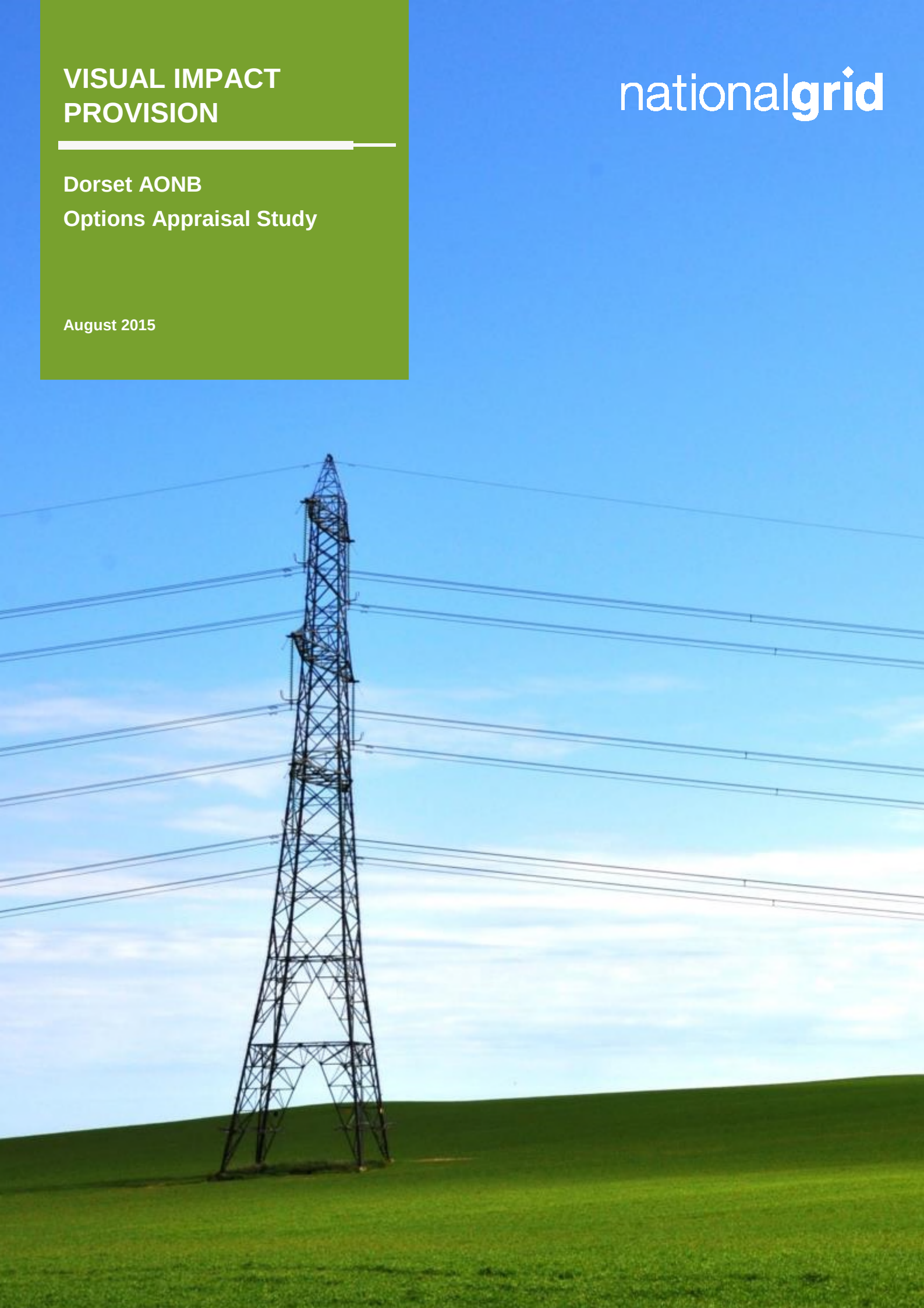
VISUAL IMPACT PROVISION

Dorset AONB
Options Appraisal Study

August 2015

nationalgrid



This report has been prepared by LUC 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 Dorset AONB and the stakeholder reference group for providing background information.

Front Cover: Pylon and overhead transmission line, Subsection 4VN.2.

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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 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 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 and 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, a landscape and visual impact assessment project was undertaken to provide evidence to National Grid and its Stakeholder Advisory Group about the relative impacts of the different transmission lines 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 most important impacts on the landscape and visual amenity of these designated landscapes. The emphasis was on making a comparative assessment of the landscape and visual impacts of the sections of transmission lines that lie within the designated areas and identifying a possible shortlist of candidate schemes for consideration by the Stakeholder Advisory Group in order to decide which ones 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

Designated Area	Subsection
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 line 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 Dorset AONB Projects

1.10 Following the acceptance of the findings of the Technical Report by the Stakeholder Advisory Group, National Grid decided to progress all of the other 11 sections to the same stage. Within the Dorset AONB there are three sections identified as having important impacts. These are referred to as 4YA.5, 4YA.7 and 4VN.2 and, since they are geographically separate, are treated as three discrete projects for the purposes of this appraisal. Each of the three sections is shown in **Figure 1.1**.

1.11 Section 4VN.2 is the most easterly section within the AONB, starting at Green Hill where it continues on from section 4VN.1, just east of a minor road. From here it runs in a roughly

north-easterly direction towards Conygar where it crosses the AONB boundary and the A352. Section 4VN.2 is 3.6km in length.

1.12 Section 4YA.5 lies to the north of the village of Askerswell. It begins near the hamlet of Spyway and runs south-east across the slopes of the chalk downland, broadly parallel with the A35. Section 4YA.5 is 2.6km in length.

1.13 Section 4YA.7 starts to the north-west of Winterbourne Abbas, cutting across the A35 and south of Winterbourne Abbas in a south-easterly direction before turning slight south, stopping on the upper slopes of Corton Down, on the South Dorset Escarpment, where it joins 4YA.8. This section of the 400kV OHL is 5.1km in length.

Dorset AONB

1.14 The purposes of AONB designation are defined as follows:

1 "*The primary purpose of AONB designation is to conserve and enhance natural beauty.*

2 *In pursuing the primary purpose, account should be taken of the needs of agriculture, forestry, other rural industries and of the economic and social needs of local communities. Particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment.*

3 *Recreation is not an objective of designation, but the demand for recreation should be met so far as this is consistent with the conservation of natural beauty and the needs of agriculture, forestry and other uses*."[1]

1.15 The Dorset Area of Outstanding Natural Beauty (AONB) was designated in 1959. Special qualities of the AONB are based on the 1993 Assessment of Dorset and are defined in the Dorset AONB Management Plan as follows:

- ***it is a collection of fine landscapes****, each with its own characteristics and sense of place, including different landforms, soils and wildlife habitats. Contrasting and complex geology gives rise to the chalk downland, limestone country, greensand ridges and clay vales that occur in the Dorset AONB;*
- *They are often closely juxtaposed to create **striking sequences of beautiful countryside that are unique in Britain**. The transitions between the component landscapes of the mosaic are often particularly attractive, with strong contrasts in some areas and a gentle transition of character in others;*
- *The ridge tops of west Dorset and the chalk escarpments add an extra dimension to the Dorset AONB landscape by providing stark contrasts of landform that serve to increase and emphasise its diversity. These areas of higher ground also allow the observer **uninterrupted panoramic views** to appreciate the complex pattern and textures of the surrounding landscapes;*
- *Nowhere is the contrast and diversity of this rich assemblage of landscapes more graphically illustrated than in the Isle of Purbeck. Here, many of the characteristic landscapes of the Dorset AONB are represented on a miniature scale to create scenery of spectacular beauty and contrasts, which mirrors that of the whole AONB;*
- *Within this overall context, there are **numerous individual landmarks**, such as hilltop earthworks, monuments and tree clumps that help to contribute an individuality and sense of place at a local scale;*
- *In addition to its outstanding scenic qualities, the AONB retains a sense of **tranquillity and remoteness** that is an integral part of these landscapes; and*
- *It retains **dark night skies** and an undeveloped rural character*.[2]

[1] Countryside Agency (2006) *Areas of Outstanding Natural Beauty: A guide for AONB partnership members (CA24)* Page 7. http://publications.naturalengland.org.uk/publication/45013

[2] Dorset Area of Outstanding Natural Beauty A Framework for the Future AONB Management Plan 2014 - 2019. Pages 17-15.

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Figure 1.1: Overhead Line Sections within the Dorset AONB

- Dorset AONB
- Assessed National Grid 400kV overhead line subsection
- Other National Grid 400kV overhead line
- National Grid substation
- DNO 132kV overhead line

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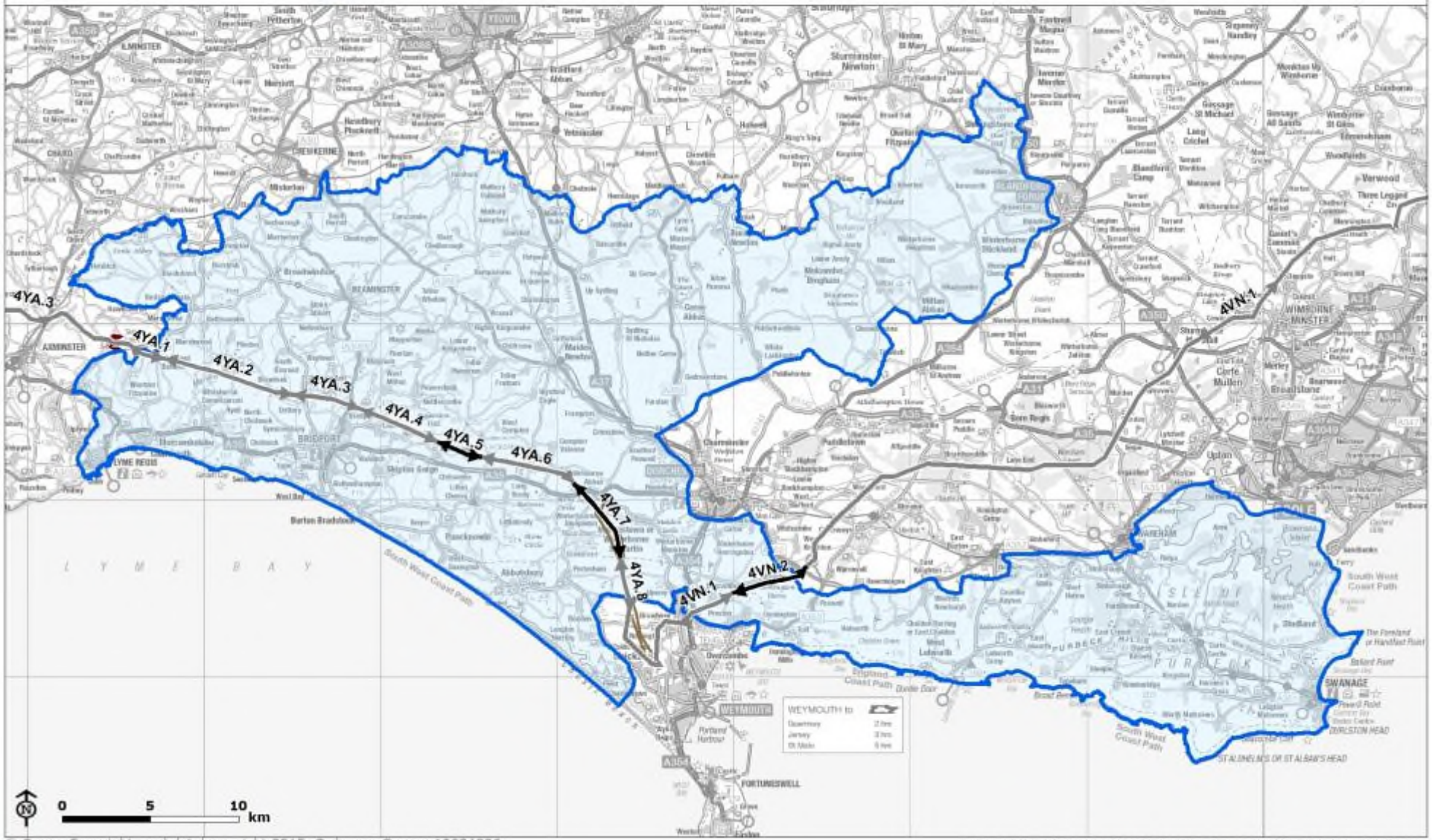
Source: Natural England, National Grid



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1.16 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.[3] The summary sections relating to the 4VN.2, 4YA.5 and 4YA.7 subsections are reproduced below.

> **Subsection 4VN.2** is judged to have **landscape impacts of high importance** where the line crosses the open high ground above the South Dorset Escarpment. The line crosses over the open downs, where the pylons are prominent features on the high ground. Within Holcombe Bottom, on the north side of the escarpment, the pylons are large features in a relatively small scale landscape.
>
> This subsection is also judged to have **visual impacts of high importance** affecting walkers on the South Dorset Ridgeway, users of local footpaths, and visitors to the White Horse viewpoint. The South Dorset Ridgeway passes under the line and has close views of the line from around 3km of the route. There are several walking routes and bridle paths which also pass under the line, or which have open views of the pylons crossing the skyline of the downs. Visitors to the White Horse car park have clear views of the pylons on the skyline to the north-west, and although not in the immediate context of the hillside feature, the value of this view indicates a high importance of impact.

> **Subsection 4YA.5** is judged to have **landscape impacts of very high importance** where the line cuts across the distinctive chalk grassland slopes of the West Dorset Escarpment. The line passes through a coombe, indented into the escarpment, which contains a classic ensemble of chalk downland landscape features, including the open chalk grassland slopes characteristic of the area. The transmission line interrupts this landscape and detracts substantively from the character of the chalk landscape.
>
> This subsection is also judged to have **visual impacts of high importance** affecting the settlement of Askerswell and users of the footpath network around the line. From Askerswell, the pylons are large features on the skyline, standing above the viewer, while the local footpath network offers a range of views of the line passing through the coombe and across the downland.

> **Subsection 4YA.7** is judged to have **landscape impacts of high importance** particularly where the line crosses through a small valley close to Winterbourne Abbas. This and other small valleys in the downland are more susceptible to the impacts of the line, while the open nature of the downland means that the impact extends across a large geographical area.
>
> This subsection is also judged to have **visual impacts of high importance** affecting users of the National Cycle Route and South Dorset Ridgeway, users of local footpaths and access land, and visitors to the landmark Hardy Monument. The transmission line passes close to Winterbourne Abbas and is prominent above the settlement. Two steel pylon distributor lines flank the transmission line south of Winterbourne Abbas, and the smaller size of these pylons emphasise the height of the transmission pylons in views. There is a high scale of impact where the line crosses over the National Cycle Route. The scale of impact on elevated views from the South Dorset Ridgeway and from Hardy's Monument is lower, although these are highly-valued views and very popular with visitors to the area.

1.17 Engagement events ('Stakeholder Reference Group' and public 'drop in') were undertaken in November 2014 and February 2015 (see **Section 4**).

1.18 A number of potential solutions may exist which would mitigate the landscape and visual impact of the 400kV overhead transmission lines (400kV OHL) on the AONB. The purpose of this Option Appraisal Study is to identify these and determine which, if any, will deliver the necessary mitigation without giving rise to adverse impacts that would be greater than those being mitigated.

[3] National Grid (2014) Visual Impact provision: Landscape and Visual Impact Assessment Technical Report. National Grid. Available at http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=37291

Figure 1.2 A view of 4VN.2 looking east along Holcombe Bottom

Figure 1.3 A view of 4YA.5 from the A35 near Stancombe Farm, looking north

Figure 1.4 A view of 4YA.7 from the South Dorset Ridgeway on Bronkham Hill

2 Methodology

2.1 This study identifies potentially feasible methods of mitigating the identified impacts of the three sections of 400kV OHL on the Dorset AONB. 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 AONB 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 most favourable option(s) (see **Section 6**).

2.3 Because there are three projects in the Dorset AONB, the baseline, identification of options, and appraisal has been undertaken separately for each. Stakeholder engagement was undertaken on an AONB-wide basis.

2.4 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

2.5 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.

3 Study Area and Baseline

Section 4VN.2

Route History

3.1 The existing 4VN route is part of the 400kV electricity overhead line (OHL) route connecting Mannington, Axminster and Chickerell 400kV substations. The line was constructed in 1964 and is of L6 standard lattice pylon design with triple conductor bundles. The 4VN route is an integral part of the National Electricity Transmission System connecting the south west and south east of England; the substations of Mannington, Axminster and Chickerell all provide feeder circuits for the local Distribution Networks Owner (DNO) substations.

3.2 There is an ongoing need to provide system supplies to both the transmission and distribution networks and any potential solution would be designed to meet the capability of the existing infrastructure.

Study Area

3.3 Following site visits in May 2015, it was noted that the impact of the western section of 4VN.2 is similar to that of the eastern part of 4VN.1, in that it affects the landscape of the South Dorset Escarpment and also impacts on views from the South Dorset Ridgeway. It was also noted that the eastern section of 4VN.2 had relatively lesser landscape and visual impact due to the positioning of the 400kV OHL within the valley of Holcombe Bottom as it leaves the AONB. This valley contains the 400kV OHL more effectively than the open escarpment landscape to the west.

3.4 The divisions between subsections were determined based on changes in landscape character, as presented in published documents. As set out in the VIP Landscape and Visual Impact Assessment Technical Report, this was done prior to field surveys being carried out, and the divisions in assessment subsections may not accurately reflect sudden changes in impact. In this case, the change from a moderate impact in 4VN.1 to the very high impact in 4VN.2 reflects an increasing level of impact over the eastern section of 4VN.1.

3.5 On this basis it was determined to shift the focus slightly to the west, to look at the whole of the area where important landscape and visual impacts were felt to occur. That is, between Bincombe and Holcombe Bottom, including the section crossing the South Dorset Ridgeway and the high ground of the escarpment.

3.6 The site visits did not identify any reasonable alternative routes that would mitigate the impact of the 400kV OHL, therefore the study area has been drawn as a linear corridor, a maximum of 1km to either side of the existing 400kV OHL. The western end of this study corridor follows the A354/A353 which skirt the AONB boundary, and the eastern end is to the south of Broadmayne village.

3.7 Depending on the location and subsection, broad sealing end search areas have been located at either end of, and along the length of, subsections to give flexibility in where the SECs are located. These areas are quite large as it cannot be determined at this stage where exactly the SECs would be located.

3.8 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 solutions to pursue for this 400kV OHL, with reference to the topics listed in **Table 2.1**.

