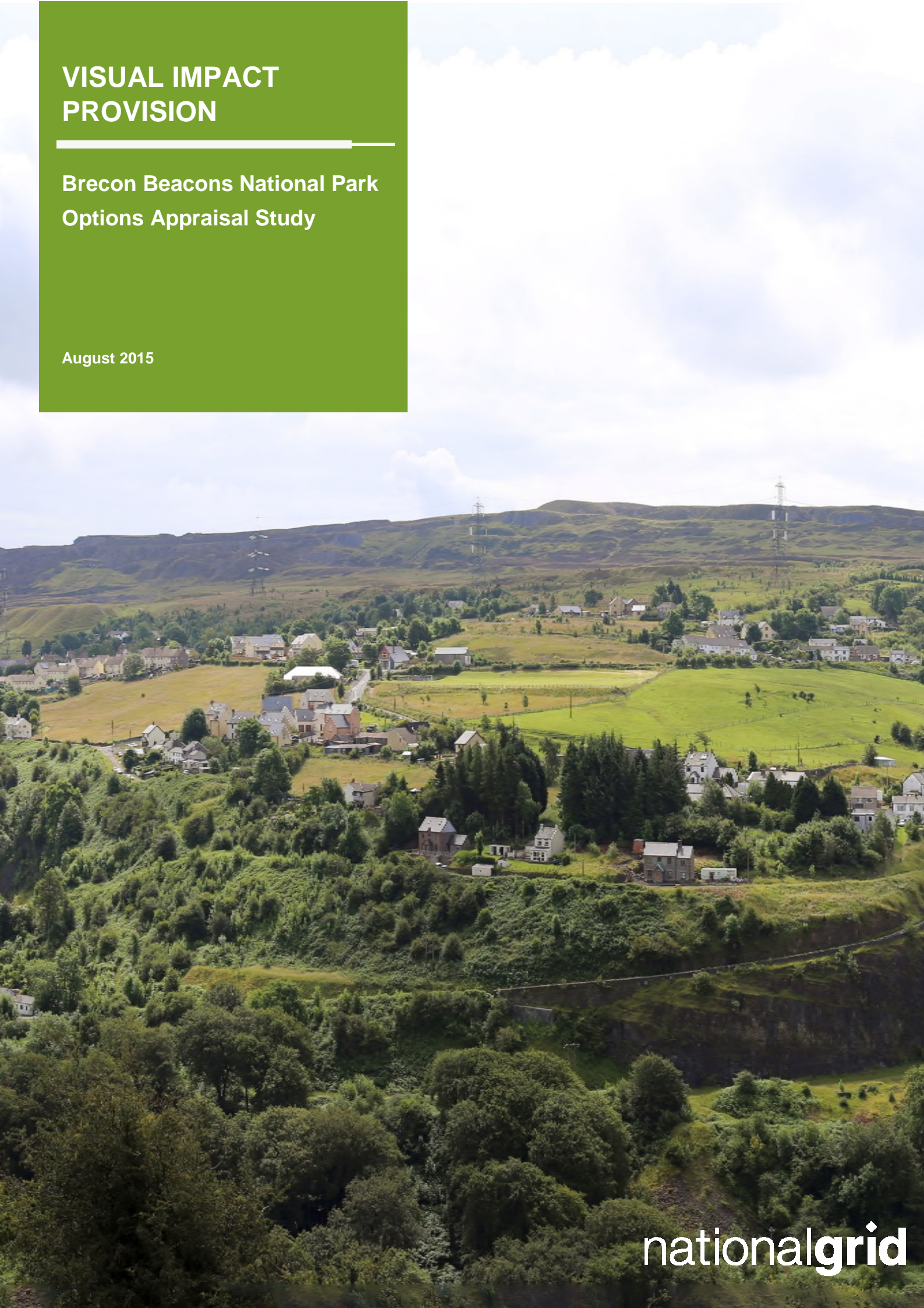


VISUAL IMPACT PROVISION

Brecon Beacons National Park Options Appraisal Study

August 2015



This report has been prepared by Gillespies on behalf of National Grid. Detailed engineering and technical information was provided by National Grid. Stakeholder engagement inputs were provided by Camargue. We are also grateful to Brecon Beacons National Park Authority and the stakeholder reference group for providing background information and to Welsh Government for supplying construction information for the A465.

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1 Introduction

Visual Impact Provision

- 1.1 Ofgem and National Grid have agreed a new set of price controls and incentives for the period from April 2013 to March 2021. This includes a provision of £500 million for electricity transmission owners to mitigate the visual impact of existing electricity infrastructure in nationally protected landscapes in Great Britain. For National Grid, which is the transmission owner in England and Wales, this means considering the effects of existing infrastructure on the visual amenity and landscapes of National Parks and Areas of Outstanding Natural Beauty (AONBs). National Grid has referred to this as the Visual Impact Provision (VIP).
- 1.2 In 2012-13, National Grid prepared a draft Visual Impact Provision policy setting out how the fund would be used and how stakeholders would be engaged in identifying opportunities for maximising benefits from it. After a public consultation on the draft between July and September 2013 the policy statement was presented to Ofgem for review. The policy statement made it clear that National Grid's objective:
- "is to achieve the maximum enhancement to the landscape from the available funds whilst ensuring that no significant adverse impacts arise as a result".*
- 1.3 The policy document included a set of guiding principles, a commitment to the creation of a Stakeholder Advisory Group consisting of stakeholders with national remits for England and Wales, and ways of engaging other stakeholders. National Grid is committed to using the VIP in a collaborative and transparent way.
- 1.4 In 2014, National Grid commissioned a landscape and visual impact assessment project to provide evidence, both to itself and its Stakeholder Advisory Group, about the relative impacts of the different transmission lines and to inform the decision making process. The purpose of the landscape and visual impact assessment project was to identify those sections of electricity transmission lines within in England and Wales that have the greater impacts on the landscape and visual amenity of the designated landscapes. The emphasis was on undertaking a comparative assessment of the landscape and visual impacts of the sections of transmission lines that lie within the designated areas and in order to identify a possible shortlist of candidate schemes for consideration by the Stakeholder Advisory Group, and to identify which sections should be taken forward for more detailed technical assessment.
- 1.5 The landscape and visual impact assessment Technical Report was published in October 2014, and included a suggested shortlist of twelve subsections of overhead line which emerged as having the highest level of combined landscape and visual impacts, and therefore merited further investigation. The twelve subsections (listed in order of combined landscape and visual impact score and by alphabetical order where scores are the same) are presented in Table 1.1:

Table 1.1: Twelve Shortlisted Sections of Overhead Line

Designated Area	Subsection
Tamar Valley AONB	YF.1
Peak District NP	4ZO.4
Dorset AONB	4YA.7
Peak District NP	4ZO.2
Peak District NP	4ZO.3

Brecon Beacons NP	4YU.3
North Wessex Downs AONB	YYM.4
Snowdonia NP	4ZC.1
Dorset AONB	4VN.2
Dorset AONB	4YA.5
High Weald AONB	4ZJ.1
New Forest NP	4YB.2

