Viewpoints and PRow

ID Appx G Fig 9 Preliminary Viewpoints and PRow

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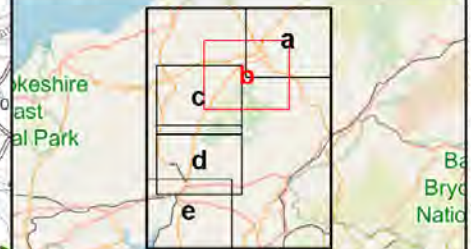
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- Legend:**
- Section 1 Lan Fawr to Lampeter
 - Section 2 Lampeter to Llanllwni
 - Section 3 Llanllwni to Alltwalis
 - Distance Radii (1 to 5km)
 - Preliminary Scoping Viewpoints
 - Public Rights of Way
 - National Cycle Network
- Zone of Theoretical Visibility**
- Higher number of poles visible
 - Lower number of poles visible

FIGURE DATA:
Please refer to Appendix G Figure 1.

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



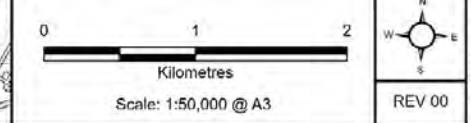
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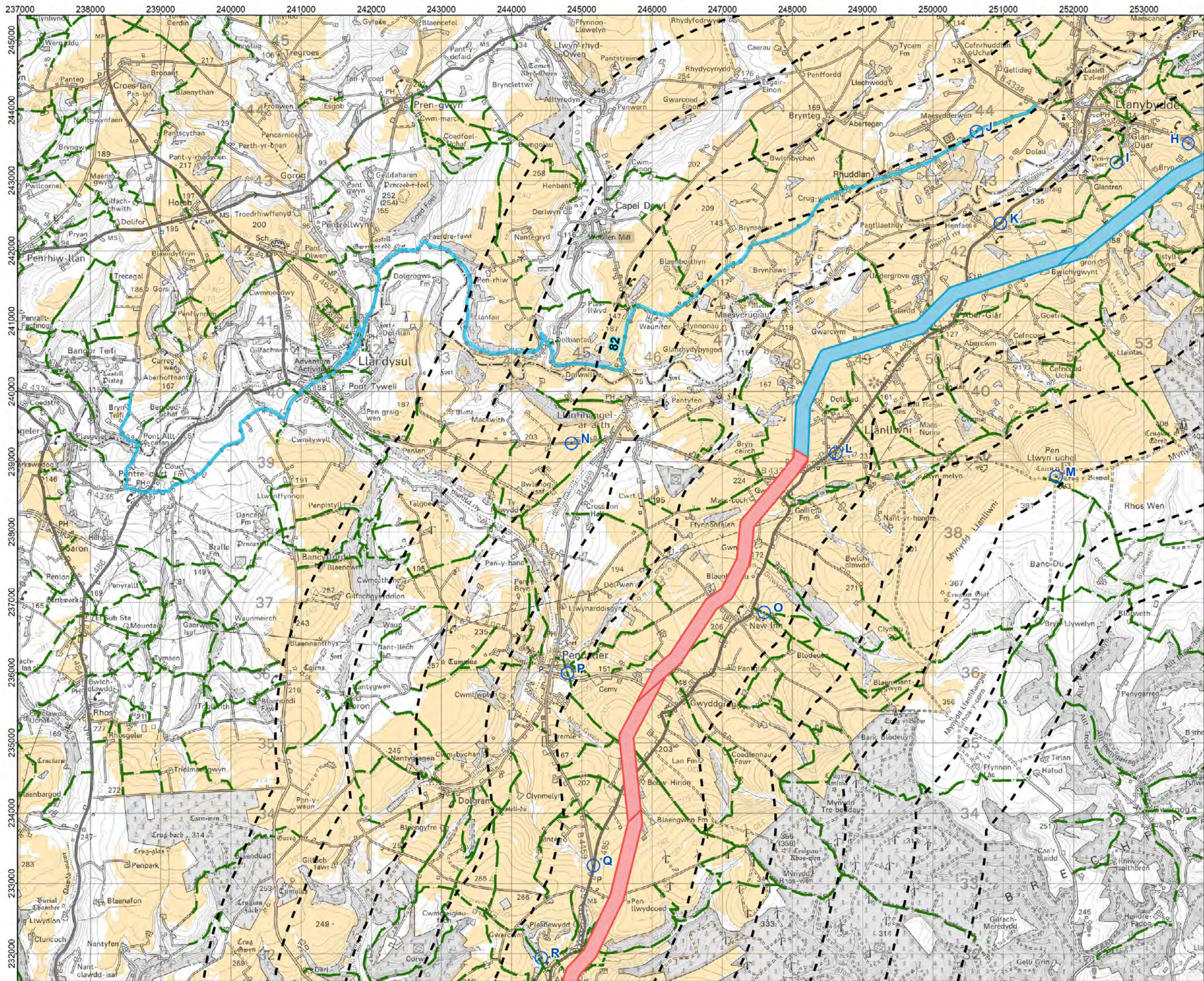
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Preliminary Viewpoints and PRoW