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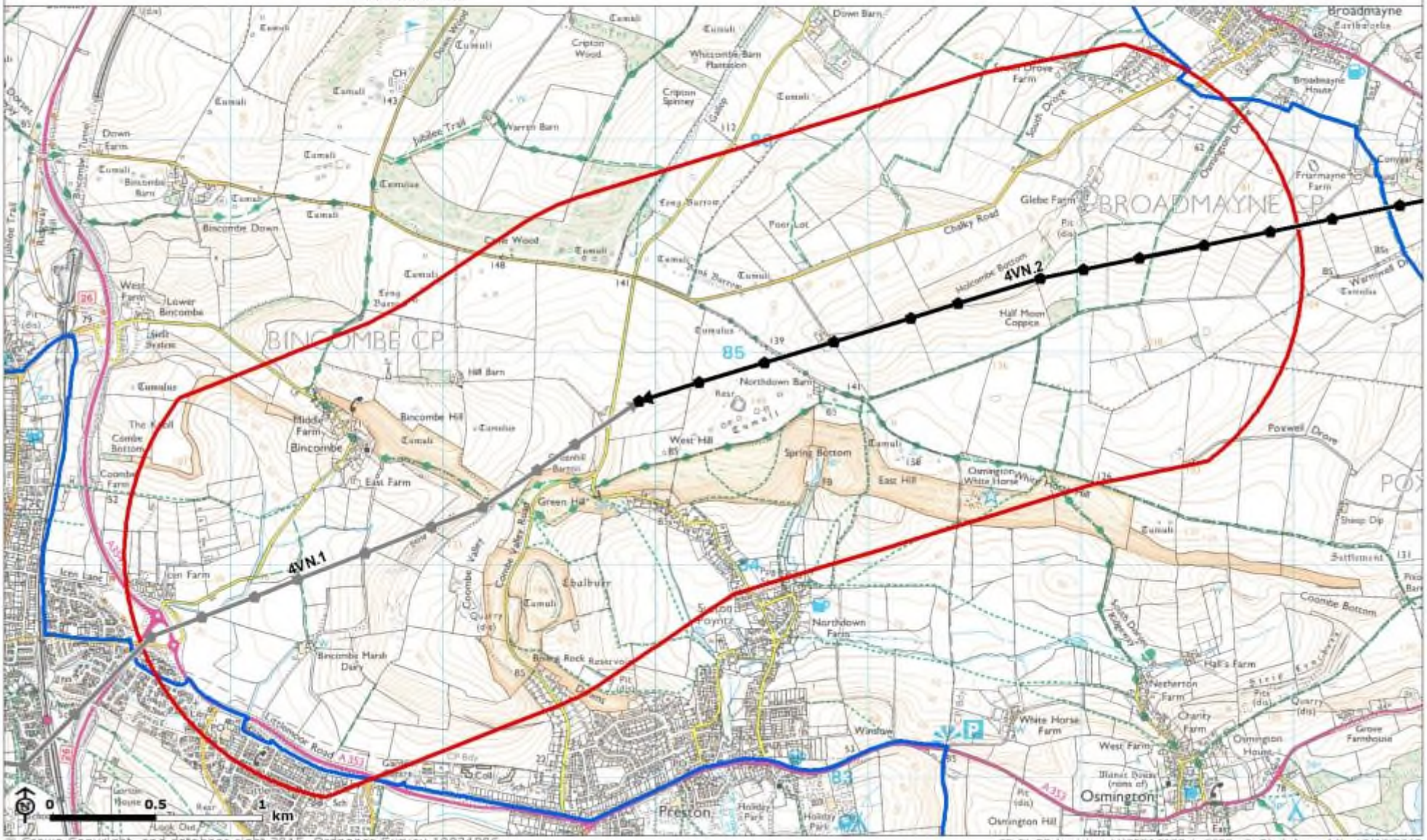
Figure 3.1: Study Area

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid



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Environmental Baseline

Landscape and Visual

3.9 Landscape and visual impacts are defined in the *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.[4]

3.10 The 400kV OHL within the study area crosses flat fields south of Bincombe before rising on to the South Dorset Escarpment north of Chalbury hill fort. The 400kV OHL runs to the north of West Hill, then crosses over the elevated ground before dropping into Holcombe Bottom. It runs along this valley towards Conygar where it leaves the AONB at the A352.

Landscape Character

3.11 4VN.2 crosses over the open downland north of West Hill, paralleling briefly the escarpment to the south. It passes to the north of this high point, then descends into Holcombe Bottom, a shallow vale which broadens as it deepens to the east north-east. The 400kV OHL follows the southern side of the vale to the AONB boundary south of Friarmayne Farm.

3.12 The 400kV OHL crosses over the open ridge of the downs, a landscape of large fields characterised as the South Dorset Downs landscape character type (LCT). The pylons are prominent features on the high ground which lies immediately above the South Dorset Escarpment. Within Holcombe Bottom, on the north side of the downs, the pylons are large features in this relatively small scale valley, though the field pattern remains large and open. The 400kV OHL crosses the ridge at a shallow angle, affecting more of the sensitive escarpment landscape, though the impact within Holcombe Bottom is contained by the valley landform.

3.13 The importance of the South Dorset Escarpment to the AONB landscape is highlighted by the management plan. Of particular relevance is the following reference: "*the North, West and South Escarpments and the Purbeck Ridge form dramatic backdrops to, and give views of, much of the surrounding AONB. With an undeveloped and open character, this landscape type with its steep sides supports important patches of chalk grasslands and hanging woodlands*".[5]

3.14 LCTs are illustrated on **Figure 3.2**.

Visual Amenity

3.15 The South Dorset Ridgeway follows the escarpment along this section (4VN.2), and there are other footpaths on the downs and in the vale. The village of Broadmayne is to the north, partly within the AONB. The 18th-century Osmington White Horse is cut into the escarpment in this area, and has a viewpoint car park on the A353.

3.16 The pylons affect views from the South Dorset Ridgeway, a national trail which passes under the 400kV OHL and has close views of the 400kV OHL from around 3km of the route. There are several walking routes and bridle paths which also pass under the 400kV OHL, or which have open views of the pylons crossing the skyline of the downs. Views from Broadmayne are limited to the southern edge of the settlement which is within the AONB, with mature trees screening much of the rest of the settlement. There is some impact on visitors to the White Horse car park, as although the pylons are not seen in the immediate context of the hillside feature, they are clearly visible on the skyline to the north-west. The value of this view indicates a high importance of impact.

[4] Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*. 3rd Edition. Routledge. Paragraph 2.21.
[5] Dorset Area of Outstanding Natural Beauty A Framework for the Future AONB Management Plan 2014 - 2019. Page 22

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Figure 3.2: Landscape Character

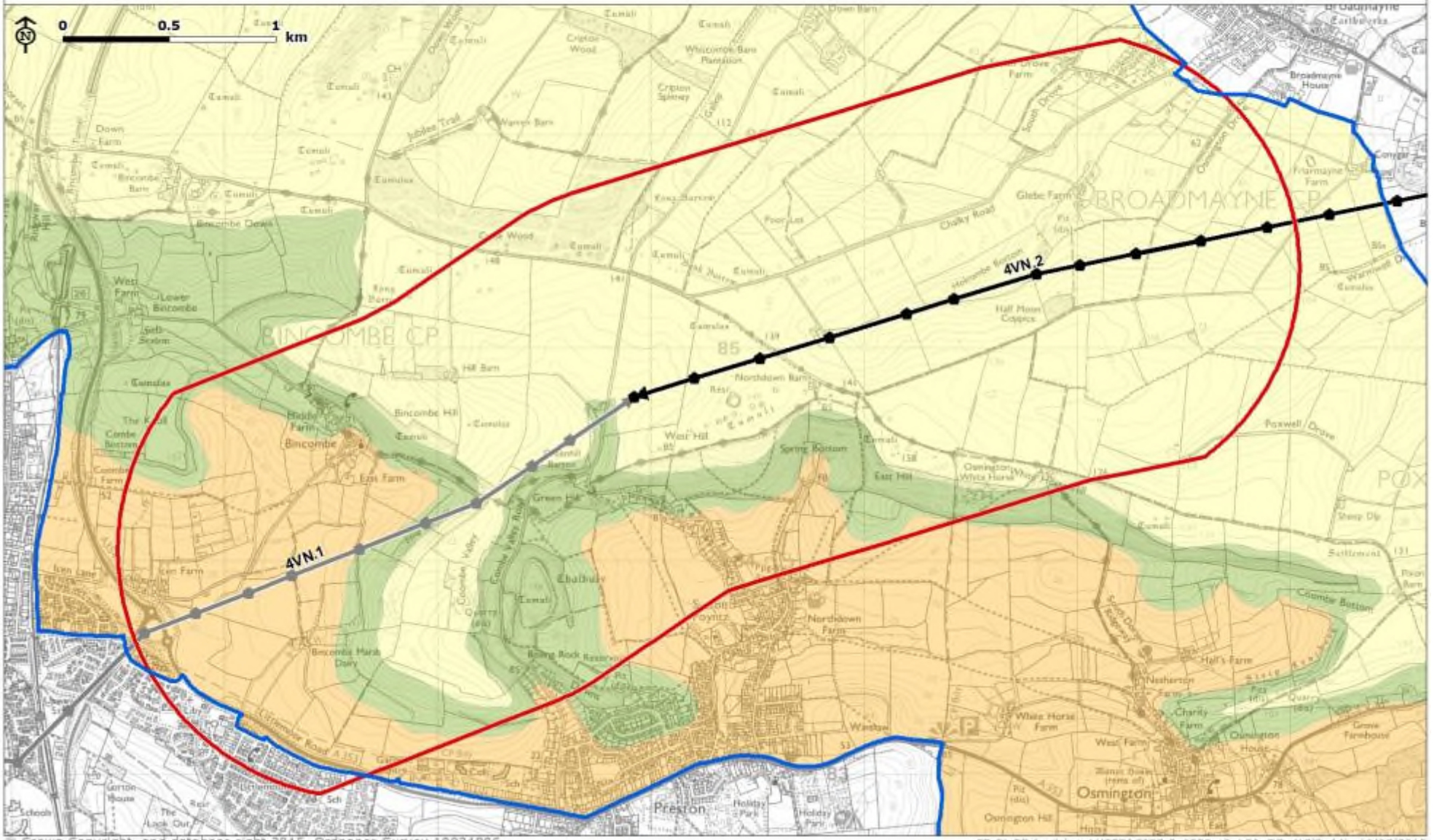
Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

Dorset Landscape Character Areas
Osmington Ridge & Vale
South Dorset Downs
South Dorset Escarpment

4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Dorset AONB



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Ecology

3.17 The Dorset Escarpment and chalk downland form the setting for the 400kV OHL in this part of the AONB. There are two SSSIs which cover parts of the escarpment within the study area. White Horse Hill SSSI covers the steep south facing slopes of the Escarpment from Greenhill to Coombe Bottom at Poxwell Manor, and is around 250m from the 400kV OHL. It is designated for the herb-rich grassland communities on the chalk downland, which have not been affected by modern agriculture and thus support nationally rare plants and butterfly species. The more uncommon species include the nationally scarce bastard-toadflax (*Thesium humifusum*), common sainfoin (*Onobrychis viciifolia*), small-flowered buttercup (*Ranunculus parviflorus*) and corky-fruited water-dropwort (*Oenanthe pimpinelloides*).

3.18 Chalbury Hill and Quarry SSSI is protected both for its geology (see Soils and Geology section) and its habitats. The SSSI covers the distinctive hill fort around 300m south of the 400kV OHL, and its surrounding slopes. The steep slopes around the quarry support good quality calcareous grazing land. The herb-rich sward supports a range of grasses and other plants typical of chalk downland, such as kidney vetch (*Anthyllis vulneraria*), rockrose (*Helianthemum nummularium*) and hairy rock cress (*Arabis hirsuta*).

3.19 There are other designations outside the study area, including the Dorset Heaths SAC and SPA, around 2km from the AONB boundary to the north-east, and the Isle of Portland to Studland Cliffs SAC along the coast, 2.5km to the south.

3.20 There are areas of unimproved calcareous grassland on the escarpment, such as on the slopes of Bincombe Hill and Green Hill, which are not designated. Further investigation of habitats and species in the area will be required to inform detail design. Ecological / geological designations are shown on **Figure 3.3**.

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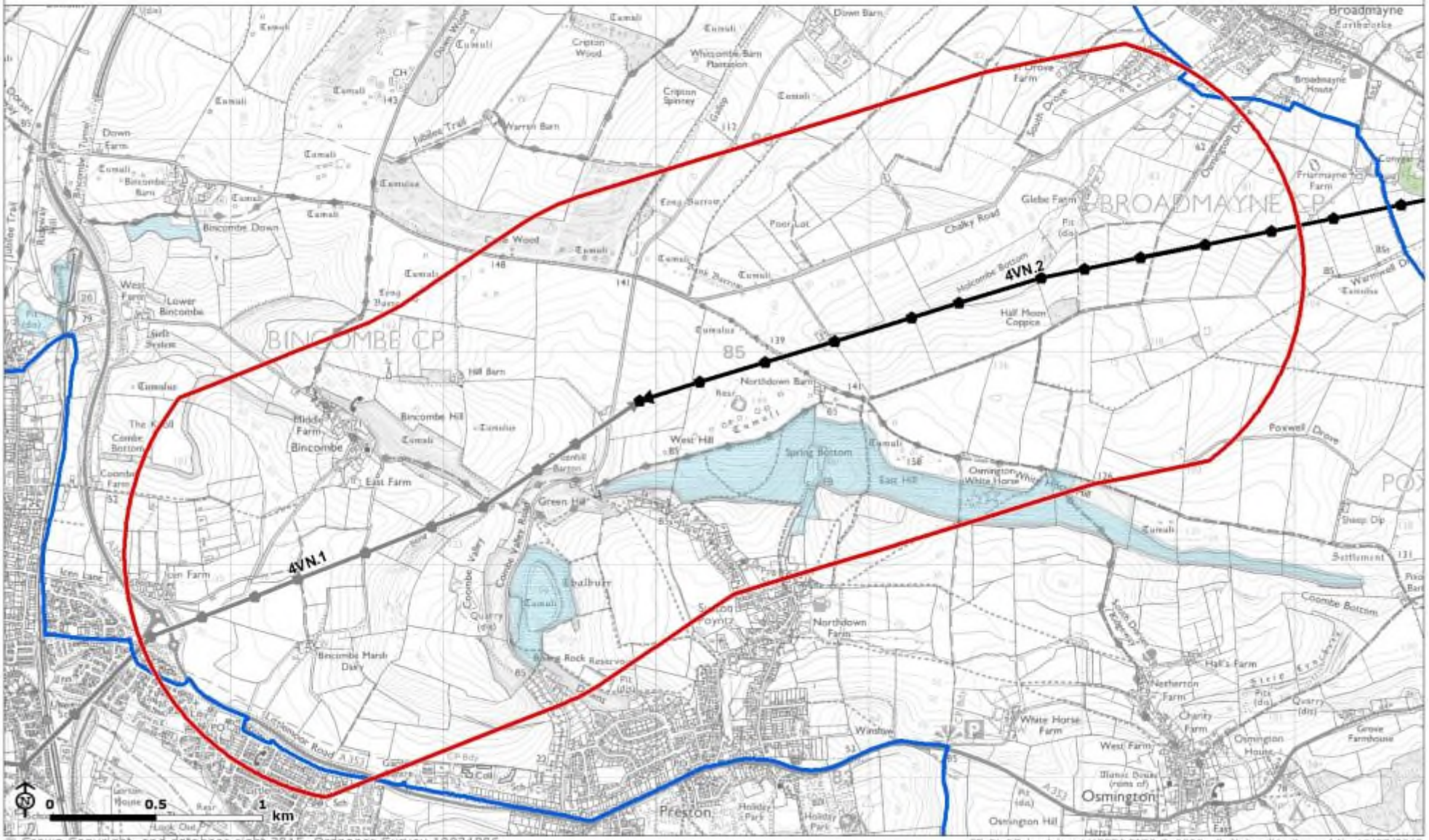
Figure 3.3: Ecology/Geology

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
Ancient Woodland
SSSI
4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid



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Historic Environment

3.21 The eastern part of the 400kV OHL, in Holcombe Bottom, is situated within the Purbeck Heritage Coast. This is an area within the AONB which is largely undeveloped and is of exceptional or very good scenic quality. Although the Purbeck Heritage Coast is not a statutory designation it is a material consideration in planning terms.

3.22 Scheduled monuments include the prominent collections of barrows along West Hill and White Horse Hill, within 200m of the 400kV OHL; on Bincombe Hill; and on the ridge to the north of the 400kV OHL. Chalbury Hill is the centre of an extensive scheduled monument, which covers the univallate hill fort as well as barrows, a Bronze Age urn field and medieval strip fields. The chalk-cut figure of George III is also scheduled. Listed buildings are limited to the church in Bincombe (grade I), and houses and a pumping station in the north of Sutton Poyntz (grade II). Undesignated features include the prominent strip lynchets (cultivation terraces) to the south-west of Bincombe. The local Historic Environment Record (HER) may identify further historic features within the study area and would be reviewed as part of the next stage of assessment if this subsection is selected. Designated heritage assets are shown in **Figure 3.4**.

Water

3.23 The Environment Agency's Flood Map shows that the southern part of this 400kV OHL and subsection 4VN.2 are not directly affected by flood zones. South of 4VN.2 the River Jordan and a culverted stream within the Coombe Valley have flood zones which extend into the southern extend of this study area.[6]

Soils and Geology

3.24 The bedrock underlying most of the northern part of the study area comprises Cretaceous White Chalk. At the scarp edge this gives way to Portland and Purbeck limestones, with mudstones of the Kimmeridge Clay underlying the low ground beneath the scarp. Chalbury Hill and Quarry SSSI (see **Figure 3.3**) is a site of important geological interest for its outstanding section through the Portland and Purbeck strata.[7]

3.25 Soils within the 4VN.2 sub-section study area include an extensive covering of shallow lime-rich soils with patches of freely draining slightly acid loamy soils and areas of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils to the south.

Other Environmental Issues

3.26 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 any planning application(s).

[6] http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=370351&y=83615&lg=1,2,&scale=11

[7] Chalbury Hill and Quarry SSSI description.