- 1.6 The Stakeholder Advisory Group accepted all 12 of these subsections as worthy of progression to the next stage of the work. The Tamar Valley AONB was used to pilot an approach to the appraisal of the different mitigation options that might be feasible. The approach was then rolled out to all of the shortlisted subsections of line. The aim of this work was to define one or at most two preferred options for mitigation in the form of 'mitigation projects' for each shortlisted subsection of line.
- 1.7 Since undergrounding is likely to emerge in many cases as a preferred approach, a prime consideration in defining the projects in each case was the potential location of sealing end compounds (SECs) where the transition from overhead to underground lines takes place. In identifying suitable locations it has often been the case that the most suitable place for the SECs will lie outside the extent of the line subsection on the shortlist. This means that the projects may include an adjacent part of a line subsection not assessed as having the highest level of landscape and visual impact but which must be included for practical purposes.
- 1.8 Conversely, in some cases not all of the shortlisted subsection is included within the study area. Reasons for this, where applicable, are highlighted in the individual reports but include; changes as a result of subsequent stakeholder discussions, and; further appraisal from site visits (the divisions between subsections were originally determined based on changes in landscape character, as presented in published documents, prior to field surveys being carried out, rather than on the basis of scale of impact).
- 1.9 Following approval from the Stakeholder Advisory Group, National Grid, is also developing an initiative which will use part of the £500 million allocation for smaller localised visual improvement projects which can be accessed by all AONBs and National Parks with existing National Grid electricity infrastructure. This landscape enhancement initiative (LEI) has an ambition to provide up to £24 million over six years (2015 to March 2021) with the aim of reducing the visual impact of National Grid's existing infrastructure and improving the related visual quality of the landscape.

The Brecon Beacons National Park Project

- 1.10 Following the acceptance of the findings of the Technical Report by the Stakeholder Advisory Group, National Grid resolved to carry out a more detailed study of Brecon Beacons National Park as part of the next stage in the VIP project. The identified section of line (4YU.3) runs from the northern side of Clydach Gorge (to the west of Blackrock) before heading south to span across the gorge and River Clydach. It then turns south east to divert around small settlements and clusters of properties, passing over the incised valleys and complex landforms of the upper slopes of the gorge, before running broadly north east between Gilwern Hill Open Access Land (to the east) and the settlement of Clydach (to the west). 4YU.3 ends north of Twyn Wenallt as the line approaches the much wider and larger scale Usk Valley. The Clydach Gorge is a tightly constrained landscape which is relatively heavily settled, particularly along the north facing upper slopes. This section of line is 4.7km in length, and is shown in the context of the National Park in **Figure 1.1**.

Brecon Beacons National Park

1.11 The Brecon Beacons National Park was established in 1957 and was amongst the first tranche of National Parks in the UK. The aims and purposes of National Parks are laid out in law as follows:

"The 1949 National Parks and Access to the Countryside Act, was a law made by parliament that set out what our National Parks would be like. The Environment Act 1995 revised the original legislation and set out two statutory purposes for National Parks in England and Wales:

- 1 Conserve and enhance the natural beauty, wildlife and cultural heritage*
- 2 Promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public*

When National Parks carry out these purposes they also have the duty to:

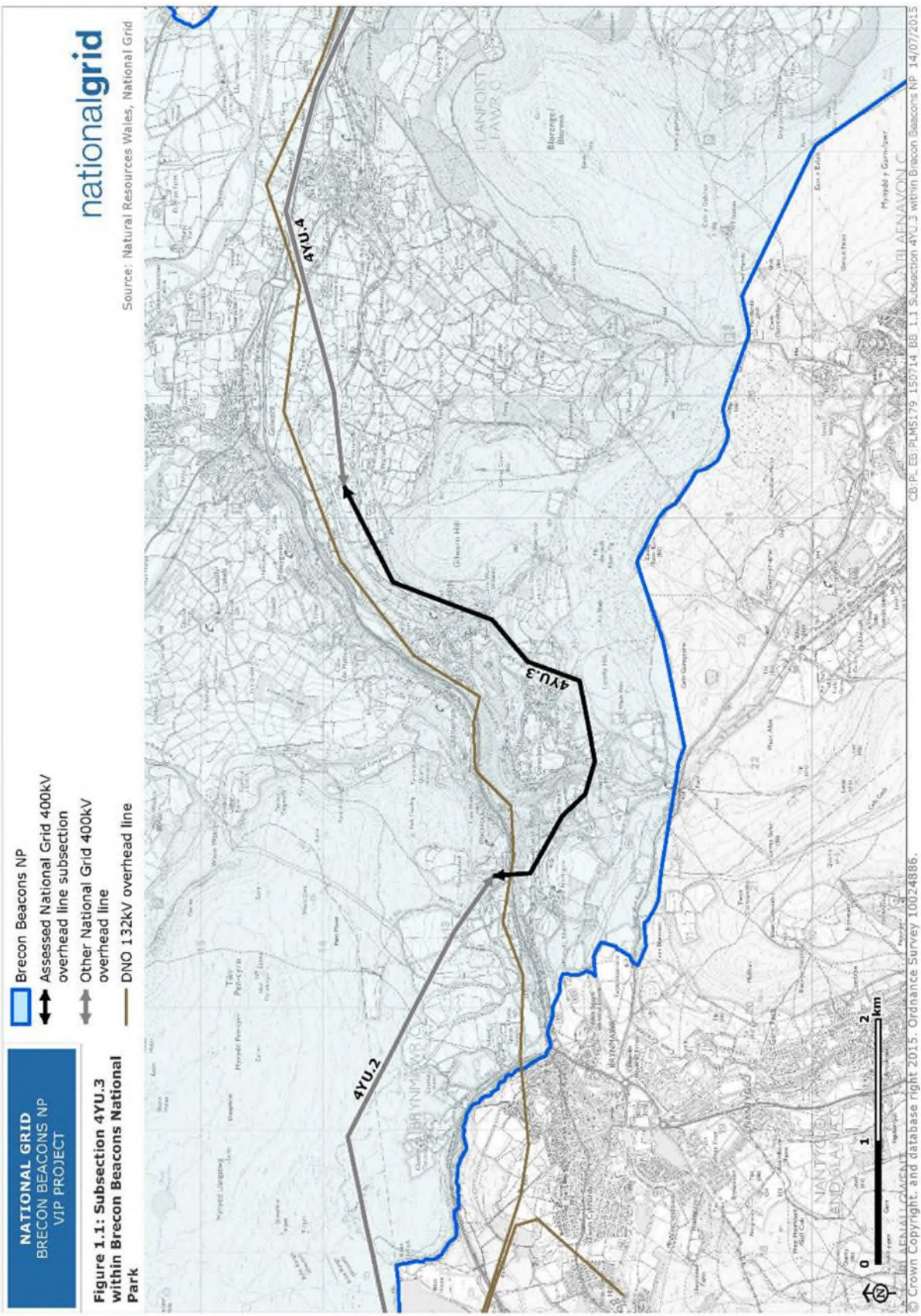
- Seek to foster the economic and social well-being of local communities within the National Parks"¹*