ID: Appx G Fig 9 Preliminary Viewpoints and PRoW



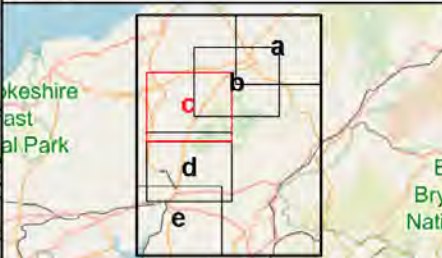


Legend:

- Section 2 Lampeter to Llanllwini
- Section 3 Llanllwini to Alltwalis
- Distance Radii (1 to 5km)
- Preliminary Scoping Viewpoints
- Public Rights of Way
- National Cycle Network
- Zone of Theoretical Visibility
- Higher number of poles visible
- Lower number of poles visible

FIGURE DATA:
Please refer to Appendix G Figure 1.

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



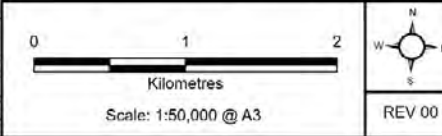
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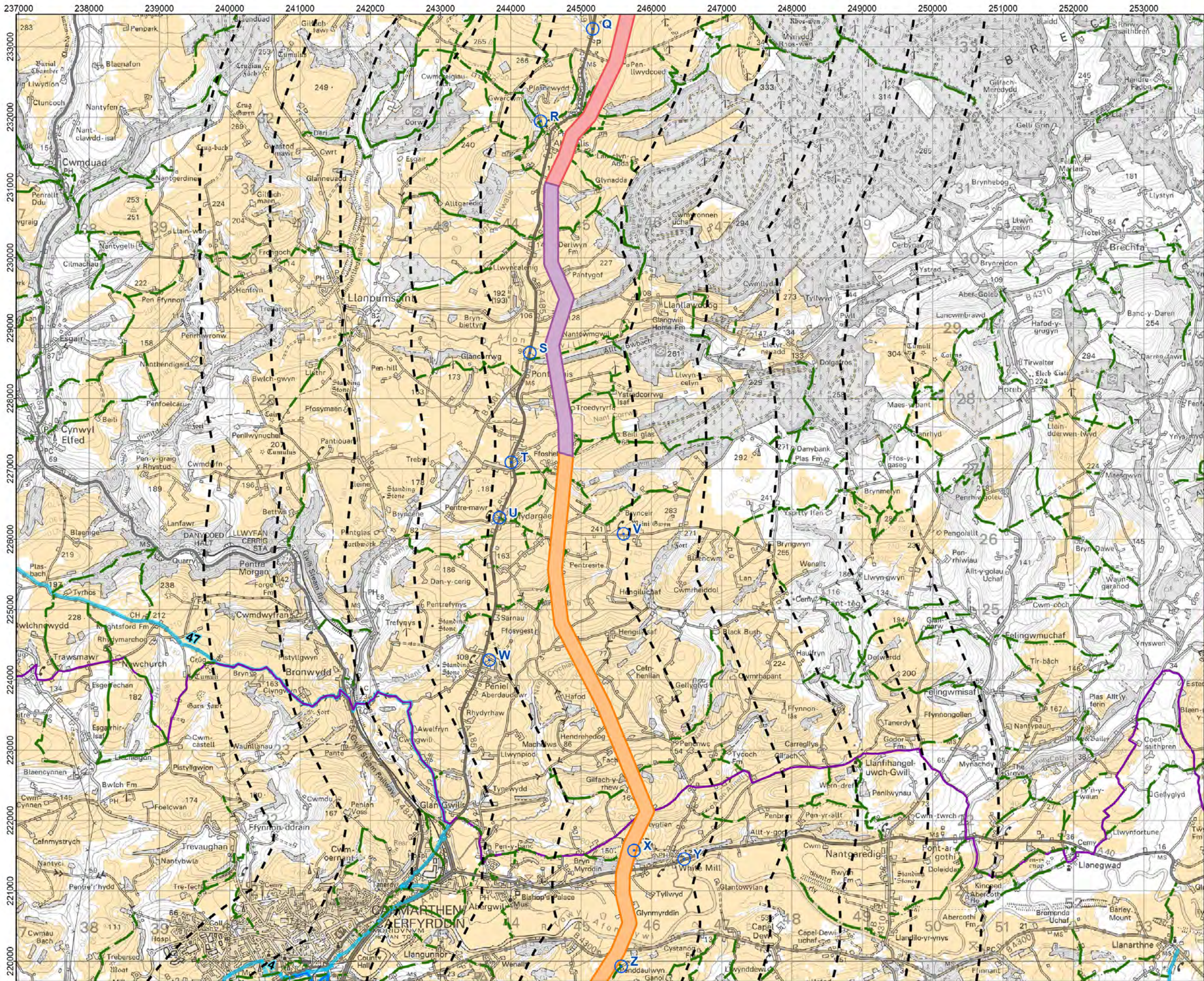
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TITLE: Appendix 6.9c:
Preliminary Viewpoints and PRoW