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Figure 3.4: Historic Environment

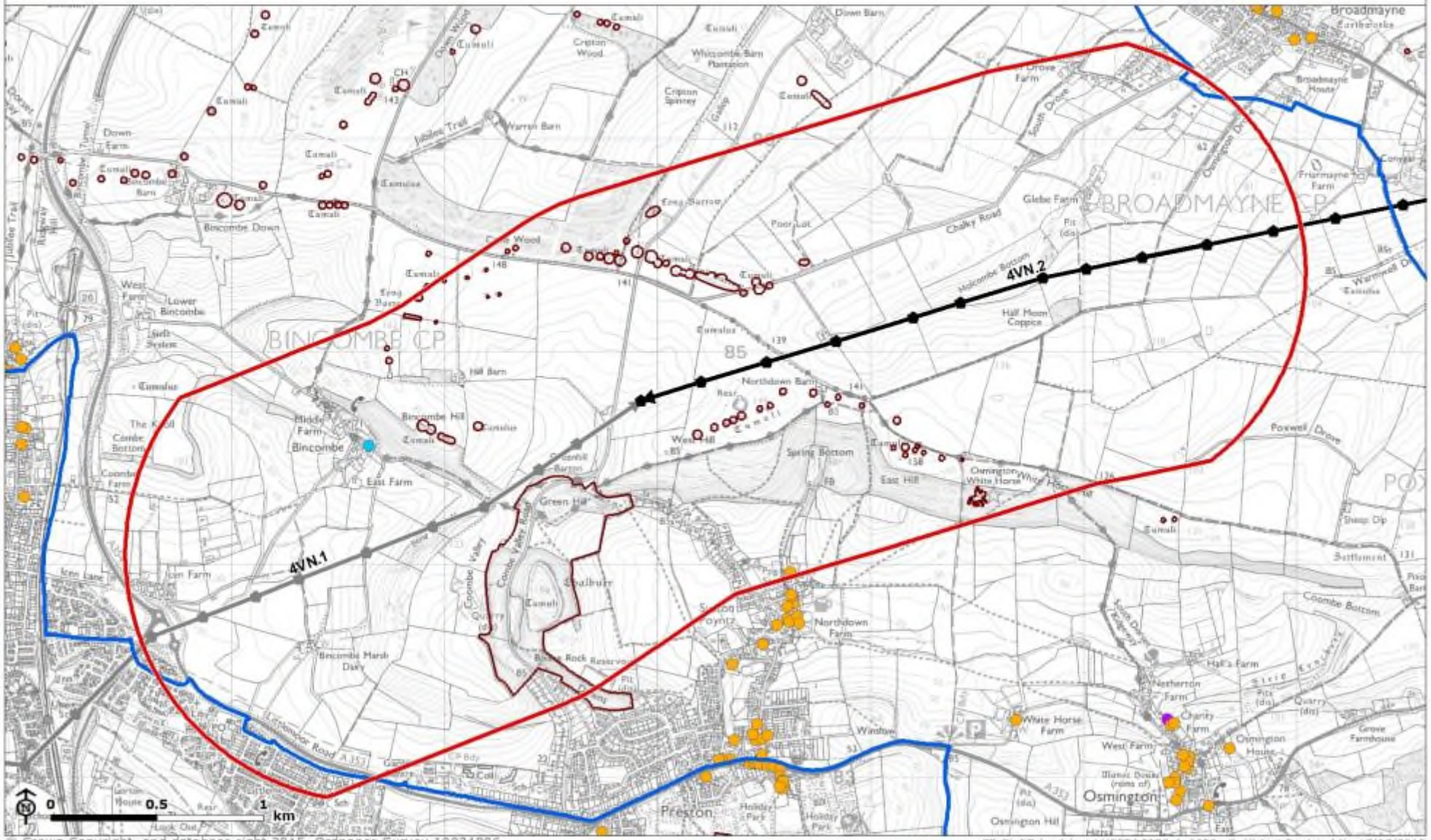
Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

Listed Building
I
II*
II
Scheduled Monument

4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Historic England



CB:EL EB:lendak_e LUCED1 FIG3-4_6059_r2_HistoricEnviro_A4L 17/07/2015

Socio-Economic Baseline

Local Economic Activity

3.28 The Dorset AONB has approximately 70,000 people living within it, with the majority of the AONB area under private ownership and actively farmed. Commercial properties in the study area are mainly agricultural. The land classification in the study area is mainly grade 3 (good to moderate), with areas of grade 5 (very poor) on the steep down slopes.

3.29 Tourism is a key part of the local economy, with numerous businesses benefiting from visitors to the area. Attractions within or close to the study area include the White Horse at Osmington, viewed from a car park on the A353. People are also attracted to the recreation opportunities in the area (see below). There are a number of hospitality and retail outlets within the nearby settlements, including Sutton Poyntz, Preston, Osmington and Weymouth itself.

3.30 The western part of subsection 4VN.1 passes through land which is allocated for the Littlemoor Urban Expansion in the draft Local Plan for West Dorset, Weymouth and Portland. The potentially allocated area extends north from Littlemoor Road to Icen Lane, and east to Bincombe Marsh Dairy.

Traffic and Transport

3.31 The A354/A353 skirts the west and south of the study area. Minor roads lead up to Bincombe, and link Sutton Poyntz and Preston in the south with Broadmayne in the north-east. The southern roads are narrow and restricted, though the roads on the downs are broader.

Access and Recreation

3.32 The South Dorset Ridgeway, part of the South West Coast Path national trail, passes over Bincombe Down and through Bincombe, crossing under the 400kV OHL near Chalbury fort. It then runs parallel to the 400kV OHL, then follows the ridge across White Horse Hill to the south-east. There are public footpaths and bridle paths around Bincombe, between Sutton Poyntz and Chalbury, and linking Broadmayne with the Ridgeway. National Cycle Network (NCN) Route 26 runs along the western edge of the study area, following the A354 north from Weymouth. These routes are shown on **Figure 3.5**.

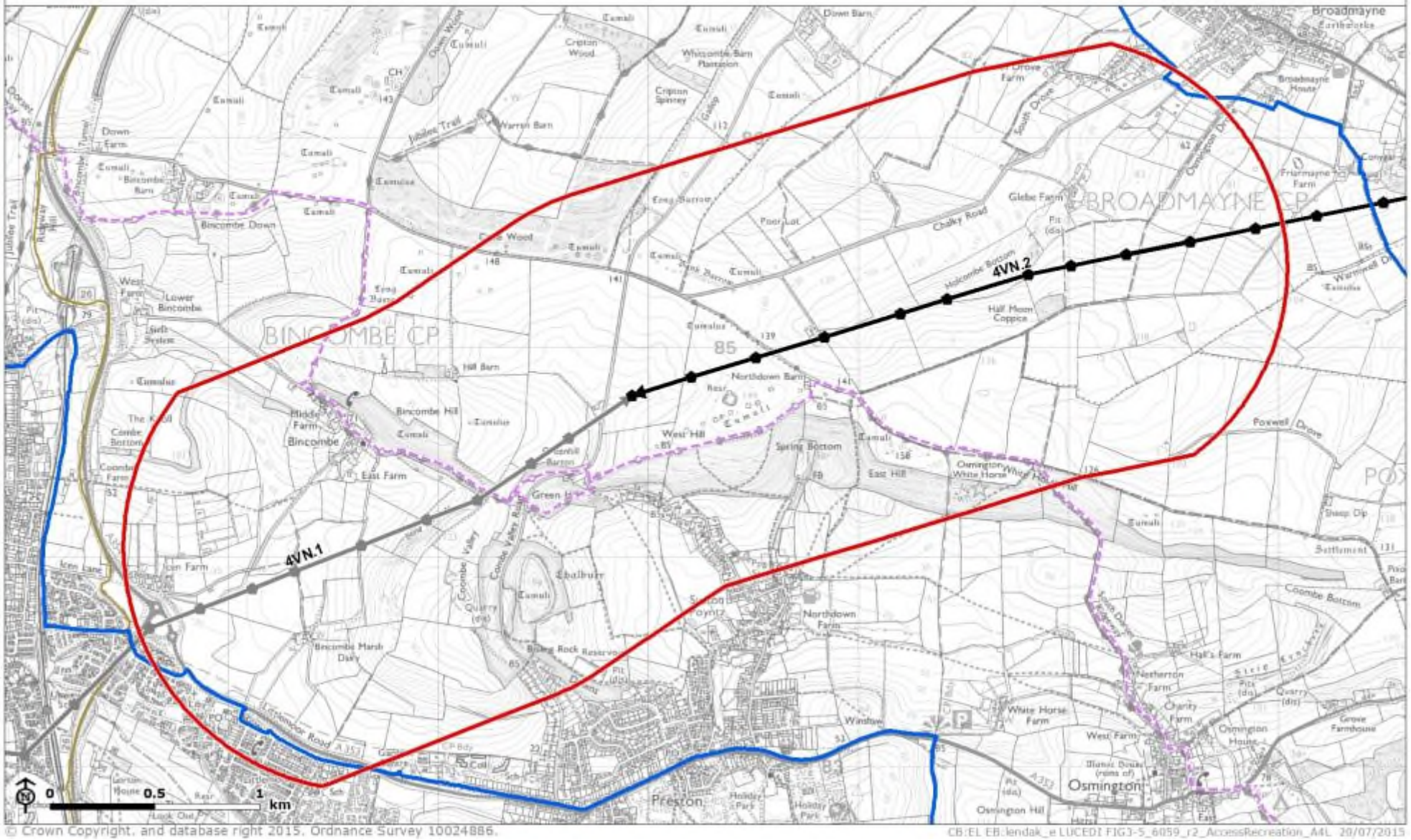
NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.5: Access & Recreation

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
South West Coast Path
National Cycle Network (NCN26)
4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid



CB:EL EB:lendak_e LUCED1 FIG3-5_6059_r2_AccessRecreation_A4L 20/07/2015

Section 4YA.5

Route History

3.33 The existing 4YA route is part of the 400kV electricity OHL route connecting Axminster, Chickerell and Exeter 400kV substations. The line was constructed between 1965 and 1969 and is of standard lattice pylon design with quad conductor bundles and has fibre optic wrapped earthwire. The 4YA route is an integral part of the National Electricity Transmission System connecting the south west and south east of England; the substations of Axminster, Chickerell and Exeter all provide feeder circuits for the local DNO substations.

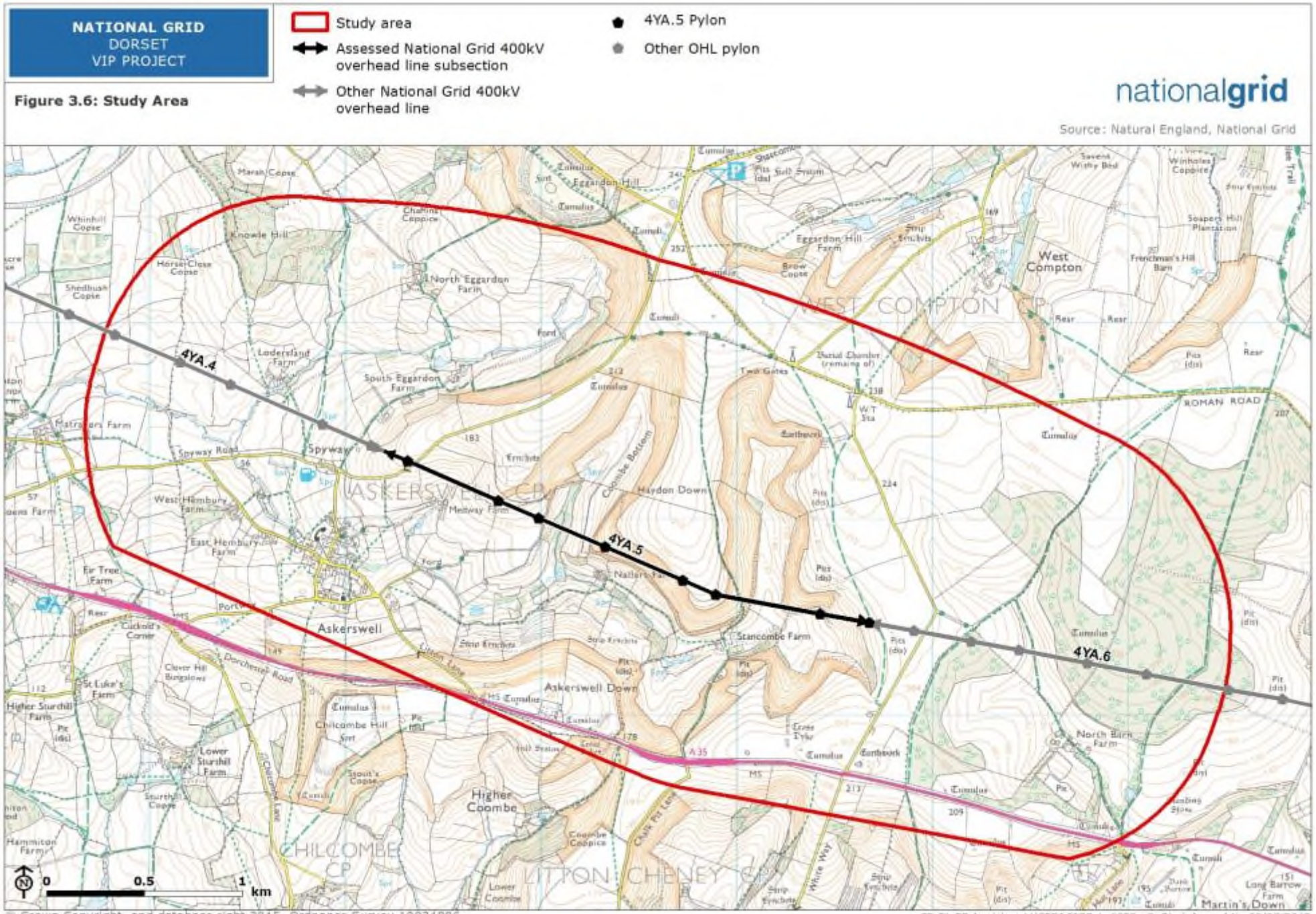
3.34 There is an ongoing need to provide system supplies to both the transmission and distribution networks and any potential solution would be designed to meet the capability of the existing infrastructure.

Study Area

3.35 Site visits to this 400kV OHL in May 2015 noted the steep slopes and intricate topography, which are characteristic of the downland but which present a significant technical challenge. After considering possible solutions in the field, the study area was drawn to include the area within 1km of the 400kV OHL in 4YA.5.

3.36 In addition, the northern study area boundary was extended to allow consideration of a possible alternative route avoiding the steepest slopes. This northern study area boundary stops short of the scheduled Eggardon Hill fort.

3.37 The resulting study area is shown in **Figure 3.6**. The rest of this section outlines features of the study area and its immediate surroundings which are likely to influence a decision on which mitigation solutions to pursue for this 400kV OHL, with reference to the topics listed in **Table 2.1**.


NATIONAL GRID
DORSET
VIP PROJECT
Figure 3.6: Study Area
Study area
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
4YA.5 Pylon
Other OHL pylon
nationalgrid
Source: Natural England, National Grid
4YA.4
4YA.5
4YA.6
Askerswell
Askerswell Down
Higher Coombe
Haydon Down
West Compton
Eggardon Hill
Spyway
Stancombe Farm
Chilcombe Hill
Dorchester Road
ROMAN ROAD
0
0.5
1
km
© Crown Copyright. and database right 2015. Ordnance Survey 10024886.

Environmental Baseline

Landscape and Visual

3.38 The 4YA.5 400kV OHL runs across and over the scarp slopes of classic chalk down landscape, to the north-east of Askerswell. The steeply sloping chalk downs create a strongly undulating landform which the 400kV OHL passes uneasily across. It is highly visible from the valley though there are fewer sensitive receptors in the immediate area.

Landscape Character

3.39 The 400kV OHL cuts across the grain and form of the landscape, characterised as the West Dorset Escarpment landscape character type, appearing out of scale with the narrow coombe through which it runs. The complex indented form of the coombe results in problematic routeing, with some pylons appearing perched on the rim of the scarp, and some dipping into the vale. The pylons erode the tranquillity of this landscape, which is otherwise unaffected by modern development, aside from the noise of the A35. The coombe contains a classic ensemble of chalk downland landscape features, including the open grassland slopes characteristic of the area. The 400kV OHL interrupts this landscape and detracts substantively from the appreciation of these features.

3.40 The importance of the West Dorset Escarpment to the AONB landscape is highlighted by the management plan. Of particular relevance is the following reference: "*the North, West and South Escarpments and the Purbeck Ridge form dramatic backdrops to, and give views of, much of the surrounding AONB. With an undeveloped and open character, this landscape type with its steep sides supports important patches of chalk grasslands and hanging woodlands*".[8]

3.41 LCTs are illustrated on **Figure 3.7**.

Visual Amenity

3.42 Although not widely visible, the 400kV OHL affects a number of local views from a range of angles. From within the valley, including the settlement of Askerswell, the pylons are large features on the skyline, standing above the viewer. In other views, the pylons interrupt the view of the escarpment, breaking the skyline and appearing out of scale with the valley. Impacts on the community of Askerswell are judged to be of high importance, and there are impacts of high importance on a series of public footpaths and bridle paths which run through and around the coombe. Impacts on visitors to Eggardon Hill, which is more distant, are of moderate importance.

[8] Dorset Area of Outstanding Natural Beauty A Framework for the Future AONB Management Plan 2014 - 2019. Page 22

NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.7: Landscape Character

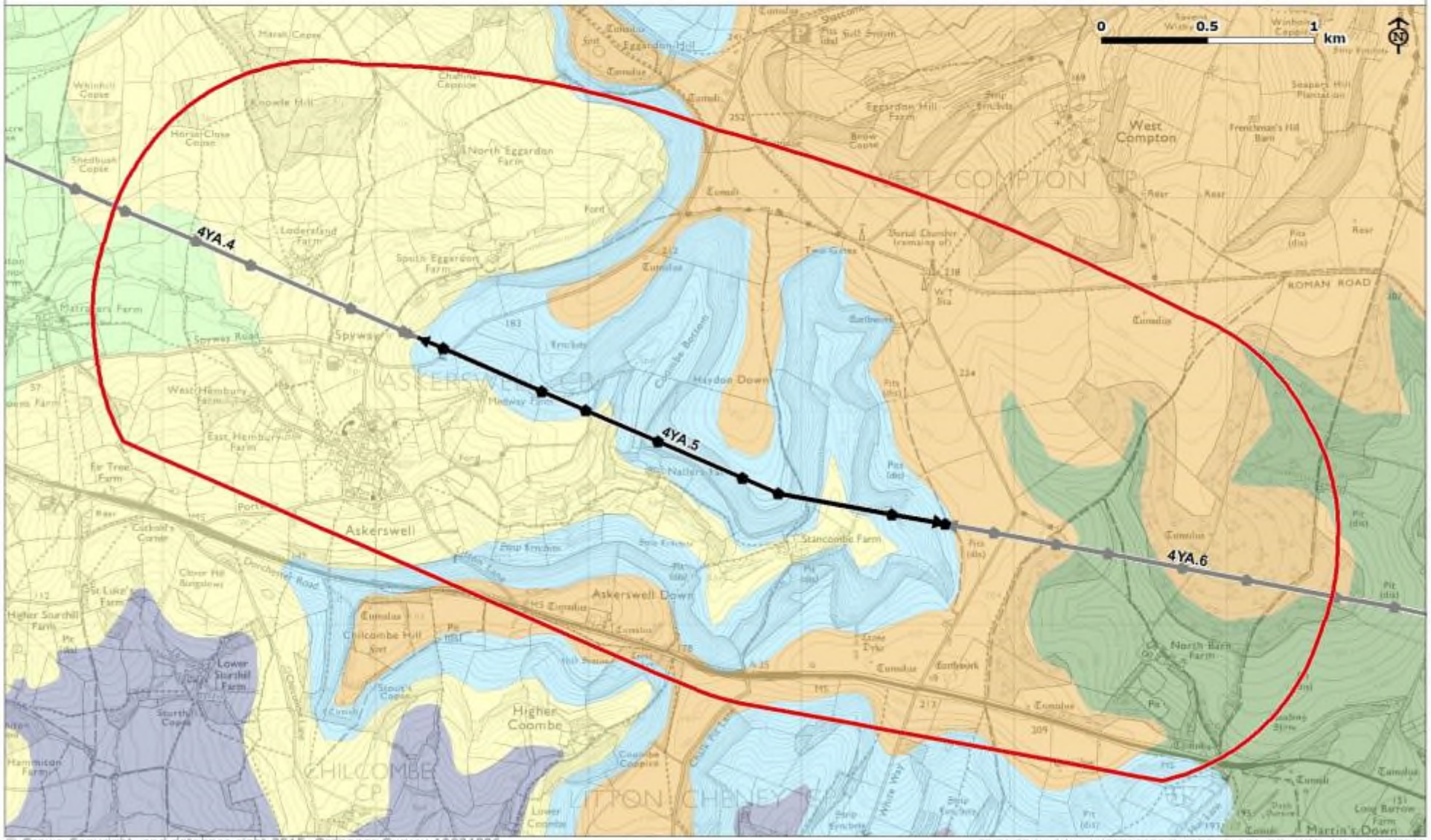
Study area
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

Dorsert Landscape Character Areas
Bride Valley
Powerstock Hills
Powerstock Woods
South Dorset Downs
Upper Frome Valley
West Dorset Escarpment

4YA.5 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Dorset AONB



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Ecology

3.43 The West Dorset Escarpment and chalk downland form the setting for the 400kV OHL in this part of the AONB. The 400kV OHL passes directly over parts of the Haydon and Askerswell Downs SSSI. This extensive SSSI covers the steep chalk slopes which wrap around the indented valleys in this location. It is described as an especially good example of calcareous grassland, with important plant communities which provide valuable habitat to butterflies. To the north, Eggardon Hill and Luccas Farm SSSI also protects steep chalk grassland, but with landslips that reveal a more varied geology and give rise to habitats including acid grassland and woodland.