1.12 The special qualities of the National Park are defined in Table 3.1 of the Brecon Beacons Management Plan² as follows:

- A National Park offering peace and tranquillity with opportunities for quiet enjoyment, inspiration, relaxation and spiritual renewal;*
- A feeling of vitality and well-being that comes from enjoying the Park's fresh air, clean water, rural setting, open landscapes and locally produced food;*
- A sense of place and cultural identity - "Welshness" - characterized by the indigenous Welsh language, religious and spiritual connections, unique customs and events, traditional foods and crafts, relatively unspoilt historic towns and villages, family farms and continued practices of traditional skills developed by local inhabitants to live and earn a living here, such as common land practices and grazing;*
- A sense of discovery where people can explore the Park's hidden secrets and stories such as genealogical histories, prehistoric sites, relic medieval rural settlements, early industrial sites, local myths and legends and geological treasures from time immemorial;*
- The Park's sweeping grandeur and outstanding natural beauty observed from a variety of harmoniously connected landscapes, including marvellous gorges and waterfalls, classic limestone geology with caves and sink holes, contrasting glacial landforms such as cliffs and broad valleys carved from old red sandstone and prominent hilltops with extensive views in all directions;*
- A working, living 'patchwork' of contrasting patterns, colours and textures comprising well-maintained, farmed landscapes, open uplands, lakes and meandering rivers punctuated by small-scale woodlands, country lanes, hedgerows, dry stone walls and scattered settlements;*
- Extensive and widespread access to the Park's diversity of wildlife and richness of semi-natural habitats, such as native woodlands, heathland and grassland, natural lakes and waterside habitats, ancient walls and hedgerows, limestone pavement and blanket bogs including those of national and international importance;*
- In the context of the UK, geographically rugged, remote and challenging landscapes; and*
- Enjoyable and accessible countryside with extensive, widespread and varied opportunities to pursue walking, cycling, fishing, horse riding, water based and other forms of sustainable recreation, adventure or relaxation; and*
- An intimate sense of community where small, pastoral towns and villages are comparatively safe, friendly, welcoming and retain a spirit of cooperation.*

¹ <http://www.nationalparks.gov.uk/learningabout/whatisanationalpark/aimsandpurposesofnationalparks>

² Brecon Beacons National Park Authority *Brecon Beacons National Park Management Plan 2010 to 2015*



- 1.13 The focus of the VIP project is on the mitigation of landscape and visual impacts, and the assessment of these impacts is set out in the Landscape and Visual Impact Assessment Technical Report. The summary sections relating to the 4YU.3 subsection are reproduced below.

4YU.3 is judged to have **landscape impacts of a high level of importance** on the *Clydach Gorge* landscape character area. The complex nature of the landform has resulted in the requirement for an unusually high number of heavier angle pylons and a closer spacing between pylons, which increases the combined scale and importance of the impact of the pylon line on the landscape. The large scale of the pylons also conflicts with the human scale of the properties and scattered vegetation along the upper sides of the gorge and the pylons are the most notable vertical infrastructure in this landscape. The special qualities of the National Park are clearly expressed in this area, which is highly valued for its recreational value and industrial heritage. The pylon line runs through both the Clydach Gorge and Blaenavon Welsh Registered Historic Landscapes and is also close to the Blaenavon World Heritage Site.

This subsection is also judged to have **visual impacts of a very high level of importance**. The impact of the pylon line on views is mostly experienced by the relatively large local community located within the Clydach Gorge, some of whom experience frequent and very close up views of the line with pylons often being highly visible and dominant features on the skyline, resulting in very high impacts on the community. The scale of the impact on people using local Public Rights of Way and the nearby Open Access Land varies; however, the overall importance of the impact is high due to the frequent and valued nature of the views afforded from many places.

- 1.14 Engagement events ('Stakeholder Reference Group' and public 'drop in') were undertaken in December 2014 (see **Section 4**). The landscape through which section 4YU.3 passes was identified as being very constrained and the Stakeholder Reference Group agreed that it didn't present many options for mitigating the landscape and visual impact of the 400kV overhead (transmission) line (400kV OHL). Given that proposals are being developed for dualling the A465 Heads of the Valleys Road, it was agreed that the more detailed Options Appraisal Study should focus on the road corridor as a possible location for construction of an underground cable.
- 1.15 The purpose of this Options Appraisal Study is to look at this option in more detail, to identify any other mitigation options, and to determine which, if any, will deliver the necessary mitigation without giving rise to significant adverse impacts that would be greater than those being mitigated.

Figure 1.2 View of 4YU.3 in close proximity to the local communities on the upper southern slopes of Clydach Gorge



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2 Methodology

- 2.1 This study identifies feasible ways of mitigating the impacts of 4YU.3 on the Brecon Beacons National Park. The appraisal of the identified options follows the general approach set out in National Grid’s document *Our Approach to Options Appraisal* (2012). It covers the three main topic areas (Technical, Environmental and Socio-Economic) which can be broken down into sub-topics as identified in **Table 2.1** below. Sub-topics are only considered where they may influence the choice of option.

Table 2.1: Appraisal Topics

Technical	Environmental	Socio-economic
Technical complexity	Landscape and visual	Local economic impact
Construction/project delivery issues	Ecology	Aviation and defence
Suitability of technology	Historic environment	Traffic and transport
Network capacity	Water	
Network efficiencies/ benefits	Local air quality	
	Noise and vibration	
	Soils and geology	

- 2.2 The methodology for this study comprises the following key stages:
- Establish a study area and gather baseline information, including information assembled for the landscape and visual impact assessment (see **Section 3**);
 - Undertake local stakeholder engagement to gather information, organised by National Grid in association with the Brecon Beacons National Park Authority (see **Section 4**);
 - Identify options which would mitigate the identified impacts without giving rise to other significant adverse impacts (see **Section 5**); and
 - Undertake an appraisal of these options and report on their potential impacts, and make a recommendation to the Stakeholder Advisory Group on the favourable option (see **Section 6**).
- 2.3 In addition, the table in **Appendix 1** provides a preliminary overview of the likely primary consents associated with each option. It should be noted that that this is an initial view based on the draft options and has not been the subject of discussions with stakeholders. The purpose at this stage is to assist in understanding the complexity of the options, in consenting terms and to provide an indication of the associated timescale for achieving consent. Any option chosen would also need agreement from the landowner. If an option is selected to be taken forward to the next stage of development a detailed Consents and Land Strategy will be produced.

Environmental Statement

- 2.4 If this area is selected to be taken forward to the next stage whereby a detailed scheme will be developed, regardless of whether the proposal requires an Environmental Impact Assessment under the terms of the *Town and Country Planning (Environmental Impact Assessment) Regulations*, National Grid would undertake an Environmental Impact Assessment and produce a detailed Environmental Statement to accompany the planning application.