ID: Appx G Fig 9 Preliminary Viewpoints and PRoW



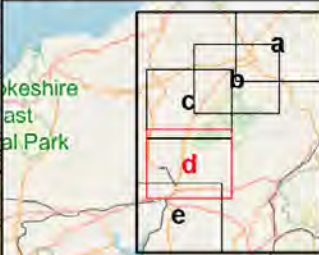


Legend:

- Section 3 Llanfyllin to Alltwalis
- Section 4 Alltwalis to Rhydargaeau
- Section 5 Rhydargaeau to Llandyfaelog
- Distance Radii (1 to 5km)
- Preliminary Scoping Viewpoints
- Celtic Way
- Wales Coast Path
- National Cycle Network
- Zone of Theoretical Visibility
- Higher number of poles visible
- Lower number of poles visible

FIGURE DATA:
Please refer to Appendix G Figure 1.

Coordinate System: British National Grid
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Units: Meter



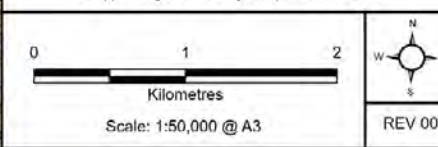
Rev	Date	Description	Drn	Chk	App
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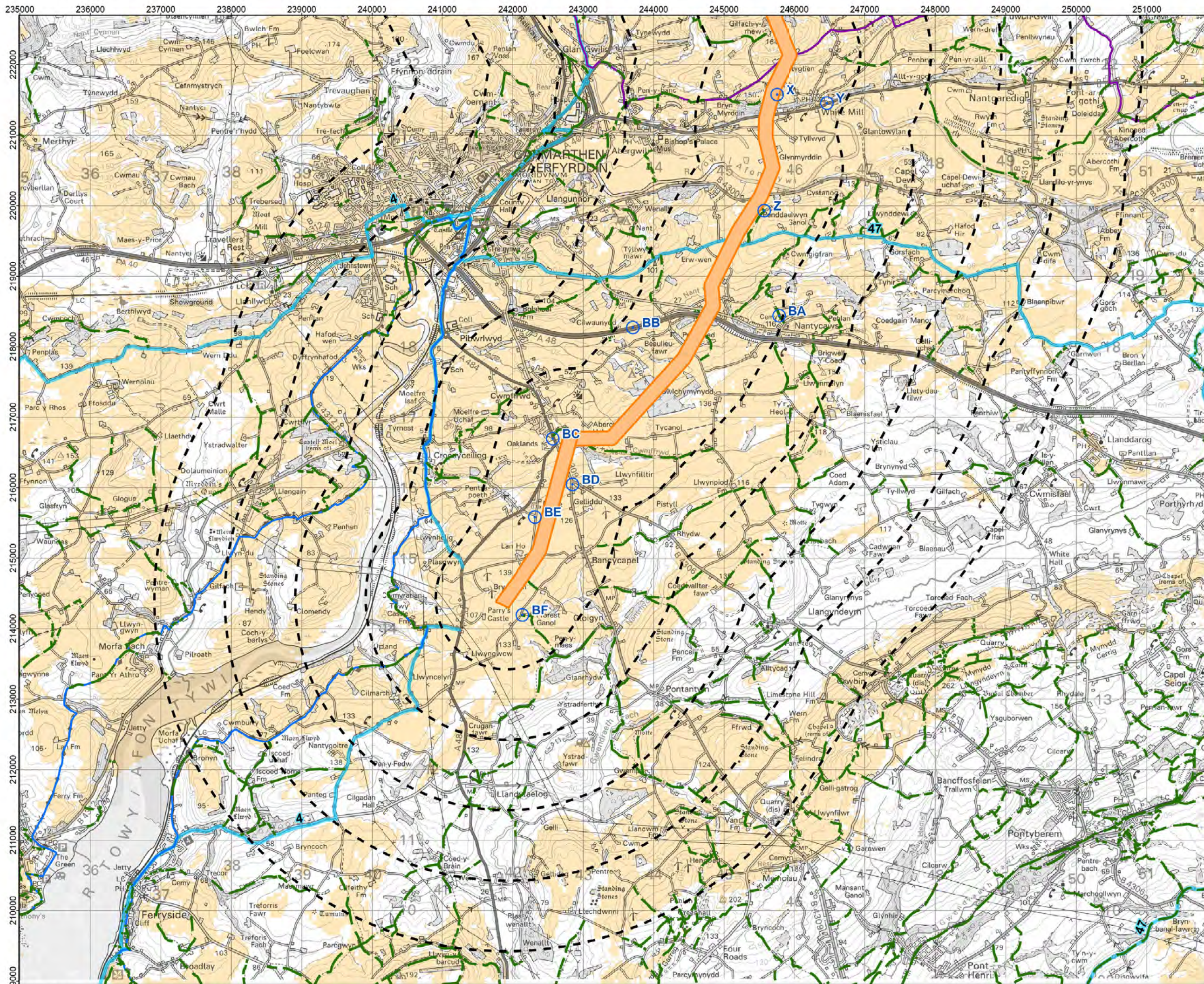
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TITLE: Appendix 6.9d:
Preliminary Viewpoints and PRoW

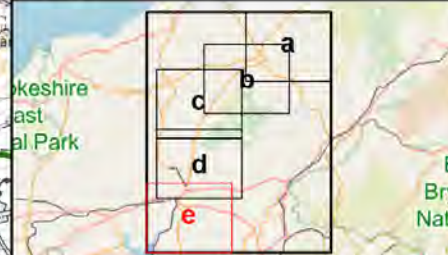
ID Appx G Fig 9 Preliminary Viewpoints and PRoW





- Legend:**
- Section 5 Rhydargaeau to Llandyfaelog
 - Distance Radii (1 to 5km)
 - Preliminary Scoping Viewpoints
 - Celtic Way
 - Wales Coast Path
 - National Cycle Network
 - Zone of Theoretical Visibility**
 - Higher number of poles visible
 - Lower number of poles visible

FIGURE DATA:
Please refer to Appendix G Figure 1.
Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
00	12/04/2024	First Draft	MP	ZF	

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TITLE: Appendix 6.9e:
Preliminary Viewpoints and PRoW

ID: Appx G Fig 9 Preliminary Viewpoints and PRoW