3.44 There is an area of ancient woodland noted in Coombe Bottom. Further investigation of habitats and species in the area will be required to inform detail design. Biodiversity designations are shown on **Figure 3.8**.

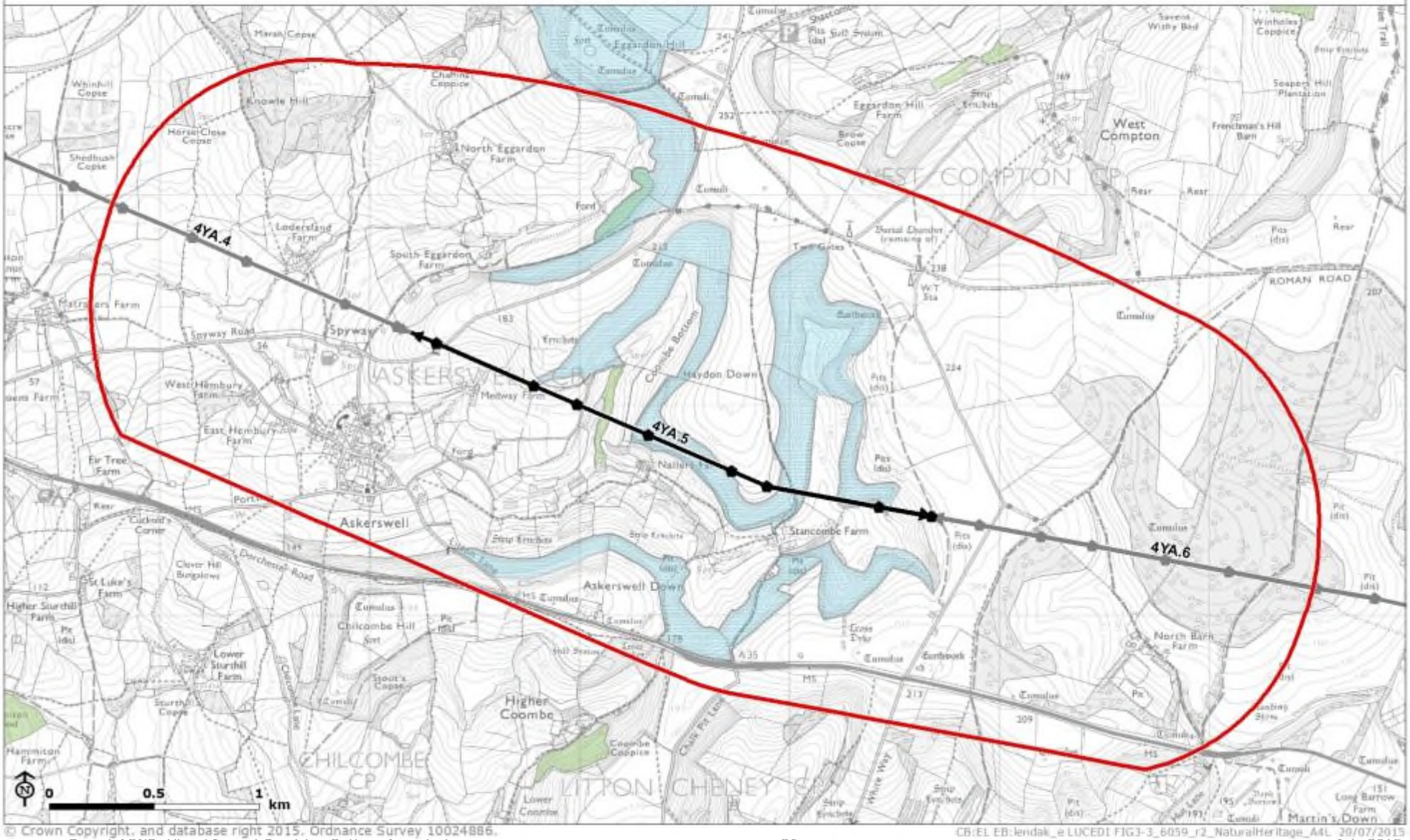
NATIONAL GRID
DORSET
VIP PROJECT

Study area
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
Ancient Woodland
SSSI
4YA.5 Pylon
Other OHL pylon

Figure 3.8: Ecology/Geology

nationalgrid

Source: Natural England, National Grid



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Historic Environment

3.45 Within the 4YA.5 study area there are several scheduled monuments, including a number of linear earthworks on Askerswell Down and Haydon Down, and a chambered tomb and barrows further north. Just outside the study area are the large hill forts at Eggardon Hill to the north and Chilcombe Hill to the south. There are listed buildings in Askerswell, all grade II with the exception of the grade II* listed church. South Eggardon Farm is also grade II* listed. There is undesignated archaeology present in the form of strip lynchets (cultivation terraces) around Nallers Farm and elsewhere. The local Historic Environment Record (HER) may identify further features. Designated heritage assets are shown in **Figure 3.9**.

Water

3.46 The Environment Agency's Flood Map shows that sub-section 4YA.5 is close to an area of Flood Zone 3 associated with the stream that flows westward through Askerswell.[9]

Soils and Geology

3.47 The West Dorset Escarpment is the interface between the limestones of the Jurassic Great Oolite Group to the west, and the Cretaceous White Chalk in the east. These are separated by layers of mudstone, sandstone and limestone which are exposed along the indented face of the escarpment. Superficial deposits comprise Quaternary clays in places. Soils are free draining slightly acid loamy soils to the west, with shallow lime-rich soils over the chalk escarpment. The downland plateau features slightly acid soils with poor drainage.

Other Environmental Issues

3.48 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 any planning application(s).

[9] http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=370351&y=83615&lg=1,2,&scale=11

NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.9: Historic Environment

Study area
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

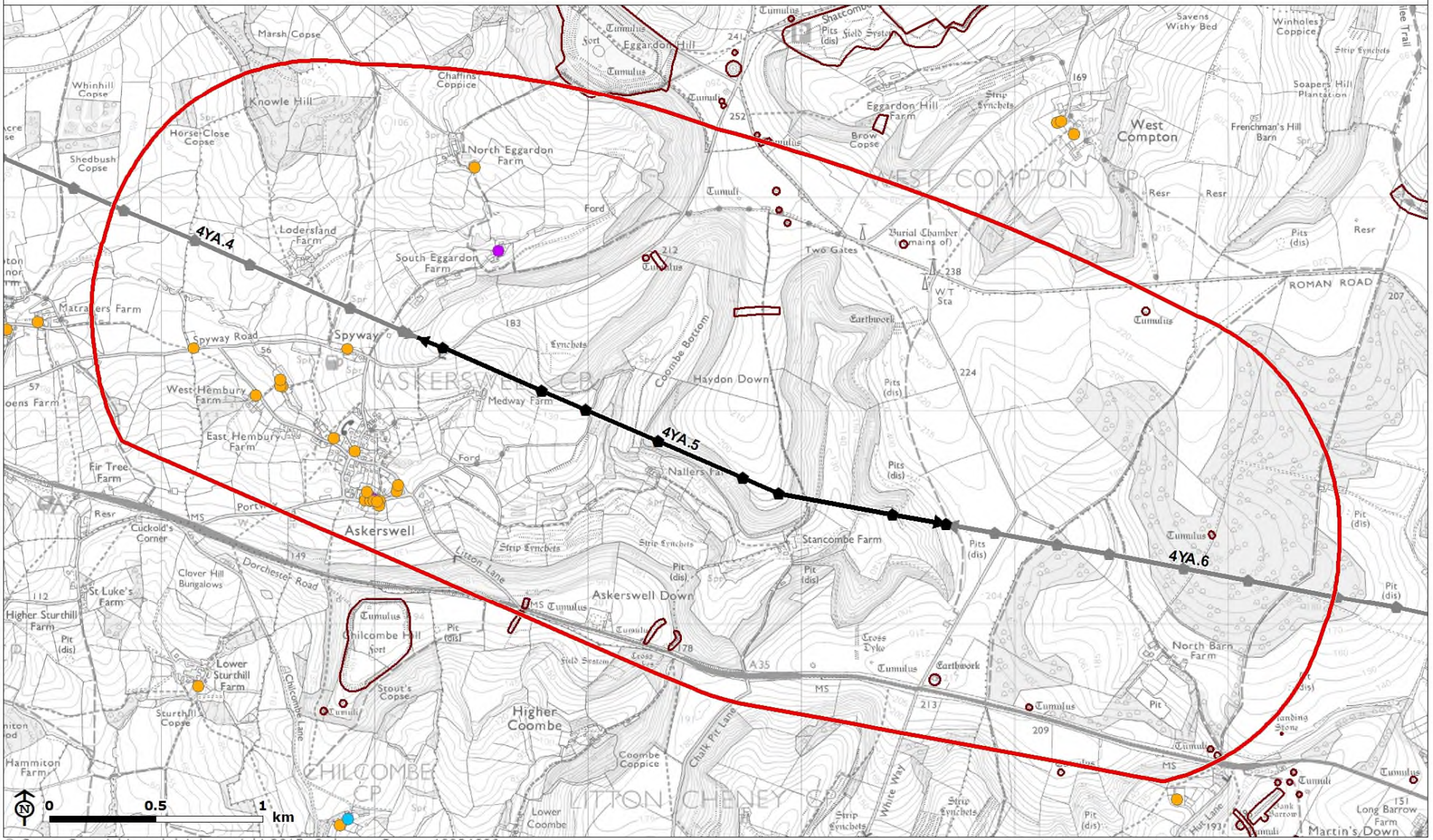
Listed Building
I
II*
II

Scheduled Monument

4YA.5 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Historic England



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Socio-Economic Baseline

Local Economic Activity

3.49 The Dorset AONB has approximately 70,000 people living within it, with the majority of the AONB area under private ownership and actively farmed. Commercial properties in the study area are mainly agricultural. The land classification in the study area is mainly grade 3 (good to moderate), with areas of grade 4 (poor) on the steeper slopes.

3.50 Tourism is a key part of the local economy, with numerous businesses benefiting from visitors to the area. Attractions within or close to the study area include Eggardon Hill, a National Trust property to the north. People are also attracted to the recreation opportunities in the area (see below). There are a number of hospitality and retail outlets within the nearby settlements, including Askerswell and Spyway.

Traffic and Transport

3.51 Within the study areas there are a number main roads capable of handling construction traffic including the A35 Bridport to Dorchester road which is partly dualled in this location. A series of minor roads lead down to the village of Askerswell. Two minor roads pass under the 400kV OHL, running along the ridges of the downs to meet at Two Gates.

Access and Recreation

3.52 There are public footpaths radiating out from Askerswell, including a route east to Stancombe Farm. Bridle paths cross under the 400kV OHL, passing north-south between Askerswell Down and Haydon Down. There are no national or regional walking or cycle routes in the study area.

Section 4YA.7

Route History

3.53 The existing 4YA route is part of the 400kV electricity OHL route connecting Axminster, Chickerell and Exeter 400kV substations. The line was constructed between 1965 and 1969 and is of standard lattice pylon design with quad conductor bundles and has fibre optic wrapped earthwire. The 4YA route is an integral part of the National Electricity Transmission System connecting the south west and south east of England; the substations of Axminster, Chickerell and Exeter all provide feeder circuits for the local DNO substations.

3.54 There is an ongoing need to provide system supplies to both the transmission and distribution networks and any potential solution would be designed to meet the capability of the existing infrastructure

Study Area

3.55 Following site visits in May 2015, it was noted that the impact of the northern section of 4YA.8 is similar to that of the southern part of 4YA.7, since the point of transition is directly above the South Dorset Ridgeway, at the highest point on the South Dorset Escarpment. The northern section of 4YA.8 impacts on the landscape of the South Dorset Escarpment and is highly visible from the Ridgeway

3.56 The divisions between subsections were determined based on changes in landscape character, as presented in published documents. As set out in the VIP Landscape and Visual Impact Assessment Technical Report, this was done prior to field surveys being carried out, and the divisions in assessment subsections may not accurately reflect sudden changes in impact. In this case, the change from a very high impact in 4YA.7 to the high impact in 4YA.8 reflects an decreasing level of impact over the northern section of 4YA.8.

3.57 It was determined therefore to include consideration of the northern part of 4YA.8 within this project, in order to address all of the locations where important landscape and visual impacts were felt to occur.

3.58 The site visits did not identify any reasonable alternative routes that would mitigate the impact of the 400kV OHL, therefore the study area has been drawn as a linear corridor, a maximum of 1km to either side of the existing 400kV OHL. The northern end of this study corridor lies just to the north of Winterbourne Abbas, and the southern end is at the AONB boundary.

3.59 The resulting study area is shown in **Figure 3.10**. The rest of this section outlines features of the study area and its immediate surroundings which are likely to influence a decision on which mitigation solutions to pursue for this 400kV OHL, with reference to the topics listed in **Table 2.1**.

NATIONAL GRID
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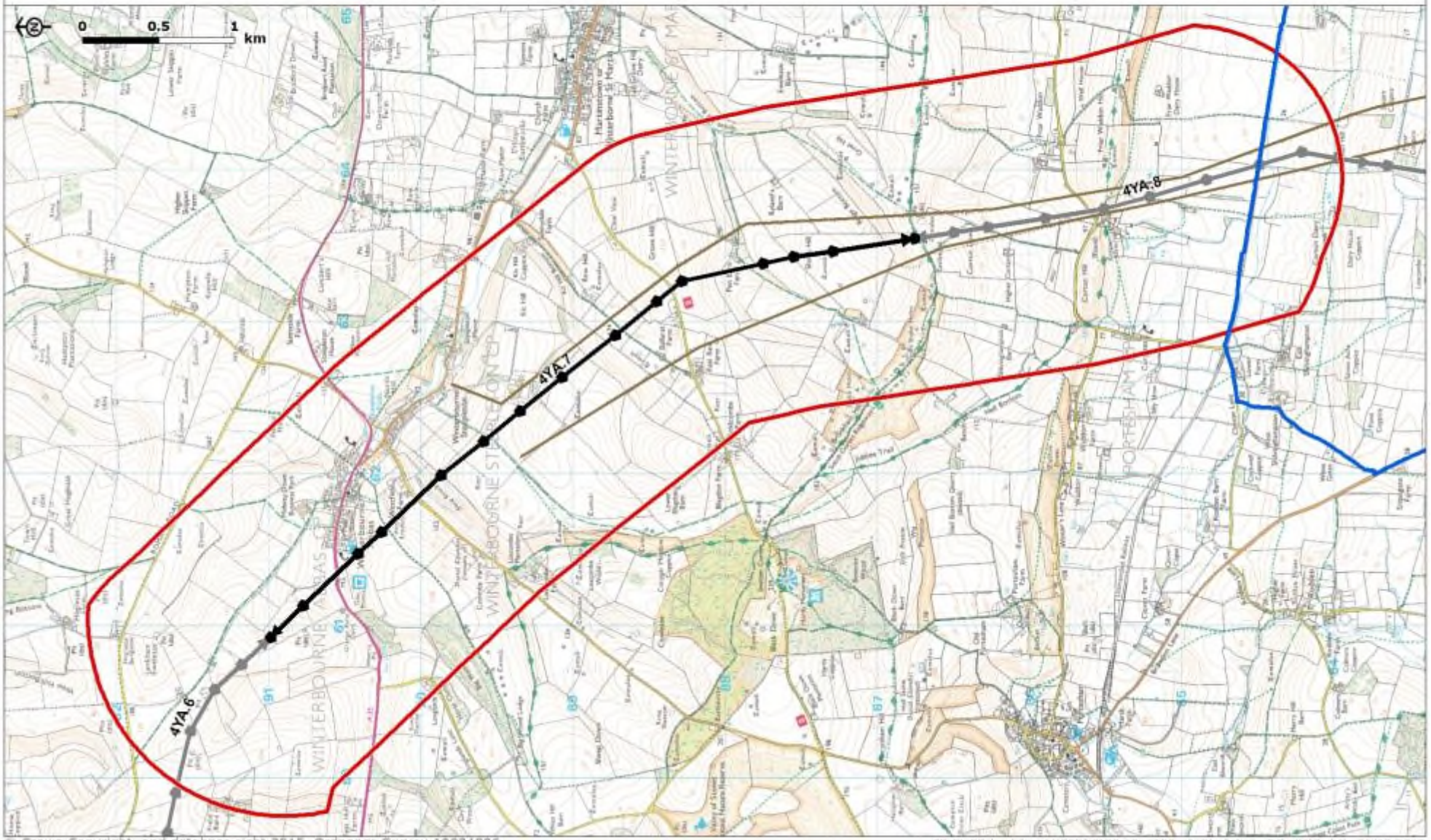
VIP PROJECT

Figure 3.10: Study Area

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
4YA.7 Pylon
Other OHL pylon
DNO 132kV overhead line

nationalgrid

Source: Natural England, National Grid



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Environmental Baseline

Landscape and Visual

3.60 This section of 400kV OHL runs across elevated ground and crosses over several valleys. It runs generally across the grain of the landscape, which is defined by east-west valleys and ridges. The 400kV OHL skirts around the west of Winterbourne Abbas and Winterbourne Steepleton, turning more to the south to cross the South Dorset Ridge near Friar Waddon. It steps down the steep escarpment to the lower ground to the south, where it leaves the AONB. The 400kV OHL is flanked by two pylon DNO lines from south of Winterbourne Abbas.