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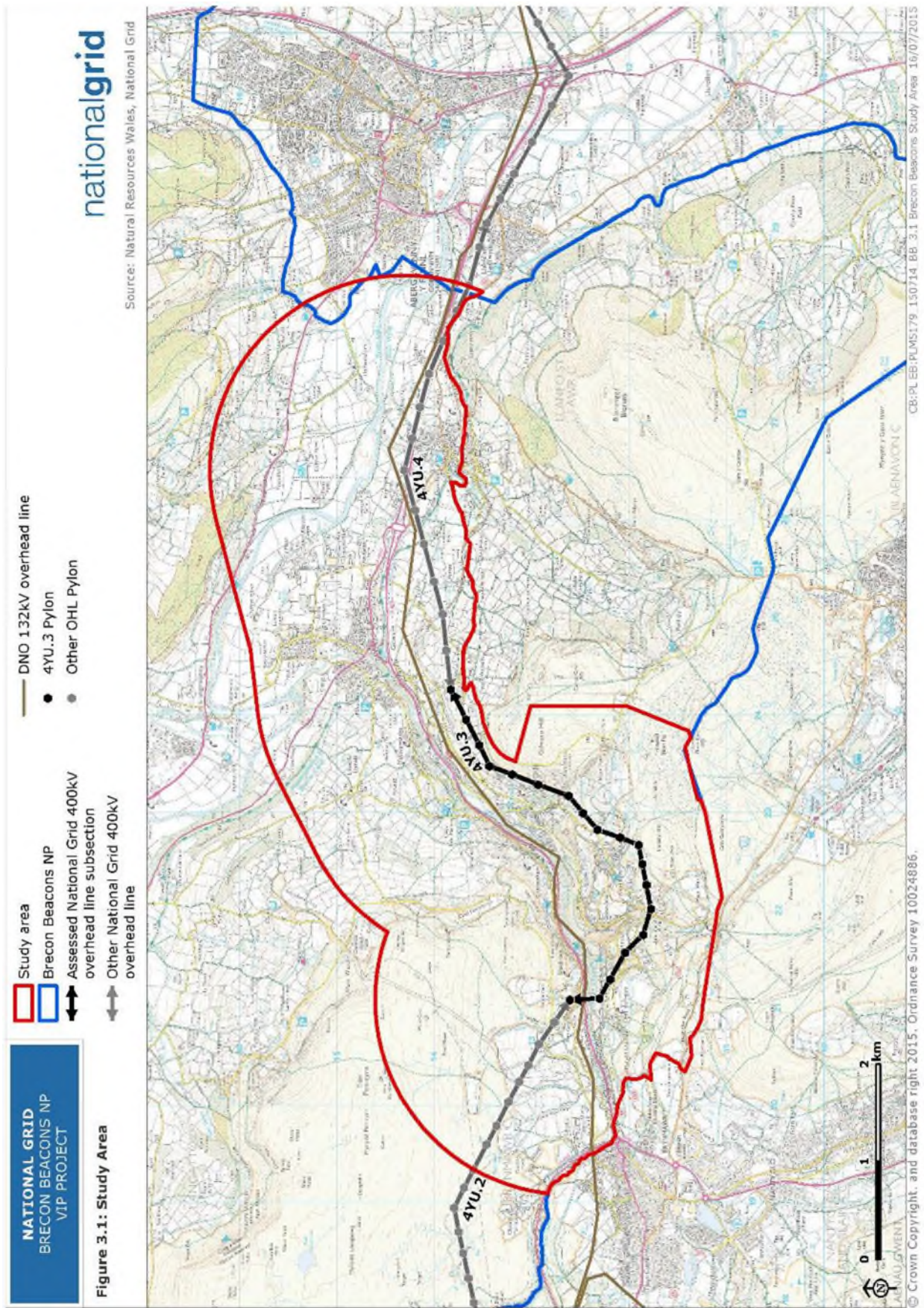
3 Study Area and Baseline

Route History

- 3.1 The existing 4YU route is a 400kV OHL constructed in 1969 by Blaw Knox and is of L6 standard lattice pylon design with quad conductor bundles. The 4YU route which runs between Rassau and Walham substations, each providing supplies for the local Distribution Network Owner (DNO) substations.
- 3.2 The 4YU route is an integral part of the National Electricity infrastructure and any potential options as part of this project would need to be designed to meet the capability of the existing infrastructure.

Study Area

- 3.3 The study area was initially based on a 2km buffer around subsection 4YU.3. This buffer was then reduced to the south due to the presence of Blaenavon Industrial Landscape World Heritage Site, the Blaenavon Registered Historic Landscape, and the complex topography around Llanelly Hill and Gilwern Hill, which all present significant constraints to mitigation. The 2km buffer was increased to the east to take into account the extent of the A465 road dualling scheme which provides an opportunity to incorporate the undergrounding of cables in combination with the proposed highway upgrade.
- 3.4 As shown in **Figure 1.1**, subsection 4YU.3 deviates from a straight line in order to span Clydach Gorge at a relatively shallow point and to avoid clusters of properties at Llanelly Hill, Clydach and Waenllapria. The line then turns back to a north easterly direction to join section 4YU.4, with the subsection broadly forming a large 'U' shape.
- 3.5 Although not considered further in this appraisal, the study area also includes part of Subsection 4YU.2 which lies to the west and runs through the southern edge of the National Park north of Brynmawr, and subsection 4YU.4 which lies to the east and broadly parallels the A465 within the Usk Valley before exiting the National Park. The Technical Report concluded that both subsections 4YU.2 and 4YU.4 were considered to have lesser landscape and visual impacts on the National Park than 4YU.3. It was however noted on site that the eastern end of subsection 4YU.2 is visible on the skyline from the upper slopes of the Clydach Gorge (albeit in the distance) and has an impact on the visual amenity of the local community and recreational users on the upper southern slopes of the Gorge. The project team explored the option to include part of subsection 4YU.2 in this study but concerns raised in the stakeholder engagement about potential impacts on the environmentally sensitive moorland (Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) to the north ruled this out.
- 3.6 The outer limits of the study area have therefore been defined as:
 - The boundary of the National Park outside Brynmawr to the west (as this includes areas outside the SSSI/SAC designations);
 - 2km from subsection 4YU.3 to the north;
 - The extent of the A465 dualling scheme in the east; and
 - The boundary of the Blaenavon Industrial Landscape World Heritage Site to the south.
- 3.7 The resulting study area is shown in **Figure 3.1**. The rest of this section outlines features and potential constraints of the study area and its immediate surroundings which are likely to influence a decision on which mitigation option to pursue, with reference to the environmental topics listed in **Table 2.1**.