Landscape Character

3.61 The main part of the study area incorporates open large scale downland and smaller-scale valleys, which together are characterised as the Open Chalk Downland landscape character type (LCT). Although part of the same LCT, the susceptibility of the landscape varies, with the open downs more able to accommodate the pylons than the valleys. The landscape is relatively simple, but displays more of the AONB's special qualities closer to the escarpment. The open nature of the landscape means that the impact of the pylons extends across a large geographical area, although still reducing with distance from the 400kV OHL. The highest impact, on the small-scale valley at Winterbourne Abbas, is more limited in extent.

3.62 The southern end of the study area includes the parallel ridges of the South Dorset Escarpment LCT. Although routed across a low point on the ridges, the pylons impact on the scale of the landscape. The large scale of the pylons is emphasised by the low hills of the southern ridge, and by the small distributor pylons. The 400kV OHL interrupts the skyline and detracts from the appreciation of this key landscape feature at the edge of the AONB.

3.63 The importance of the South Dorset Escarpment to the AONB landscape is highlighted by the management plan. Of particular relevance is the following reference: "*the North, West and South Escarpments and the Purbeck Ridge form dramatic backdrops to, and give views of, much of the surrounding AONB. With an undeveloped and open character, this landscape type with its steep sides supports important patches of chalk grasslands and hanging woodlands*".[10]

3.64 LCTs are illustrated on **Figure 3.11**.

Visual Amenity

3.65 This section identifies the extent of possible visibility of the proposals, and identifies the visual amenity and availability of views as 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 within the area. The main recreational interest in the study area is focused on the escarpment and the South Dorset Ridgeway which follows it. Coastal views are available from the escarpment, as well as long inland views. The 400kV OHL passes close to Winterbourne Abbas and is prominent above the settlement, though other settlements are not affected. Two pylon DNO lines flank the 400kV OHL south of Winterbourne Abbas, and the smaller size of these pylons emphasises the height of the 400kV OHL pylons in views. There is a high scale of impact where the 400kV OHL crosses over the NCN Route. The scale of impact on elevated views from the South Dorset Ridgeway and from Hardy's Monument is lower. However, these are highly-valued views and very popular with visitors to the area. Given this high value and very high level of use, high importance is attached to these impacts.

3.66 The 400kV OHL is a prominent feature traversing the escarpment. It appears on the skyline in views from and to the escarpment, and along the ridges. In views from the escarpment looking over the lower landscape to the south, the 400kV OHL is a prominent feature in the foreground. In views from the south, the 400kV OHL is detracts from the view of the linear ridge, though this is only appreciated from outside the AONB. The DNO lines create visual clutter and tangles of wires in views where they overlap. This particularly affects views from

[10] Dorset Area of Outstanding Natural Beauty A Framework for the Future AONB Management Plan 2014 - 2019. Page 22

the South Dorset Ridgeway national trail which follows the ridge, and from the many paths and Open Access Land often with scheduled monuments, along the ridge.

NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.11: Landscape Character

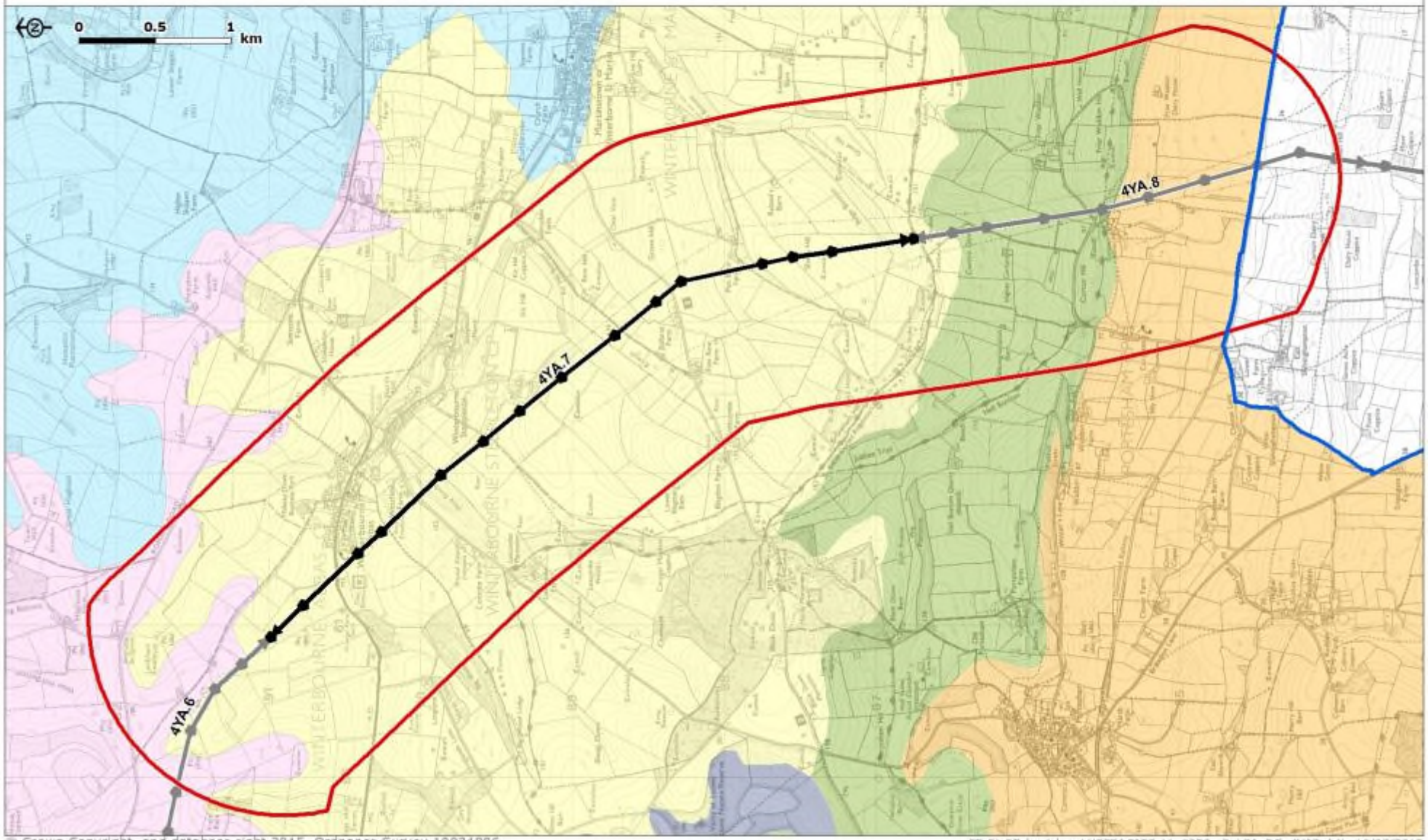
Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

Dorset Landscape Character Areas
Dorchester Downs
South Dorset Downs
South Dorset Escarpment
South Dorset Ridge & Vale
Upper Frome Valley
West Dorset Escarpment

4YA.7 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Dorset AONB



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Ecology

3.67 The Dorset Escarpment and chalk downland form the setting for the 400kV OHL in this part of the AONB. 4YA.7 passes over arable farmland for the most part, with some improved pasture and areas of chalk grassland on the escarpment.

3.68 Within the study area for 4YA.7 there is one SSSI. Corton Cuttings SSSI is a Geological Conservation Review site in the south of the study area (see Geology and Soils). Otherwise the closest SSSIs are the Blackdown (Hardy Monument) SSSI, around 1.7km from the 400kV OHL, and the Valley of Stones SSSI, also a National Nature Reserve, 2.5km from the 400kV OHL. These designations are shown on **Figure 3.12**.

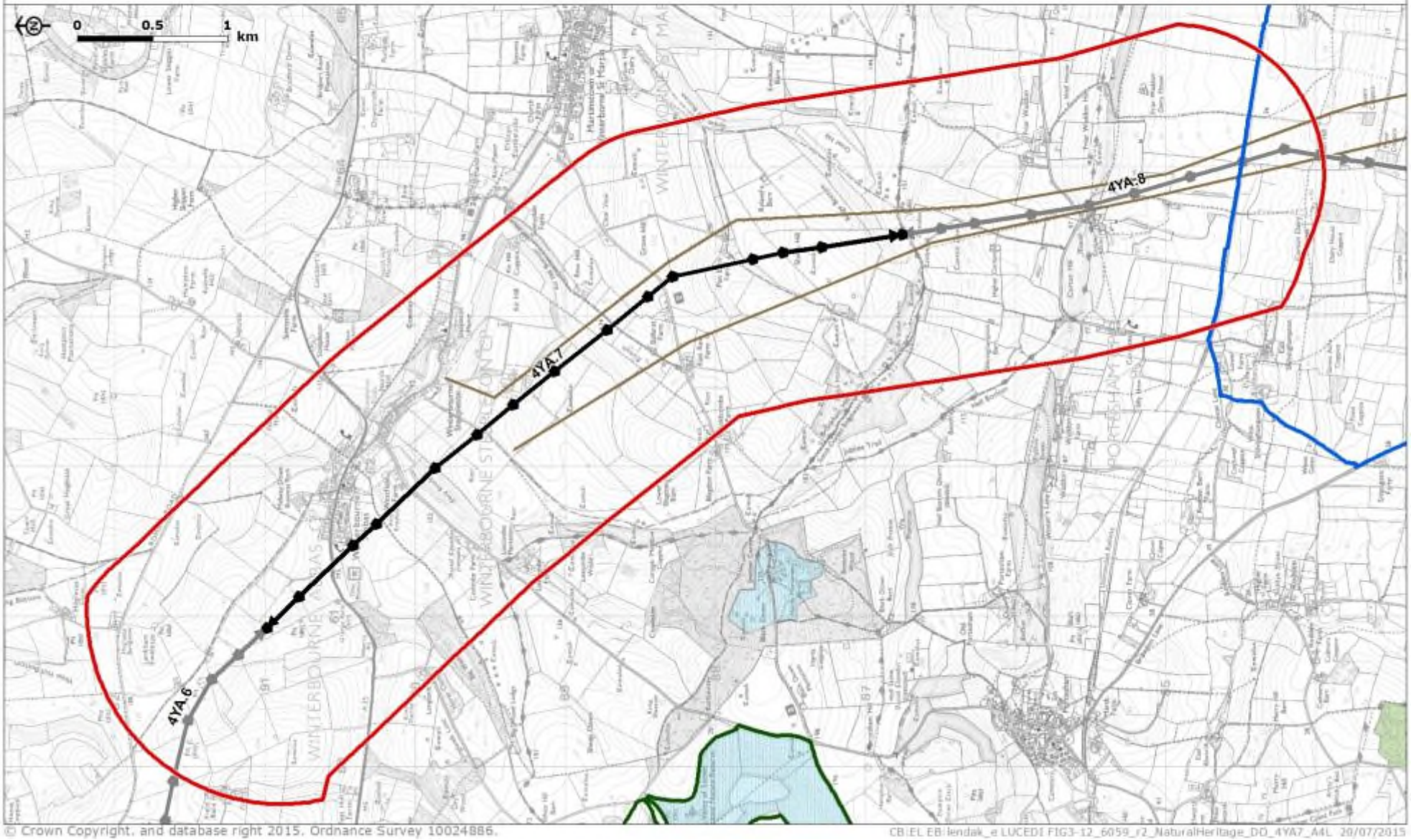
NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.12: Ecology/Geology

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
National Nature Reserve
SSSI
Ancient Woodland
4YA.7 Pylon
Other OHL pylon
DNO 132kV overhead line

nationalgrid

Source: Natural England, National Grid



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Historic Environment

3.69 Within the 4YA.7 study area there are a large number of scheduled monuments and listed buildings. Scheduled monuments include the important collections of barrows along the main Dorset ridge, and scattered examples on high ground elsewhere. The Nine Stones is an English Heritage site just outside Winterbourne Abbas.

3.70 Listed buildings are present at Winterbourne Abbas, Winterbourne Steepleton, Corton and Friar Waddon. Examples include the Church of St Mary, Winterbourne Abbas (Grade I) and Corton Farm (Grade II*), as well as several at grade II. The grade II listed Hardy Monument is around 1.9km from the 400kV OHL.

3.71 Bridehead is a Registered Park and Garden (grade II), described as an "*early C19 park and garden incorporating an ornamental estate village created by Peter Frederick Robertson and added to by Benjamin Ferrey*."[11] The study area includes only the northern 'arm' of the designed landscape, with the main park around 2km from the 400kV OHL.

3.72 Undesignated features include a prominent series of strip lynchets (cultivation terraces) on a hillside south of Winterbourne Abbas. The local Historic Environment Record (HER) may identify further features. Designated heritage assets are shown in **Figure 3.13**.

Water

3.73 The Environment Agency's Flood Map shows that sub-section 4YA.7 crosses an area of Flood Zone 3 which is associated with the South Winterbourne spring and stream within the Winterbourne Valley.[12]

Soils and Geology

3.74 Dorset has an extremely rich geodiversity. The bedrock underlying most of the study area comprises White Chalk, with the southern extent underlain by a combination of Purbeck Group limestones and mudstones, with Portland Group limestones and Kimmeridge Clay.

3.75 Soils comprise free draining slightly acid loamy soils to the north of sub-section 4YA.7 with the majority of the soil type recorded as shallow lime-rich soils with a narrow band of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils to the south.[13] Corton Cuttings SSSI and Blackdown (Hardy Monument) SSSI are sites of important geological interest for the presence of Tertiary Period geology and evidence of sediment deposition on a *"braided river"* environment at Blackdown (see **Figure 3.12**).[14] Corton Cuttings is of interest because of the presence of Portland Sand Formation of Late Jurassic age.

Other Environmental Issues

3.76 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 any planning application(s).

[11] Historic England List entry: http://list.historicengland.org.uk/resultsingle.aspx?uid=1000712

[12] http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap#x=370351&y=83615&lg=1,2,&scale=11

[13] http://www.landis.org.uk/soilscapes/

[14] Blackdown (Hardy Monument) SSSI description.

NATIONAL GRID
DORSET
VIP PROJECT

Figure 3.13: Historic Environment

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line

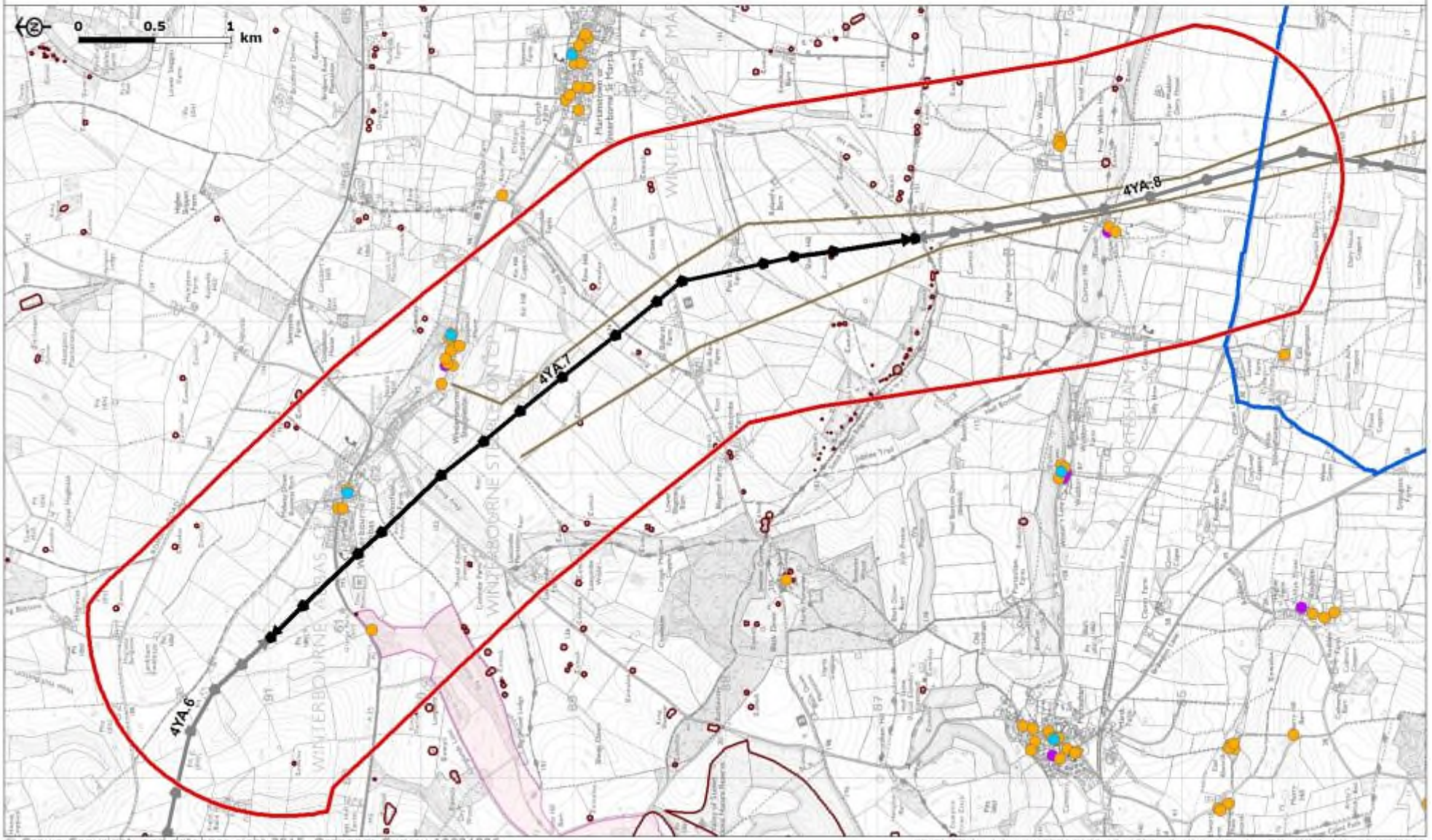
Listed Building
I
II*
II

Scheduled Monument
Registered Parks and Gardens
DNO 132kV overhead line

4YA.7 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid, Historic England



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Socio-Economic Baseline

Local Economic Activity

3.77 The Dorset AONB has approximately 70,000 people living within it, with the majority of the AONB area under private ownership and actively farmed. Commercial properties in the study area are mainly agricultural. The land classification in the study area is mainly grade 3 (good to moderate), with occasional areas of grade 4 (poor) and 5 (very poor).

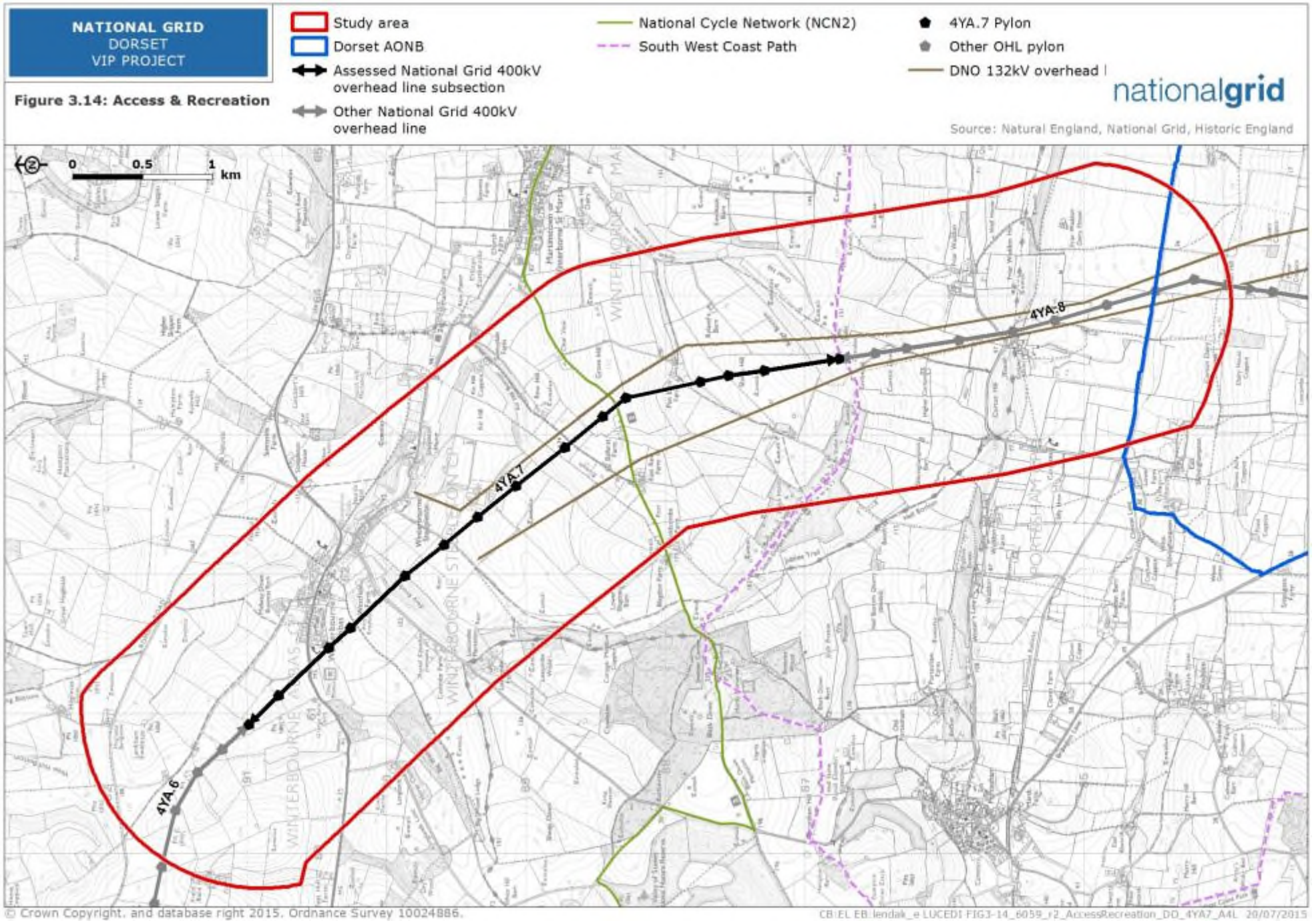
3.78 Tourism is a key part of the local economy, with numerous businesses benefiting from visitors to the area. Attractions within or close to the study area include the Nine Stones, an English Heritage site just off the A35 west of Winterbourne Abbas. The Hardy Monument on Black Down is a key visitor location, offering broad views and the start point for scenic walks. People are also attracted to the recreation opportunities in the area (see below). There are a number of hospitality and retail outlets within the nearby settlements, including Winterbourne Abbas.

Traffic and Transport

3.79 Within the study areas there is a good network of roads including the A35 Bridport to Dorchester road which passes under 4YA.7 at Winterbourne Abbas. Within the 4YA.7 study area the B3159 connects the villages of Winterbourne Abbas with Winterbourne Steepleton and Martinstown. Three minor roads branch from this route to pass under the 400kV OHL.

Access and Recreation

3.80 The South Dorset Ridgeway, part of the South West Coast Path national trail, approaches the Hardy Monument from the south-west, then follows the ridge of Bronckham Hill to pass under 4YA.7/4YA.8 before continuing eastward across Ridge Hill. The Jubilee Trail approaches from the north-east, running broadly parallel to the 400kV OHL from Loscombe to Bronckham Hill where it crosses over the South Dorset Ridgeway. It then runs through Hell Bottom to Corton Hill and Friar Waddon Hill where it passes under 4YA.8. National Cycle Network (NCN) Route 2 crosses the study area along a minor road, from the Hardy Monument to Martinstown. These routes are shown on **Figure 3.14**. In addition there is a good network of well-used public footpaths and bridle paths within the area.


NATIONAL GRID
DORSET
VIP PROJECT
Figure 3.14: Access & Recreation
Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
National Cycle Network (NCN2)
South West Coast Path
4YA.7 Pylon
Other OHL pylon
DNO 132kV overhead l
nationalgrid
Source: Natural England, National Grid, Historic England
0
0.5
1
km
4YA.6
4YA.7
4YA.8
© Crown Copyright. and database right 2015. Ordnance Survey 10024886.
CB:EL EB:lendak_e LUCEDI FIG3-14_6059_r2_AccessRecreation_DO_4YA7_A4L 20/07/2015

4 Stakeholder Engagement

Introduction

4.1 Having identified a shortlist of 12 subsections of line in eight designated areas using the landscape assessment methodology, the Stakeholder Advisory Group asked National Grid to carry out early stage engagement with stakeholders and the public at a local level.

4.2 The aim of this early engagement was to gather information and intelligence on the area to inform the options assessment and to gauge local attitudes and opinions to the work. It was also felt that involving local groups and individuals at the outset would not only help to identify any potential problems and challenges but also to give the local community a sense of ownership. It should be a requirement of any scheme taken forward to major engineering work that it has the support and involvement of local people.

4.3 It was also agreed at the Stakeholder Advisory Group that National Grid should work closely with the Dorset AONB Partnership to present a collaborative, inclusive partnership approach to the local community.

Stakeholder Meeting

4.4 A meeting was held on 27 November 2014, attended by National Grid, Camargue and representatives from High Weald AONB (Sally Marsh) and Dorset AONB (Richard Brown). The following points were discussed and agreed during the meeting:

- Stakeholder engagement would take place as soon as practical in the New Year.
- Ideally engagement events would take place on the same day with a workshop for selected, relevant individuals / organisations followed by a drop in event for the public (afternoon and evening).
- This initial stakeholder engagement would inform the landscape and technical work.
- The workshop would be a closed session, focused on a smaller group and technical in nature. Attendees would comprise primarily key representatives from the AONB Partnerships and other key statutory bodies identified by the AONB Partnerships and agreed with National Grid.
- Personal invites would be issued to the workshop. Personal invites would also be issued to the drop in sessions to selected groups / individuals (as advised by the AONB officers).
- General invites would be sent to other relevant groups / local affected communities primarily using the AONBs' networks / databases. National Grid would work with the AONBs' communications officers to ensure that the message was delivered to relevant audiences.
- Drop in events would need to take place at a convenient location for members of the community as advised by the AONB Partnerships.
- National Grid would take responsibility for organising and delivering the events but they would be collaborative activities between National Grid and the AONB teams.
- Invites and materials for each event would be co-branded.

Engagement Events

4.5 On the advice of the Dorset AONB team, the events were held as follows. Both workshop and drop in events took place on Wednesday 18th February 2015. The workshop was held at

County Hall, Dorset County Council's head office and the drop-in was held at The Colliton Club, opposite County Hall.

4.6 The workshop ran from 9.30am until 1.00pm and was attended by 14 representatives from local stakeholders including Dorset AONB officers and representatives from Dorset County Council, West Dorset District Council, Natural England, the South Dorset Ridgeway Partnership, SSE and Bournemouth University. Representatives from National Grid and Camargue were in attendance and Shane Gould, Senior Local Government and National Infrastructure Adviser at English Heritage, attended on behalf of the Stakeholder Advisory Group as an observer.

4.7 The drop in event ran from 2.00pm until 8.00pm and was staffed by representatives from National Grid (VIP project team) and Camargue. It was attended by a broad cross section of the local community with a number of local landowners represented, as well as local residents. In total, 41 people attended the event.

4.8 The event was publicised as agreed with the AONB Partnership with direct invitations sent to the AONB's mailing list of key stakeholders. The event was also promoted via the AONB's e-newsletter, a news article on its website and regular Tweets through its Twitter profile. AONB Landscape Planning Officer Richard Brown was also active in encouraging people to attend via word of mouth. National Grid worked closely with AONB Manager Tom Munro and provided material for use in publicity proactively and on demand.

4.9 A press release was produced and issued to local media resulting in coverage in the Dorset Echo, The Argus and on BBC Sussex where the event was mentioned by VIP Project Manager Hector Pearson during an interview about the High Weald.

4.10 Tom Munro, Dorset AONB Manager, was interviewed about the project on BBC Radio Solent on the morning of 18th February. He discussed the project as a whole as well as what it could mean for the Dorset AONB.

Stakeholder Feedback

Technical Workshop

4.11 The following key issues were discussed at the Technical Workshop:

4.12 Landscape and Visual

- Two of National Grid's transmission lines pass through the Dorset AONB.
- Section 4VN.2 runs from Weymouth north-west to Broadwey, crossing diagonally over the South Dorset Escarpment.
- Section 4YA runs west to east from Axminster to Weymouth, running broadly parallel to the coast.
- Subsection 4YA.5 runs from Spyway in the west to the head of Stancombe in the east. It runs along the edge of the chalk escarpment following the northern side of a deep coombe which shows distinctive chalkland topography.
- Subsection 4YA.7 runs south-east from Winterbourne Abbas to the edge of the South Dorset Escarpment at Bronkham Hill. It crosses the open downs, dropping into a valley as it passes close to Winterbourne Abbas and approaches the South Dorset Escarpment from the north.
- 4YA.7 crosses areas of open large scale downland and smaller-scale valleys, with the open downs more able to accommodate the pylons than the valleys. The transmission line crosses areas of open large scale downland and smaller-scale valleys.
- From the village of Askerswell, 4YA.5 interrupts views of the downland escarpment.
- There is a significant visual impact where 4VN.2 passes the South Downs Ridgeway. The line crosses the ridge at a shallow angle, affecting more of the sensitive escarpment landscape.
- Attendees felt that locating SECs in the AONB's open landscape could be a challenge.

- It was acknowledged that the transmission line's crossing points across the South Downs Ridgeway take the most appropriate route and therefore re-routeing this line is not a viable option.

4.13 Ecology / Environment

- It was noted that 4YA.5 crosses a SSSI and SAC.[15]
- Refurbishment works are taking place this summer (2015) on the two SSE lines that run parallel to 4YA.7.
- Attendees felt that there are no known constraints to undergrounding 4YA.5.

4.14 Archaeology

- The South Downs Ridgeway has important Iron and Bronze Age settlements and stretches between 4VN.2 and 4YA.7. The transportation of materials across the Ridgeway is of particular interest to many archaeologists.
- There is a dense concentration of Bronze Age burial mounds and the only other examples can be found at Stonehenge and Orkney.
- Attendees felt that 4YA.7 crosses the landscape at one of the most important archaeological sites.
- It was noted that sensitive undergrounding works could support archaeological work. Attendees stated that the construction of the Weymouth relief road had help to uncover a roman road and 50 beheaded Vikings.

4.15 Land Ownership

- The Duchy of Cornwall is a major landowner but the rest of the AONB has a broad number of landowners.

4.16 Tourism

- Tourism in West Dorset is significant and 14 per cent of local people are employed in the sector
- The South Downs Ridgeway project is aiming to demonstrate to visitors the importance of the landscape.
- Some attendees felt that the South Downs Ridgeway project provides a good opportunity to combine with the Visual Impact Provision project.

4.17 Summary

- The consensus from workshop attendees was that 47A.7 provides the best option for undergrounding works, however finding locations for SECs would be challenging.

Feedback from Drop-In Event

4.18 10 feedback forms were completed at the Dorset event. Comments are summarised below.

- The majority of those providing feedback were in favour of the project.
- Burying the cables underground was the preferred option with respondents stating that screening and camouflaging pylons would not be beneficial to the area.
- One respondent stated that they felt that the eastern shortlisted section (4VN.1) was of equal importance to the shortlisted section of line (4VN.2) within the AONB.
- While most respondents were in favour of undergrounding all three sections of line, one respondent felt that the section marked 4YA.5 was more detrimental to the landscape within the AONB than either of the other two shortlisted sections (4VN.2 and 4YA.7).
- Three respondents highlighted concerns about access to public rights of way during any proposed work as well as the need for extensive restoration.

[15] Subsequent research indicates that this area is an SSSI only, not an SAC. See Section 3.

- The restoration aspect of the project featured prominently in four comment forms with respondents highlighting the impact that undergrounding would have on the landscape.
- One respondent felt that the length of the sections of line being considered were too short.
- The impact that the pylons currently have on local wildlife was highlighted – in particular birds' use of the pylons as nesting points.
- The historical and environmental importance of the landscape was mentioned by the majority of respondents with members of the public requesting that extensive archaeological and environmental surveys be carried out.
- One respondent mentioned that there have been calls for a by-pass around Winterbourne Abbas. Should this by-pass be built, they felt that it would greatly alter the visual impact assessment the area around the section 4YA.7.
- One respondent added that they were in favour of a number of smaller mitigation measures in the place of a single, larger scheme.
- Overall, the majority of the feedback received at the event was positive with most people supportive of a scheme that would bury cables underground.

Feedback from the Second Technical Workshop

4.19 A second meeting of technical stakeholders took place at Dorset County Council on 6 August 2015. Prior to the meeting each attendee was sent a hard copy of the Options Appraisal report. The aim of the session was to obtain their feedback on the possible options and to provide attendees with a forum in which they could raise any issues before the report is formally presented to the project's Stakeholder Advisory Group in September 2015.

4.20 Attendees were asked by National Grid to highlight any issues or inaccuracies in the report.

4.21 The meeting discussed the options for the three sections of line, 4VN.2, 4YA.5 and 4YA.7 and the following was discussed.

Subsection 4VN.2

- Attendees stated that they felt that search area A for the sealing end compound should be extended towards the west because the current search area is sensitive and located very close to the Ridgeway.
- It was highlighted by National Grid that extending the search area would require the project to address the visual impact of 4VN.1, a subsection of line which is not included in the project's shortlist.
- Stakeholders noted that a key consideration for the location of search area A is the proposed Littlemoor Urban Extension, which has been included in the draft local plan but not currently adopted.
- AONB representatives indicated that they felt that the location of search area B could create a visual impact and the balance between benefits and harm would need to be carefully considered.
- AONB representatives stated that they believe search area C was in a location which provides scope to find a suitable position for a sealing end compound.

Subsection 4YA.5

- National Grid stated that Option 1 would be a significant engineering task to underground the line due to the topography of the landscape.
- The Natural England representative stated that because Option 1 goes through a SSSI they would not like to see this option take forward.
- Stakeholders indicated that Option 2 was deemed to be more acceptable and the AONB highlighted that it could be technically possible to find suitable locations for the sealing end compounds in both search areas A and B.

Subsection 4YA.7

- It was noted by the AONB that the sealing end compound search areas overlap with the DNO lines. National Grid stated that a technical solution for this could be developed.
- The AONB highlighted that for search area C, National Grid would need to consider the location of the sealing end compound, as to the north of the ridge it would have a visual impact and to the south of the ridge there are three listed buildings located nearby.
- The AONB stated that locations further away from the ridge would provide opportunities to better screen sealing end compounds.
- Stakeholders stated that there is a natural synergy between the Visual Impact Provision project and the South Dorset Ridgeway Project.
- It was noted that across each option there is a need to conduct geophysical surveys to understand if an undergrounding project is likely to uncover archaeology. Stakeholders felt that the project offered real potential to understand the historic environment and that archaeological finds would not impact the project significantly.

5 Potential Mitigation Solutions

Introduction

5.1 A number of alternative solutions exist which could mitigate the impact of the 400kV OHL on the AONB, and these are described below. All routes shown are entirely indicative, and will be subject to detailed route design if shown to be feasible. Construction and operational impacts have been included in the consideration of these potential solutions. Decommissioning of the existing 400kV OHL has not been factored in at this appraisal stage as it is unlikely to influence the mitigation options. However, the following paragraph outlines the envisaged decommissioning process of the redundant infrastructure once the new connection is operational.

5.2 Decommissioning would involve many of the activities associated with the construction phase, for example provision of access points and haul roads and associated traffic movements for the removal of equipment. Upon removal, much of the material would be taken for reuse or recycling. Pylon fittings, such as dampers and spacers, would be removed from the conductors. The conductors would be cut into manageable lengths or would be winched onto drums. Each pylon may be dismantled by crane, with sections cut and lowered to the ground for further dismantling and removal from site. If space is particularly restricted, the pylon can act as the scaffold and be dismantled from the inside. Conversely, in large areas it may be possible to cut the pylon at the base and then pull the pylon to the ground using a tractor and then cut into sections. A decision as to whether pylon foundations would be left in the ground would be made at such time in the future and would also take account of land owner wishes and environmental issues.

5.3 For the mitigation options identified it may be necessary for the erection of temporary structures whilst cable sealing end and/or overhead line works are undertaken. These temporary structures would require new designated access routes, however, these access routes and structures would be removed once the new connection becomes operational.