Environmental Baseline

Landscape and Visual

- 3.8 Landscape and visual impacts are defined in the third edition of *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, as follows:
- *Landscape impacts* means effects on the landscape as a resource in its own right; and
 - *Visual impacts* means effects on specific views and on the general visual amenity experienced by people.³
- 3.9 Within the study area the 400kV OHL includes subsections 4YU.2, 4YU.3 and 4YU.4. 4YU.2 enters the western edge of the study area on the elevated ground of the southern slopes of Mynydd Llangatwg, before heading south east to join subsection 4YU.3 north of Clydach Gorge. 4YU.3 runs through the landscape as described previously before meeting subsection 4YU.4 in elevated farmland to the north of Twyn Wenallt. 4YU.4 runs in an easterly direction, descending from the higher ground before oversailing the A465 near Hop-Yard Farm. It then runs broadly parallel to the A465, oversailing it once near Lower Cadvor, before exiting the study area and the National Park to the south west of Llanfoist.

Landscape Character

- 3.10 This section presents an overview of the landscape baseline including landscape character, current landscape condition and designations attached to the landscape.
- 3.11 The landscape of the study area has a strong and distinctive sense of place due to the presence of the well-wooded Clydach Gorge and its proximity to Blaenavon Industrial World Heritage Site. Although subject to reclamation schemes Blaenavon remains one of the best preserved, industrial landscapes in Wales, containing a vast concentration and diversity of archaeological features.
- 3.12 As shown in **Figure 3.2**, subsection 4YU.3 passes through an area characterised in the Brecon Beacons Management Plan⁴ as the *Clydach Gorge Landscape Character Area (LCA)*. To the west and east lie the *Mynyddoedd Llangatwg and Llangynidr* and *Eastern Usk Valley* LCAs respectively. The line has a high scale of impact on these LCAs as it conflicts with the key characteristics of the landscape including the high scenic quality.
- 3.13 Towards the west of the study area, the *Mynyddoedd Llangatwg and Llangynidr* LCA comprise a plateau landform which is characterised by a smooth profile, open moorland and a lack of settlement (although there is evidence of prehistoric archaeology and historical quarrying). It displays many features typical of a karst (limestone) landscape, and a mosaic of high-quality moorland habitats. Despite proximity to settlements, much of the area retains an open, undeveloped quality and is not heavily used for recreation.
- 3.14 The *Clydach Gorge* LCA is characterised by the deep and dramatic Clydach Gorge, at the base of which is the fast-flowing River Clydach which is fed by tributary streams and waterfalls tumbling down steep valley sides. Beech woodlands cling to the sides of the gorge whilst remnants of the area's rich industrial past are evident in the old viaducts, tram roads, quarries, ironworks and lime kilns. The bottom of the gorge has clusters of properties and small settlements concentrated along the A465 which runs alongside the river. The upper southern slopes are relatively heavily populated; communities are represented by a concentration of small settlements and isolated properties. To the south of this LCA, the distinctive landform of Gilwern Hill lies in the Blaenavon Industrial Landscape World Heritage Site and affords views across and into the gorge. To the east, the *Eastern Usk Valley* LCA, displays a settled farmland character that contrasts with the surrounding open and craggy hills. The wide flat valley floor contains a patchwork of agricultural fields, main roads and the Monmouthshire and Brecon Canal. The Usk Valley is influenced by parkland planting and is densely wooded in places. Settlement includes several villages, numerous farms and country houses and grounds. A series of Iron Age hillforts overlook the valley, and the southern part has industrial links with the Clydach Gorge and Blaenavon Industrial Landscape World Heritage Site.

³ Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment* 3rd Edition. Routledge. Paragraph 2.21.

⁴ Brecon Beacons National Park Authority *Brecon Beacons National Park Management Plan 2010 to 2015*

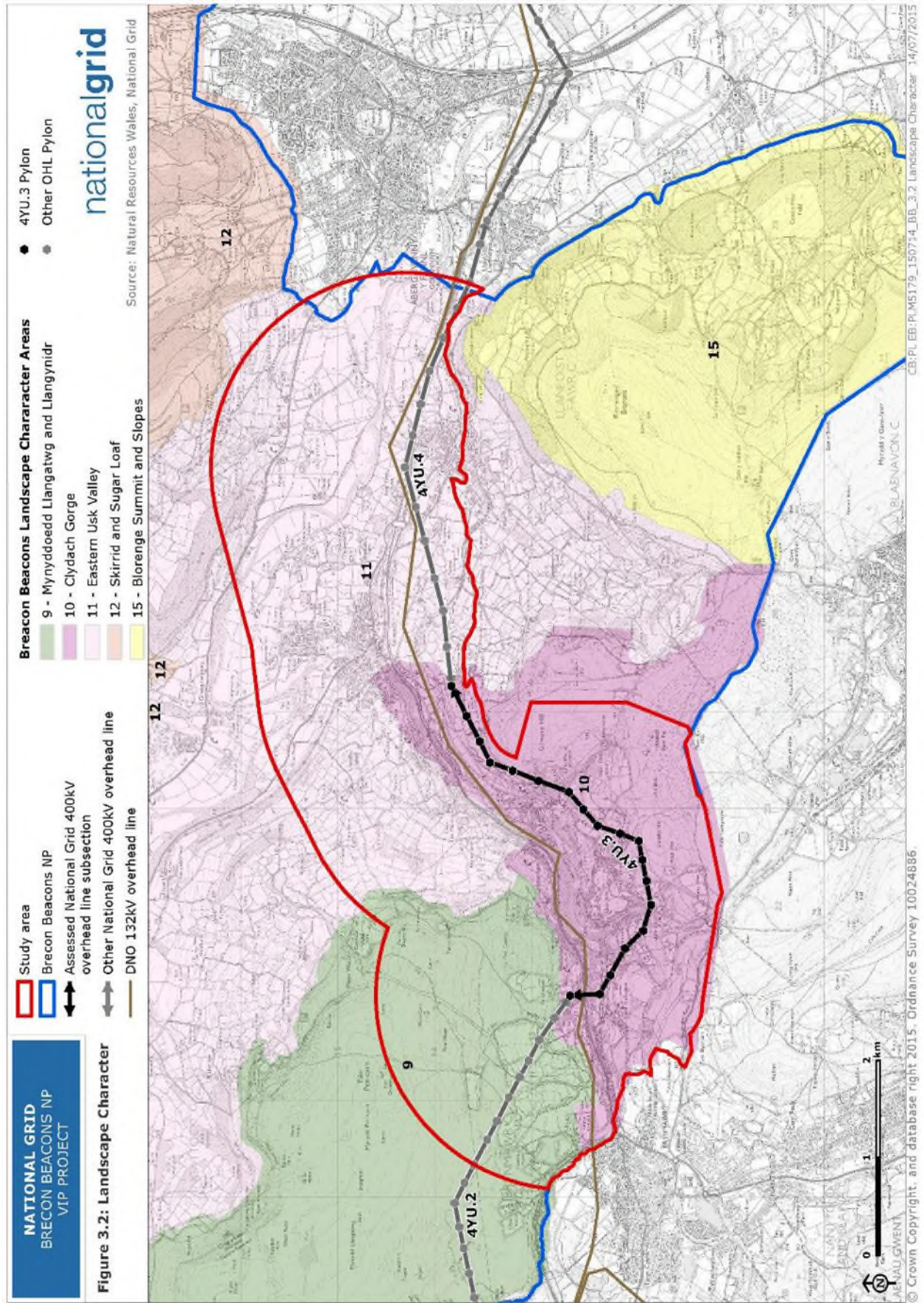
- 3.15 The importance of the *Clydach Gorge* LCA to the National Park is highlighted by the *Brecon Beacons Management Plan*⁵ and *Brecon Beacons Landscape Character Assessment*⁶. Page 83 of the latter states, “*The remains of these industries, and their associated settlements, buildings transport routes and spoil tips create an exceptionally rich historic landscape.*”
- 3.16 The *Clydach Gorge* LCA embodies a number of the special qualities of the park, in particular the fifth special quality which specifically refers to the dramatic topography and also those relating to a sense of historical discovery and the visually stimulating patchwork of contrasting colours and textures