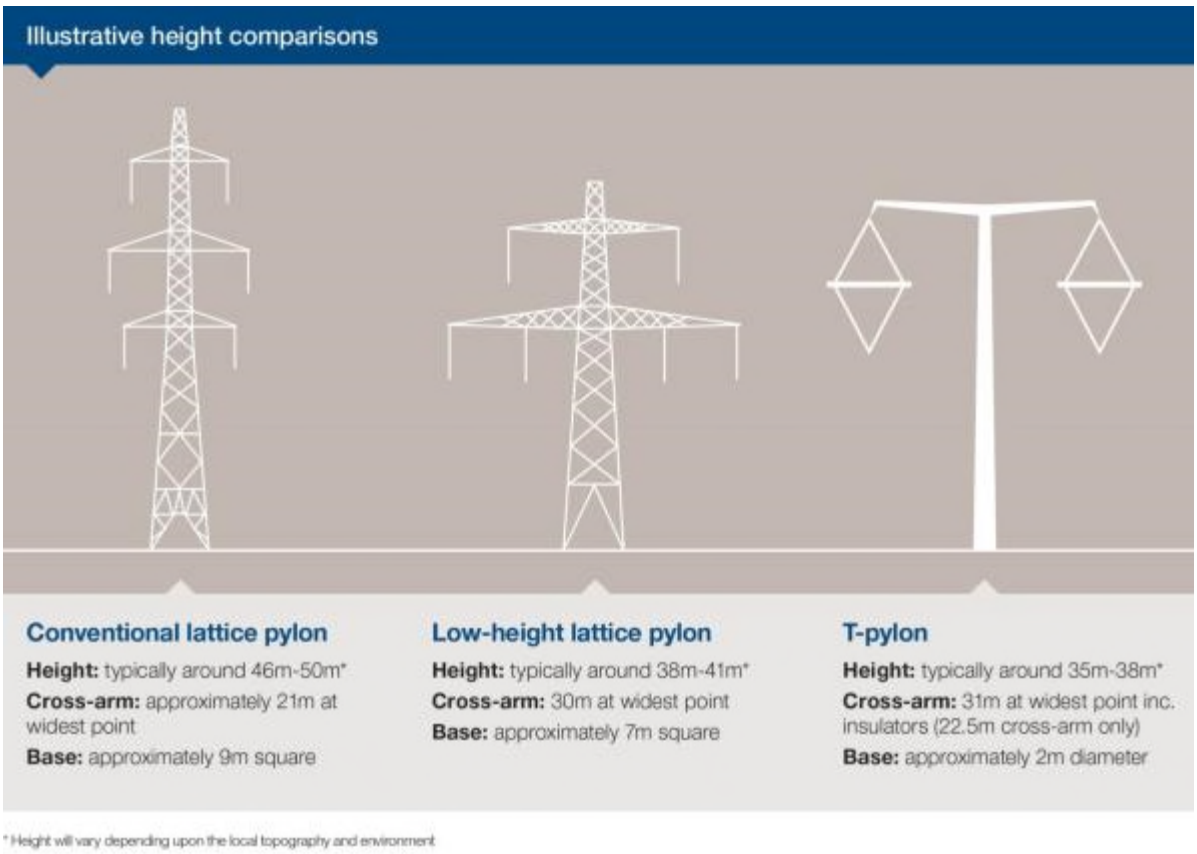
5.4 With some of the VIP schemes, the local distribution electricity network is in close proximity to the identified subsection. Local distribution network operators (DNO) manage these electricity supplies up to 132kV, in some case lattice pylons are used but are normally significantly shorter in height than the 400kV ones owned and operated by National Grid. Distribution OHLs have been included in technical solutions only where a potential option would be to 'takeover' the route and replace with a new 400kV OHL. Where the inclusion of DNO infrastructure is not considered as part of the technical solution, it has been acknowledged in the appraisal where appropriate.

Option1: Alternative Pylon Design (4VN.2; 4YA.5; 4YA.7)

5.5 In this option, the route of the current 400kV OHL would be maintained but alternative pylon designs would be deployed. This could include either of the following designs, which are illustrated in **Figure 5.1** together with a conventional lattice pylon, which is included for comparison purposes:

- The new T-pylon design; or
- Low height pylon design (referred to as L12/LH).

Figure 5.1 Alternative pylon designs



5.6 The T-pylon design was introduced by National Grid following a competition, as it was considered to be an attractive, innovative and simple design while still offering the required structural performance. It is around 10m shorter than the typical lattice pylon. Operational T-pylons have not yet been deployed in the UK, though prototypes have been erected. An artist's impression of a T-Pylon is shown in **Figure 5.2**.

5.7 Low-height pylons are variations on the lattice pylon design, which carry the conductors in a different arrangement. They are around 10m shorter than the typical lattice pylon, though significantly wider with more substantial cross-arms. An example is shown in **Figure 5.3**.

5.8 In order to maintain the current route alignment, the existing line would have to be temporarily diverted during construction work. This temporary diversion would require the construction of a new overhead line route which would in turn require consent.

5.9 Discussion of this option with the project team, together with the feedback from the stakeholder engagement, indicates that an alternative pylons option would not mitigate the landscape and visual impacts of any of the lines on the AONB.

5.10 The use of alternative pylon designs along the existing alignment was not investigated further.

Figure 5.2 Example T-pylon (artist's impression)

Figure 5.3 Example low-height pylon

Option 2: Overhead Line on Alternative Route Alignment (4VN.2; 4YA.5; 4YA.7)

5.11 This option would involve re-routeing the 400kV OHL along an alternative alignment (either using conventional lattice or alternative pylon design). However, as noted in Section 3, no reasonable alternative above ground routes have been identified for any of the sections within the AONB. As the existing route is relativity straight, any re-routeing of the line would necessarily involve a net increase in the number of pylons, so is therefore likely to have

increased visual impact. The development of alternative route alignments was not investigated further.

Option 3: Underground Cable – Direct Burial (4VN.2; 4YA.5; 4YA.7)

5.12 This option would involve replacement of the 400kV OHL with an underground cable (the overhead line would be removed following installation and commission of the cable).

5.13 Direct burial of an underground cable would require a construction corridor typically 30-50m wide along the length of the cable route. This width is to accommodate the cable trenches, haul road, storage areas for stripped topsoil and sub soil from the cable trench excavation and inclusion of any temporary and permanent land drainage requirements. This is based on the assumption that direct burial is using twelve cables to maintain circuit capacity. Following completion of the cable installation, the ground would be returned to its previous use. Hedgerows and other field boundaries would be reinstated. Trees felled would not be replanted over the buried cable but would be replaced elsewhere. **Figure 5.4** shows a typical cross section for underground cable construction.

5.14 An alternative to direct burial is the use of cable troughs which may be able to reduce the number of cables required to six in total. This method is generally used where the width of the cable corridor is restricted or where vegetative reinstatement is not required (for example along cycle trails or canal tow paths).

5.15 Each cable would be installed in an individual concrete trough, with a total single circuit trough width of typically 2m (a double circuit installation would require two of these). The trough is laid at a depth of approximately 1m and the achievable electrical rating is critically dependant on maintaining a constant minimum burial depth. As such, any points/obstacles along a route normally necessitating deeper burial, such as under watercourses and roads, would require special design considerations. A cable trough construction swathe would be less than that of direct burial largely because there is less of a requirement for material storage on site.

5.16 In conjunction with direct burial and cable troughs, National Grid can use horizontal directional drilling (HDD) technology to take the cable beneath certain features, such as sensitive woodland or across steep slopes. The directional drilling provides a bore beneath the feature that the cable is then sleeved into using a biodegradable lubricant. There is no space available to accommodate a cable joint within the HDD bore. The maximum length that can be achieved with HDD techniques will be determined by the length of suitably rated cable that can be delivered to site on a single cable drum.

5.17 A sealing end compound (SEC) would be located at each end of the cable route, to achieve the transition from an overhead to an underground cable. A terminal pylon forms the end of the 400kV OHL, with a fenced compound approximately 80m by 40m. A diagram of a typical SEC is shown in **Figure 5.5**, with a photograph of an existing compound in **Figure 5.6**. Both cable SECs would require permanent road access which would result in additional construction activities. It is important to note that although the designs for SECs do vary, and normally each compound is slightly different, the SEC is likely to be similar to the examples shown, and the pylon is often contained within the compound.

Figure 5.4 Typical underground cable construction swathe drawing

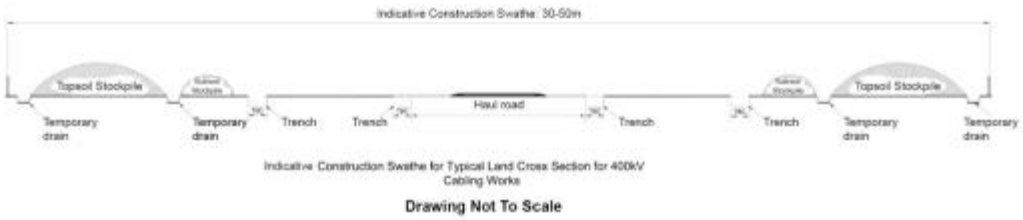


Figure 5.5 Diagram of a typical sealing end compound

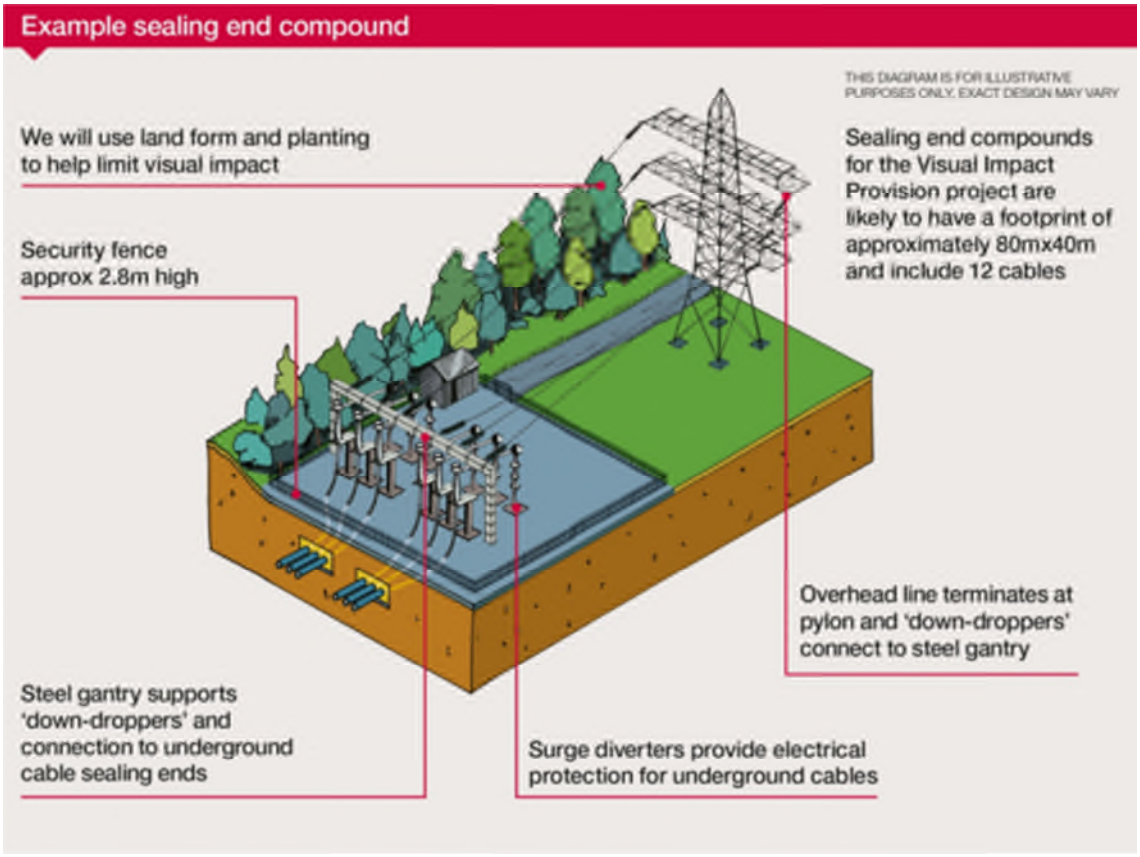


Figure 5.6 An operational sealing end compound

5.18 It is considered that direct burial of section YYM.4 and the associated SECs has the potential to mitigate the impacts on the AONB sufficiently to be investigated further. There are various sub-options relating to direct burial of the 400kV OHL and these are appraised in **Section 6.**

Option 4: Underground Cable – Tunnel (4VN.2; 4YA.5; 4YA.7)

5.19 Under this option, construction of a bored tunnel would require the sinking of vertical shafts at each end, to enable access for a tunnel boring machine which would complete the subsurface excavation (**Figure 5.7**). Additionally a shaft may be required at the midpoint for access and egress. A substantial construction compound would be required at each shaft location, and access would be required for bringing in plant and material. The diameter of a cable tunnel is very much dependant on the geology and the quantity of cables that need to be installed. It is envisaged that a cable tunnel diameter of approximately 4-5m would be required for this option. Disposal of spoil would be necessary, either on-site through creation of earth mounding, or off-site, necessitating numerous lorry movements. Following completion of the tunnel and installation of the cable, the construction compounds would be restored although the permanent tunnel headhouses and SECs would remain.

5.20 Whilst both bored tunnels and direct burial of underground cables are major engineering exercises, bored tunnels are only usually considered where the traditional direct burial method is not a realistic technical or environmental option (for example under a large water body) or when located in a highly urbanised environment (where direct burial would cause unacceptable disruption). No compelling reasons have been identified which would require a tunnel rather than direct burial, and tunnelling has not been investigated further.

Figure 5.7 Tunnel boring machine being lowered into a vertical shaft

6 Appraisal of Preferred Options and Conclusions

6.1 Discussions between LUC and National Grid, informed by site visits in May 2015 and by the stakeholder engagement (**Section 4**), led to a decision on which solutions to pursue for subsections 4VN.2, 4YA.5 and 4YA.7 in the Dorset AONB.

6.2 Direct burial of the cables was considered to be the most effective means of mitigating the impacts of the three sections of 400kV OHL on the AONB. The remainder of this section describes the alternative means of achieving this, in relation to each section. All routes shown are entirely indicative, and will be subject to detailed route design if shown to be feasible. Sub-topics are only considered where they may influence the choice of option.

Direct Burial of Section 4VN.2

Corridors and Search Areas

6.3 For the purposes of direct burial, a corridor has been defined which follows the route of the 400kV OHL, since this is the shortest route and avoids designated areas. The corridor has been defined as up to 100m wide, to accommodate the required working width with some flexibility for detailed routeing to avoid constraints such as steep slopes. Search areas for SECs have been identified based primarily on landscape 'fit', including topography, potential for screen planting, landcover and access. Three potentially suitable search areas have been identified, as follows:

- Search area A is located to the south-west of Bincombe, on lower ground to the south of the main escarpment;
- Search area B is located in a shallow valley north of West Hill; and
- Search area C is located within Holcombe Bottom, to the north of White Horse Hill.

6.4 The alternatives for consideration are therefore:

- Burial of the 400kV OHL between search area B and search area C, including the highlighted 4VN.2 section; or
- Burial of the 400kV OHL between search area A and search area C, including part of the 4VN.1 section as well as 4VN.2.

6.5 The corridors and search areas are shown in **Figure 6.1**.

Appraisal

Landscape and Visual

6.6 The longer option from A to C is likely to have greater landscape and visual benefits. This would result in the removal of up to 10 pylons and 3.5km of 400kV OHL from the sensitive South Dorset Downs and South Dorset Escarpment LCTs. It would also mitigate impacts on views from the South Dorset Ridgeway and from the Osmington White Horse viewpoint. By comparison, the shorter option B to C would remove up to five pylons and 2.0km of 400kV OHL from the South Dorset Downs LCT. This option would mitigate impacts on views from the Osmington White Horse viewpoint, but not from the Ridgeway between Bincombe and West Hill.

6.7 The insertion of a SEC at search area A could have significant impacts on views from Bincombe and would be visible from the A354/A353. The SEC would be visible from the South Dorset Ridgeway, though on lower ground. A location in the lower western part of the search area

would have less impact on the escarpment to the east. A SEC at search area B would be less visible in the wider landscape, being in a shallow valley, but would have localised impacts on the escarpment landscape. The SEC would be seen from Coombe Valley Road to the west, and possibly from the Ridgeway on West Hill to the south. The eastern SEC search area C is well screened within the valley of Holcombe Bottom, though it would be visible from Chalky Road to the north.

6.8 Option A to C is preferred, as it has the greatest landscape and visual benefits.

Ecology

6.9 The longer option from A to C would give rise to a greater level of disturbance to habitats along the burial corridor, with potential to impact on calcareous grasslands on Bincombe Hill and Green Hill. Both options are c.250m from SSSIs to the south, which are unlikely to be directly affected.

6.10 All three search areas are located within arable land, and construction of SECs would be unlikely to impact on important habitats. Further investigation of the areas will be needed to identify species and habitats in detail. Option B to C would be slightly preferred as it is shorter and would be less likely to cause disturbance to sensitive habitats.

Historic Environment

6.11 The corridors and search areas avoid the numerous scheduled monuments in the area, and direct impacts on these are not anticipated. Removal of the 400kV OHL which are within close proximity to the scheduled monuments may be considered a beneficial impact on their settings. The longer route A to C has the greater potential to adversely impact undesignated archaeology in the area, and passes very close to the prominent cultivation terraces near Bincombe. The shorter route B to C avoids this though further research would indicate the potential for undiscovered archaeology along the corridor. Development of a SEC in search area A could give rise to impacts on the setting of the grade I listed church at Bincombe, though depending on mitigation screen planting, this may not be any greater than the impact of the 400kV OHL. Option B to C is preferred as there would be less potential for disturbance of undiscovered archaeology.

Other Environmental Topics

6.12 No issues have been identified under other environmental topics that would lead to a strong preference for either option. The shorter route B to C would generally be slightly preferred due to the smaller area of ground disturbance, potentially affecting hydrology, geology and soils, and the less extensive construction impacts.

Socio-Economic Appraisal

6.13 The longer route A to C would have a greater impact on agriculture in the area, due to the greater extent of ground disturbance across what is likely to be a larger number of landholdings. Conversely, by mitigating the impact on the South Dorset Ridgeway, the longer route may have a slight beneficial impact on tourism arising from walkers using this route.

Technical Appraisal

6.14 The direct burial of the route from B to C would require the installation of approx. 2km of HV electric cables and the construction of two cable sealing end compounds at either end with terminal towers to transition between the cables and existing overhead line route.

6.15 The installation of cable would cause significant disruption to the landscape during construction. A temporary haul road would be built along the length of the cable installation. The sealing end compounds would require significant land take and full planning permission. Permanent road access is required to the compounds.

6.16 During the construction period, access for heavy vehicles and plant would be required along the proposed cable route. It is envisaged at this stage that a total of twelve HV cables would need to be installed to ensure there are no restrictions on the capacity of the existing line. Horizontal directional drilling (HDD) may be used where the cable route crosses existing roads

6.17 Although the route from A to C is longer, the additional impacts from construction are not much more significant than from B to C. There is an extra road crossing between A and B

which may require HDD and an extra area to joint the cables. The initial construction activities would be similar for both options requiring a haul road along the route to excavate the ground and install the cables.

6.18 On completion of the construction activities, five pylons would be decommissioned between B to C or ten pylons between A and C and the ground would be reinstated back to its original condition.

6.19 The use of cable technology is suitable to achieve this option, but further detailed assessment would be required to ensure that network capacity isn't unduly affected. Shunt reactors may be required on the electricity network in order to compensate for the electrical properties of the cable.

Conclusion

6.20 This section of the report has presented the option which seems to be the most feasible for addressing the visual impact of this existing subsection of National Grid overhead line.

6.21 It is proposed that, should the VIP Stakeholder Advisory Group recommend to National Grid that 4VN.2 be taken forward into the next stage of the VIP process, National Grid would work closely with the stakeholders in identifying a specific route alignment and locations for the two SECs within the search areas. In order to do this, it would be necessary to undertake physical site investigations (such as borehole surveys). The provision of this information would inform further decision making, again through the Stakeholder Advisory Group, for progressing this project under VIP.