Visual Amenity

- 3.17 This section identifies the visual amenity and availability of views as currently experienced by people (visual receptors). Visual receptors include local communities, residents in scattered houses, visitors to the area, recreational users including users of the Public Rights of Way, motorists on the local road network and people working in the area.
- 3.18 Visibility within the *Clydach Gorge* is restricted by the steep valley sides, with the main views being along the valley floor. However, the recent removal of a high number of trees (related to the construction of the A465 dualling scheme) reveals glimpses of the steep and craggy valley sides to the south; some pylons also appear fully or partially against the skyline in views from the valley floor. Views from the higher ground are more expansive and include the well-wooded gorge and dramatic topography of the surrounding landscape. On the upper southern slopes of the gorge some receptors experience full views of the pylons as the line runs in close proximity to the local communities.

⁵ Brecon Beacons National Park Authority *Brecon Beacons National Park Management Plan 2010 to 2015*

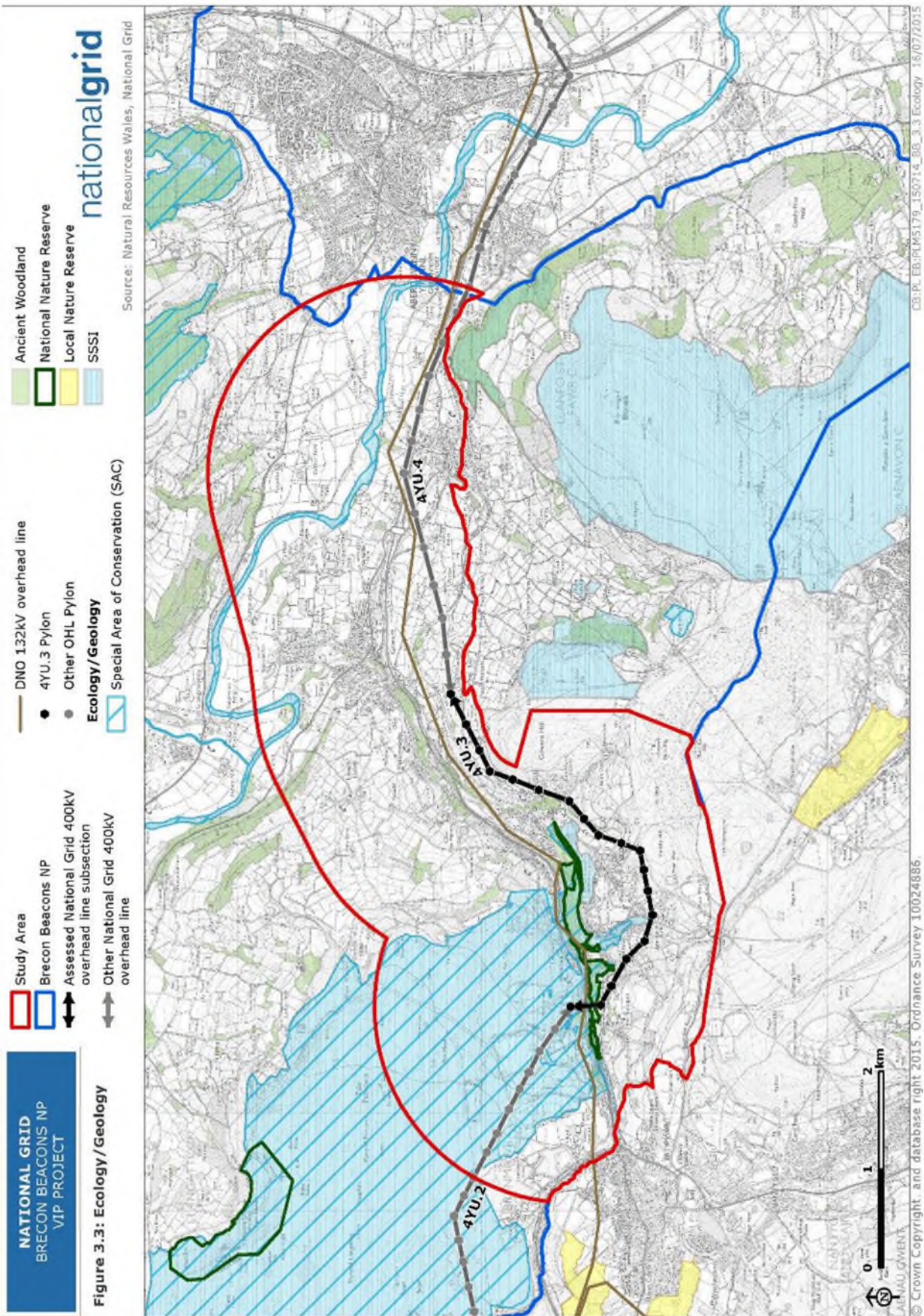
⁶ Brecon Beacons National Park Authority (2012) *Brecon Beacons National Park Landscape Character Assessment*



- 3.19 People within the National Park who experience these views include the residents of settlements within the gorge, including Llanelly Hill, Waenllapria, Clydach, Maesygartha, as well as people living in the local hamlets and scattered properties.
- 3.20 The presence of pylons may also detrimentally affect the experience of visitors who come to enjoy the scenery or to explore the many historical sites associated with the World Heritage Site. Motorists using the A465 have views of the line (these views have opened up and are more prominent due to the recent tree removal in the area), whilst users of the minor road network often have clear views of the pylons. Users of National Cycle Route 46 and a number of local footpaths have frequent foreground views of the pylons.
- 3.21

Ecology

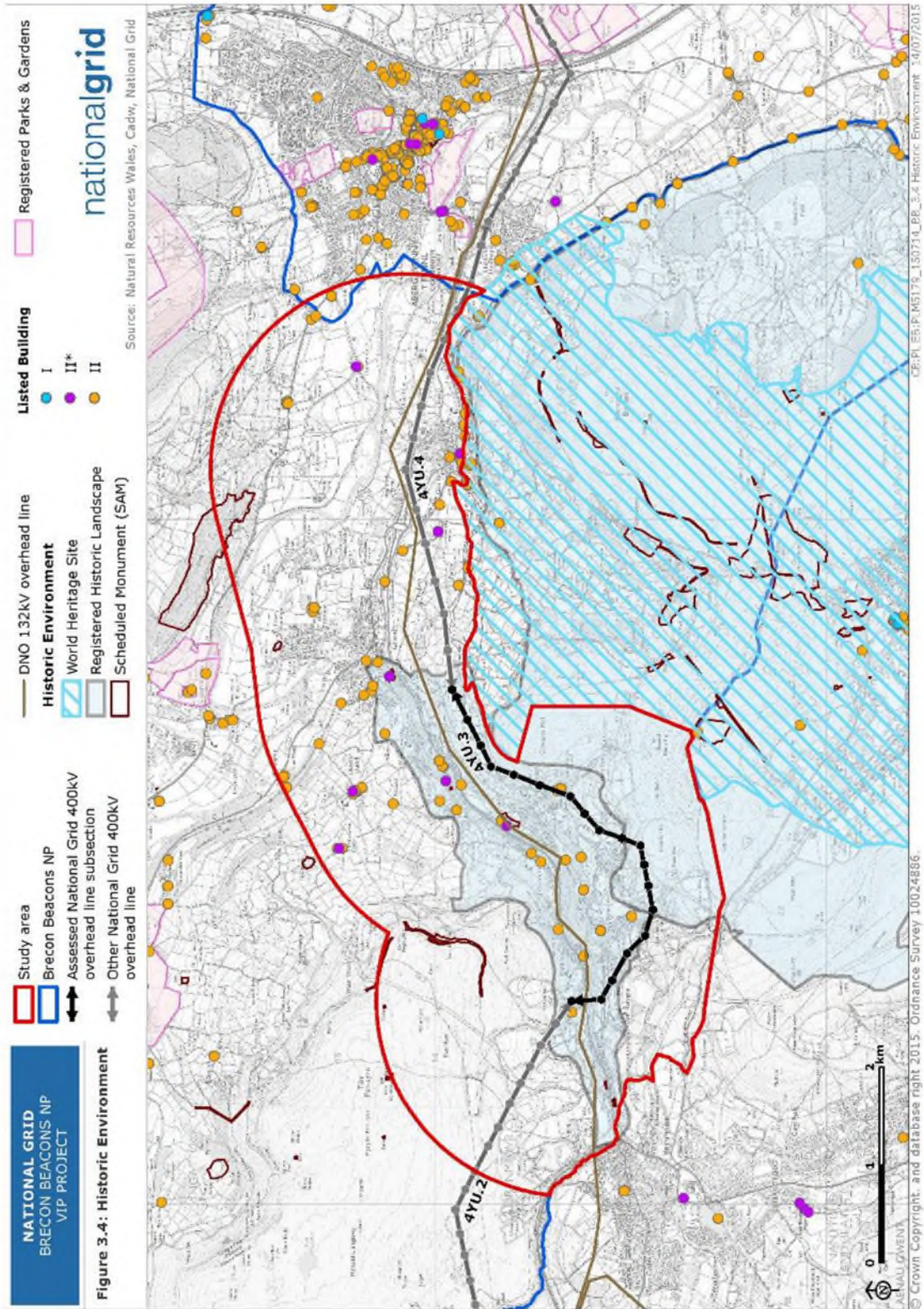
- 3.22 A number of ecological designations are found in or just outside the study area. At an international level, the Cwm Clydach Woodlands, Usk Bat Sites and River Usk (Afon Wysg) are designated as Special Areas of Conservation (SACs). At a national level, Cwm Clydach, Mynydd Llangatwg (Mynydd Llangattock), River Usk (Afon Wysg), Bloreng, Coed-y-person, Brynmawr Sections, Gilwern Hill and Siambre ddu are designated as Sites of Special Scientific Interest (SSSIs). Cwm Clydach and Craig y Cilau are National Nature Reserves. Areas of woodland are located on the lower slopes of the gorge with much of the Cwm Clydach Woodlands and Cwm Clydach National Nature Reserve classed as Ancient Woodland. These designations are shown on **Figure 3.3**.
- 3.23 The Cwm Clydach Woodlands SAC is designated primarily as a good example of a beech forests close to the northern-western limit of the habitat's UK and European range and at relatively high altitude. The main wood is on a steep valley side, comprising a mature canopy of large trees with abundant dead wood. Transitions occur to more acidic beech woodland. Rare and characteristic plant species at the site include the whitebeam (*Sorbus porrigentiformis*), mountain sedge (*Carex montana*), yellow bird's-nest (*Monotropa hypopitys*) and bird's-nest orchid (*Neottia nidus-avis*).



- 3.24 The Usk Bat Sites SAC is designated because it contains approximately 5% of the UK population of the lesser horseshoe bat (*Rhinolophus hipposideros*) as well as a number of important hibernacula in caves.
- 3.25 The River Usk has a number of species present on Annex II of the 92/43/EEC Habitats Directive, which are the primary reason for the sites' designation as a SAC. They include: sea lamprey (*Petromyzon marinus*), Brook lamprey (*Lampetra planeri*), River lamprey (*Lampetra fluviatilis*), Twaite shad (*Alosa fallax*), Atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*) and otter (*Lutra lutra*).
- 3.26 Cwm Clydach SSSI is designated for the stand of self-regenerating beech in the Clydach Gorge, believed to be the only remaining natural beech wood in South Wales. Mynydd Llangatwg (Mynydd Llangattock) SSSI is protected for its geology as it contains an array of collapsed dolines (karst depressions) and subsidence basins deemed to be of national importance. The River Usk SSSI is protected for its biology as noted above.
- 3.27 The Brynmawr Sections SSSI adjoins the western edge of the Cwm Clydach SSSI and lies immediately to the south of the A465, extending to the A467 and A4047 junction in the west. The sections are of stratigraphical and palaeogeographical significance and designated due to their status as the best exposure of the lower Westphalian A (Carboniferous) rocks in the eastern part of South Wales.
- 3.28 The Mynydd Llangatwg (Mynydd Llangattock) SSSI is designated due to its underlying cave system which are important bat hibernation sites.
- 3.29 Blorenge, Coed-y-person, Gilwern Hill and Siambre ddu SSSIs lie within the Blaenavon Industrial Landscape World Heritage Site, beyond the study area to the south.
- 3.30 The Cwm Clydach National Nature Reserve overlaps with Cwm Clydach SSSI and Cwm Clydach Woodlands SAC and protects some of the native beech woodlands and many associated species of moss growing under the humid beech canopy.
- 3.31 The undesignated parts of the study area comprise open grazing land on the higher ground at Mynydd Llangatwg large mature woodlands on the sides of the gorge (although areas of woodland have recently been felled for the A465 dualling scheme). There is an increase in arable and pastoral farmland as the landscape opens up to the east. Searches for protected species data and ecological surveys will be undertaken to inform detailed routing.

Historic Environment

- 3.32 The Blaenavon Industrial Landscape World Heritage Site lies immediately to the south of the study area and has been designated for the presence of industrial relics related to Blaenavon's history as a major producer of iron and coal in the late 18th and early 19th century. The development of these industries was one of the principal drivers of the Industrial Revolution. The area is shown on **Figure 3.4**.
- 3.33 The Registered Historic Landscape of Clydach Gorge lies in the bottom of Clydach Gorge extending from Brynmawr in the west to Gilwern in the east. The area is characterised by industrial transport links and evidence of extensive quarrying. Other features include the Clydach Ironworks and associated leats (artificial millstreams) and other historic water supply features.
- 3.34 Scheduled Ancient Monuments include the Clydach Railroad section and Clydach Coal Level near Brynmawr, the Iron Furnace south west of Clydach, Clydach Ironworks (remains), Smart's Bridge, Gilwern Embankment and Disgwylyfa Tramroads.
- 3.35 Within the study area there are a number of Grade II listed buildings, including Clydach House, Oak House and Clydach Wesleyan Chapel which all lie close to the A465. The Nant Dyar Railway Viaduct and Clydach Limekilns are both Grade II listed and lie close to the existing 400kV OHL at the western base of Gilwern Hill.
- 3.36 The Historic Environment Record (HER) may identify further historic features. This work is ongoing and will be included in the final information submitted to the Stakeholder Advisory Group.



Water

- 3.37 The Environment Agency Flood Map⁷ shows a large area of 'High' flood risk is associated with the River Usk, part of which falls into a small part of the north eastern study area between Glangwryney and Abergavenny. Several minor watercourses feed into the river.
- 3.38 The map also shows Medium to High risk zones on both sides of the River Clydach (which broadly runs alongside the A465). These zones are generally constrained to the immediate banks of the Clydach apart from some lower lying areas around to the west of Station Road and to south of Maesygartha as the river crosses the A465; both of which have slightly extended risk zones.

Soils and Geology

- 3.39 There is a complex bedrock geology underlying the area which comprises⁸ (broadly from west to east across the study area) mainly mudstones, siltstones, sandstones, ironstone and ferricrete of the Pennine Lower Coal Measures Formation, South Wales Lower Coal Measures Formation, Millstone Grit Group, Dinantian Rocks and Upper and Lower Devonian Rocks.
- 3.40 The records for superficial deposits only cover the eastern half of the study area and include deposits of till, alluvium and glacial sand and gravel.
- 3.41 The area has a rich history of mining and ironworks and there may be some areas of polluted soil with possible deposits of arsenic and other metals. Areas identified as being of a potential concern are the sewage works near Pont Gam, the sewage farm near Hop-yard Farm and the Ironworks near Cabier Dyar. Available records will be investigated prior to the selection of a detailed route alignment.
- 3.42 An authorised landfill site is located to the north of the A465 around the disused Lime Works at Blackrock.

Other Environmental Issues

- 3.43 At this stage of the appraisal process it is considered that certain environmental topics, for example local air quality, noise and vibration would not influence the choice of a preferred option and hence have not been included. More detailed assessment of a wide range of topics (including air quality, noise and vibration) is likely to be required for construction and operational activities as part of the supporting documentation to accompany a planning application(s).

Socio-Economic Baseline

Local Economic Activity

- 3.44 Commercial properties within the study area are mainly found in Gilwern with some scattered pubs and hotels along the A465 and in the smaller settlements such as Waenllapria. The larger towns of Abergavenny, to the east, and Brynmawr, to the west, both lie just outside of the study area but have a relatively high number of commercial properties. Gilwern industrial Estate, Blaenant Industrial Estate and the sewage works are important local employers. Outdoor education centres are present in Govilon and to the north east of Gilwern. Managed farmland is mainly concentrated towards the north east of the study area, as the Usk valley widens out, with the elevated open moorland surrounding the gorge used for sheep and cattle grazing. Farmland around subsection 4YU.3 is classified under the Agricultural Land Classification as low grade (4 or 5⁹).
- 3.45 Tourism is an important part of the local economy with many businesses benefitting from visitors to the National Park including walkers and visitors to the World Heritage Site (albeit just outside of the study area) and the local heritage sites such as the Clydach Ironworks and Welsh Historic

⁷ [http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=296500.0&y=217500.0&topic=floodmap&ep=map&scale=9&location=Brecon Beacons National Park, Powys&lang=_e&layerGroups=default&distance=&textonly=off#x=324083&y=214063&lg=1,2,&scale=7](http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=296500.0&y=217500.0&topic=floodmap&ep=map&scale=9&location=Brecon%20Beacons%20National%20Park,%20Powys&lang=_e&layerGroups=default&distance=&textonly=off#x=324083&y=214063&lg=1,2,&scale=7)

⁸ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

⁹ <http://publications.naturalengland.org.uk/publication/6172638548328448>

Landscapes. Local campsites bring visitors to the area as do the Monmouthshire and Brecon Canal which is used for recreational canal boat rides and houseboats.

Traffic and Transport

- 3.46 The main road running through the study area is the A465 Heads of the Valleys road which runs from Brynmawr in the west towards Abergavenny in the east. The road is currently undergoing a dualling upgrade which will widen the carriageway from a single three lane carriageway to a four lane dual carriageway. Works commenced in 2014 with the scheme planned for completion in 2018. The A4077 also runs through the study area to the north east, running parallel to the Monmouthshire and Brecon Canal before joining the A465 near Gilwern¹⁰.
- 3.47 A number of minor roads connect into the 'A' road system forming a well-established minor road network along the valley floor. On the higher ground, the density of the network is greatly reduced with many of the isolated properties north of Blackrock and around Gilwern Hill served by narrow, single track roads.
- 3.48 Impacts on the road network are a key consideration for any potential project in this area, particularly given the ongoing impacts of construction activities associated with the A465 dualling scheme.

Access and Recreation

- 3.49 The Usk Valley Walk is a 77km regionally promoted trail that follows the Monmouthshire and Brecon Canal through the study area from the north west of Gilwern to Abergavenny. The valley floor has a relatively dense network of Public Rights of Way whilst the higher ground Gilwern Hill, Llanelly Hill and Mynydd Llangatwg is designated as Open Access Land.
- 3.50 National Cycle Route 46 which largely follows a disused railway line to the south of the A465 provides a continuous cycle route through the study area between Brynmawr in the west and Abergavenny in the east. Parts the cycle route run through private land and are subject to permissive access rights. National Cycle Route 46 connects to cycle route 8 runs north – south across the entire length of the National Park.
- 3.51 The navigable Monmouthshire and Brecon Canal which runs through the study area from north west of Gilwern to Abergavenny is used for recreational boating, with mooring points at Llanfoist and south of Govilon.
- 3.52 Access and recreational assets are illustrated on **Figure 3.5**.

¹⁰ <http://a465gilwern2brynmawr.co.uk/>