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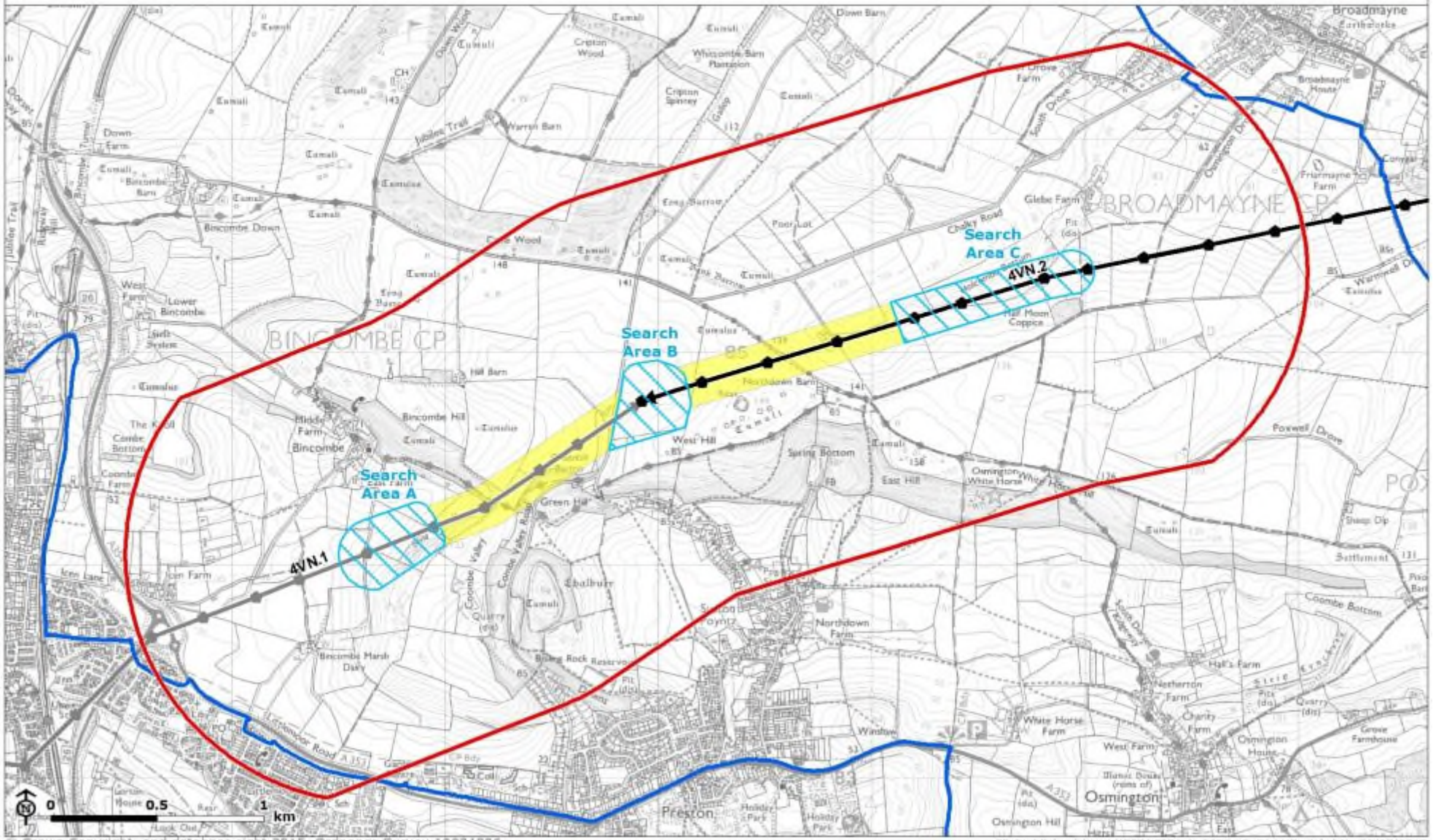
Figure 6.1: Direct Burial Potential Routes

Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
Potential route corridor
Sealing end search area
4VN.2 Pylon
Other OHL pylon

nationalgrid

Source: Natural England, National Grid



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Direct Burial of Section 4YA.5

Corridors and Search Areas

6.22 For the purposes of direct burial of the 400kV OHL, two alternative corridors have been identified. These are defined as typically 100m wide to accommodate the required working width with some flexibility for detailed routeing. The corridor for Option 1 broadens in the middle to allow further flexibility to avoid steep slopes. The two routes are:

- Option 1 broadly follows the alignment of the 400kV OHL, though the indicative corridor seeks to avoid the steepest slopes; and
- Option 2 is a more northerly alignment, which seeks to avoid all steeper slopes, and also avoids crossing the SSSI.

6.23 Both of these options would link SECs located at the west and east ends of the study area. The western search area covers the lower ground to the west of the main escarpment, and is located to the north of the hamlet of Spyway. The eastern search area is located in a shallow valley on the eastward slope of the downs, north of North Barn Farm.

6.24 The alternatives for consideration are therefore whether to adopt the on-line or off-line routes for the cable. The corridors and search areas are shown in **Figure 6.2**.

Appraisal

Landscape and Visual

6.25 Both options would result in the removal of up to 10 pylons and 3.5km of 400kV OHL from the sensitive West Dorset Escarpment and adjacent LCTs, mitigating the identified landscape and visual impacts of this section. The SEC search areas have been defined in areas of low ground with limited visibility. The eastern SEC would be located away from most visual receptors, though the western SEC would be seen from Spyway and nearby farms.

6.26 The cable corridors would have temporary impacts on the landscape and on views. The longer northern route would have more widespread impacts, potentially viewed from minor roads along the route. The shorter southern route cuts across the grain of the landscape, and in the longer term could affect ancient woodland in Coombe Bottom as well as causing scarring across the steep slopes along the route. There is no clear preference in landscape and visual terms.

Ecology

6.27 Option 1 would cross the Haydon and Askerswell Downs SSSI in two places, either side of Haydon Down. This would be a direct impact and would result in loss of protected habitat in the affected areas. There is also potential for direct impacts on the ancient woodland in Coombe Bottom. The northern option would avoid direct impacts on the SSSIs, though the cable corridor would pass close to both Haydon and Askerswell Downs SSSI and Eggardon Hill and Luccas Farm SSSI. There would be extensive disturbance to undesignated areas of grassland and hedges.

6.28 The western SEC would be located in an area of pasture fields, while the eastern search area includes arable land and recently planted woodland. Overall, the northern option would be preferred in order to minimise impacts on SSSIs. Further investigation of the areas will be needed to identify species and habitats in detail.

Historic Environment

6.29 There are scheduled monuments within the northern option 2 corridor, though it is probable that direct impacts could be avoided through detailed route selection. There is also potential for impacts on undiscovered archaeology across the downs, which are known to be rich in barrows and other monuments. There are no scheduled monuments in the southern option 1 corridor, though the potential for impacts on unscheduled features remains, particularly as there are concentrations of lynchets across the slopes. Neither option is clearly preferred.

Other Environmental Topics

6.30 No issues have been identified under other environmental topics that would lead to a strong preference for either option. The shorter option 1 would give rise to a smaller area of ground disturbance, but would involve cutting across steep slopes with implications for hydrology, and potential impacts on the fragile geology and soils of the downland.

Socio-Economic Appraisal

6.31 The longer northern option would have a greater impact on agriculture in the area, due to the greater extent of ground disturbance. Neither option is strongly preferred on socio-economic grounds.

Technical Appraisal

6.32 The construction of a cable route along Option 1 poses a greater challenge due to the steeper landscape. The cables may require additional supports to ensure they remain fixed in their positions when in operation; this would require concrete casings buried within the ground which will then house the braced cables. The longer cable route with Option 2 would provide less of a challenging landscape, however would require additional joint bays and approx. 1km of additional cables to complete the route compared to Option 1. Both routes start and end in the same locations, therefore there are no potential benefits to the locations of the cables sealing end compounds for either option.

6.33 Access to the location is from the A35 to the south. A temporary haul road would be built along the length of the cable installation. The sealing end compounds would require significant land take and full planning permission. Permanent road access is required to the compounds.

6.34 Though the longer cable route, Option 2 is preferred as it has fewer engineering challenges including steep slopes and access problems that would increase cost and duration.

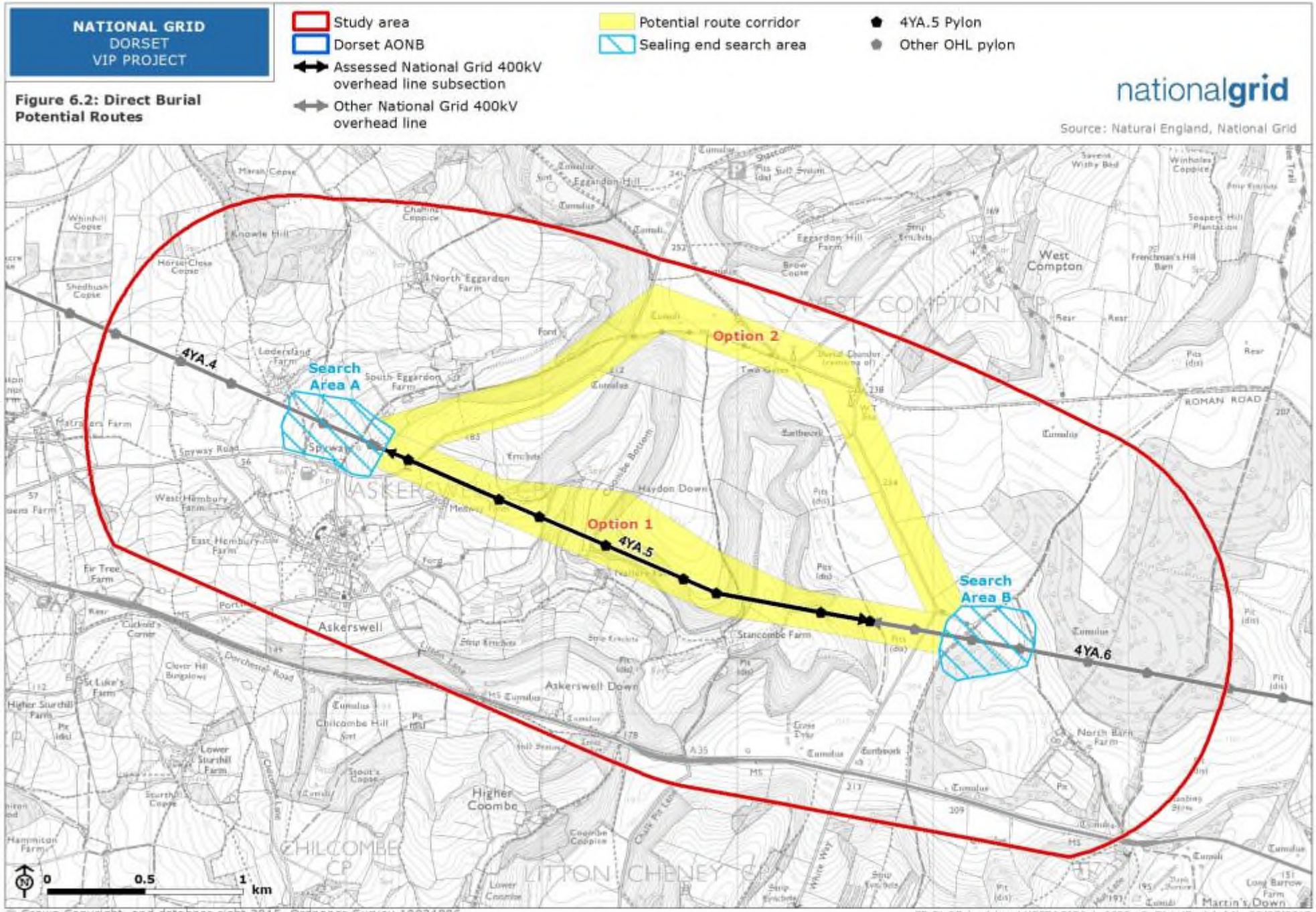
6.35 The use of cable technology is suitable to achieve this option, but further detailed assessment would be required to ensure that network capacity isn't unduly affected. Shunt reactors may be required on the electricity network in order to compensate for the electrical properties of the cable.

Conclusion

6.36 This section of the report has presented the option which seems to be the most feasible for addressing the visual impact of this existing subsection of National Grid overhead line.

6.37 However, both Options 1 and 2 have issues associated with them. Option 1 is technically challenging (because of the steep topography) and would require extensive works across the sensitive escarpment. Option 2, whilst generally avoiding the constraints associated with Option 1, would result in works along a much extended route corridor.

6.38 It is proposed that, should the VIP Stakeholder Advisory Group recommend to National Grid that 4YA.5 be taken forward into the next stage of the VIP process, National Grid would work closely with the stakeholders in identifying a specific route alignment and locations for the two SECs within the search areas. In order to do this, it would be necessary to undertake physical site investigations (such as borehole surveys). The provision of this information would inform further decision making, again through the Stakeholder Advisory Group, for progressing this project under VIP.



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Direct Burial of Section 4YA.7

Corridors and Search Areas

6.39 For the purposes of direct burial, a corridor has been defined which largely follows the route of the 400kV OHL, since this is the shortest route and avoids designated areas. The corridor has been defined as typically 100m wide to accommodate the required working width with some flexibility for detailed routeing. It does extend out to 300m near Winterbourne Abbas to help avoid very steep slopes with cultivation terraces in this location.

6.40 Based on examination of the landscape on site, three search areas for SEC locations have been identified. These are selected as low-lying areas where the compound could be relatively contained by topography. The three locations are as follows:

- Search area A is located north-west of Winterbourne Abbas, on lower ground to the north of the A35;
- Search area B is located in the shallow valley north of Ballarat Farm, on the minor road west of Martinstown;
- Search area C is located south of Corton Down, below the main ridge of the South Dorset Escarpment and extends on to lower ground south of Friar Waddon Hill. The sensitive elevated South Dorset Escarpment and steeper slopes would be avoided in siting the compound.

6.41 The alternatives for consideration are therefore:

- Burial of the 400kV OHL between search area B and search area C, reducing the impact on the South Dorset Escarpment and Ridgeway;
- Burial of the 400kV OHL between search area A and search area C, additionally mitigating the impact on Winterbourne Abbas, removing the whole of 4YA.7 and much of 4YA.8;

6.42 The corridors and search areas are shown in **Figure 6.3**.

Appraisal

Landscape and Visual

6.43 The longest option A to C south of the South Dorset Escarpment would result in the removal of up to 18 pylons and between 6.0km and 6.7km of 400kV OHL. This would have the greatest benefits of the two options, as it would mitigate the landscape and visual impacts along the whole of section 4YA.7 and much of 4YA.8 as well. The 400kV OHL would be removed from the sensitive South Dorset Downs and South Dorset Escarpment LCTs. The visual impacts on Winterbourne Abbas, NCN Route 2, and the South Dorset Ridgeway would be minimised. If the SEC is located in the north part of search area C, the impact of the angle pylon on Corton Hill would remain.

6.44 Option B to C would result in the removal of up to 9 pylons and between 3.0km to 3.7km of 400kV OHL. This option would not mitigate the visual impact on Winterbourne Abbas, but would minimise the impacts on NCN Route 2 and the South Dorset Ridgeway. Less of the 400kV OHL would be removed from the South Dorset Downs LCT. If the SEC is located in the north part of search area C, the impact of the angle pylon on Corton Hill would remain.

6.45 The three search areas have been selected for their potential to screen views of the SECs. A SEC in search area A would be visible from the A35 and potentially from homes in Winterbourne Abbas. Search area B is the most elevated location, though there is a shallow depression east of Ballarat Farm. A SEC here could be more widely visible, besides potential views from the minor road/NCN Route 2 and adjacent houses.

6.46 Search area C is located below the South Dorset Escarpment, on the lower slopes south of the ridge, but a SEC in the north of the search area would be visible from the Ridgeway some 700m to the north, and from the minor road and the Jubilee Trail to the south, and possibly more widely depending on detail design and siting. A compound to the south of the ridge would be well screened from the Ridgeway, but would be seen from the Jubilee Trail on Friar Waddon Hill. On lower ground, it would be less visible in the wider landscape.

6.47 Option A to C would be preferred as it would remove the greatest number of pylons and length of OHL from the sensitive AONB landscape.

Ecology

6.48 The corridors and search areas are sited well away from biodiversity designations (Corton Cuttings is a geological SSSI). The longer options from area A to C would give rise to greater levels of disturbance to habitats along the burial corridor, with potential to impact on calcareous grasslands on the downs, particularly on the steeper slopes such as at Friar Waddon Hill in the south.

6.49 All three search areas are located within arable or pastoral land, though further investigation of the areas will be needed to identify species and habitats in detail. Option B to C would be slightly preferred due to the reduced level of disturbance to habitats.

Historic Environment

6.50 Although the area is rich in scheduled monuments, there are few within the cable corridor as shown. It is likely that direct impacts on these would be avoided through detailed routeing. Removal of the 400kV OHL which are within close proximity to the scheduled monuments may be considered a beneficial impact on their settings.

6.51 The longest route A to C has the greatest potential to adversely impact undesignated archaeology in the area, due to the greater extent of ground disturbance. The cable corridor has been defined to allow the prominent series of lynchets south of Winterbourne Abbas to be avoided.

6.52 Development of a SEC in the southern part of search area C, south of the Escarpment, could give rise to impacts on the setting of the grade II* and grade II listed buildings at Corton Farm, though this may not be any greater than the impact of the 400kV OHL which would be removed, including the angle pylon on the hill above the farm. There is no clearly preferred option.

Other Environmental Topics

6.53 The southern-most section of the corridor, at search area C, includes part of the Corton Cuttings SSSI, which is protected for its geological importance. Although direct impacts on the SSSI may be avoided through detailed routeing, the selection of an option extending south of the South Dorset ridge is likely to have impacts on the geodiversity of the escarpment.

6.54 No other issues have been identified under environmental topics that would lead to a strong preference. The shorter routes would generally be preferred due to the smaller area of ground disturbance, potentially affecting hydrology, geology and soils, and the less extensive construction impacts.

Socio-Economic Appraisal

6.55 The longer route A to C would have the greatest impact on agriculture in the area, due to the greater extent of ground disturbance across what is likely to be a larger number of landholdings.

6.56 All the options would mitigate the impact on the South Dorset Ridgeway, with a slight beneficial impact on tourism arising from walkers using this route. Beneficial impacts on businesses in Winterbourne Abbas may arise from the removal of the 400kV OHL from this area under Option A-C.

Technical Appraisal

6.57 The direct burial of the route from area A to C would require the installation of approx. 6km of HV electric cables and the construction of two cable sealing end compounds at either end with terminal towers to transition between the cables and existing overhead line route. During the construction period, access for heavy vehicles and plant would be required along the proposed cable route. It is envisaged at this stage that a total of twelve HV cables would need to be installed to ensure there are no restrictions on the capacity of the existing line. Horizontal directional drilling could be used where the cable route crosses the A35 and Coombe Road.

6.58 The option from area A to C would remove all of the towers within the 4YA.7. The rolling countryside, south of the A30 close to Winterbourne Abbas, in particular terracing and steep slopes would present a significant engineering challenge and would involve a more detailed civil engineering appraisal. The section from area B to C largely avoids these steep gradients but reduces the number of pylons removed. Initial construction activities would be similar for both options requiring a haul road along the route to excavate the ground and install the cables

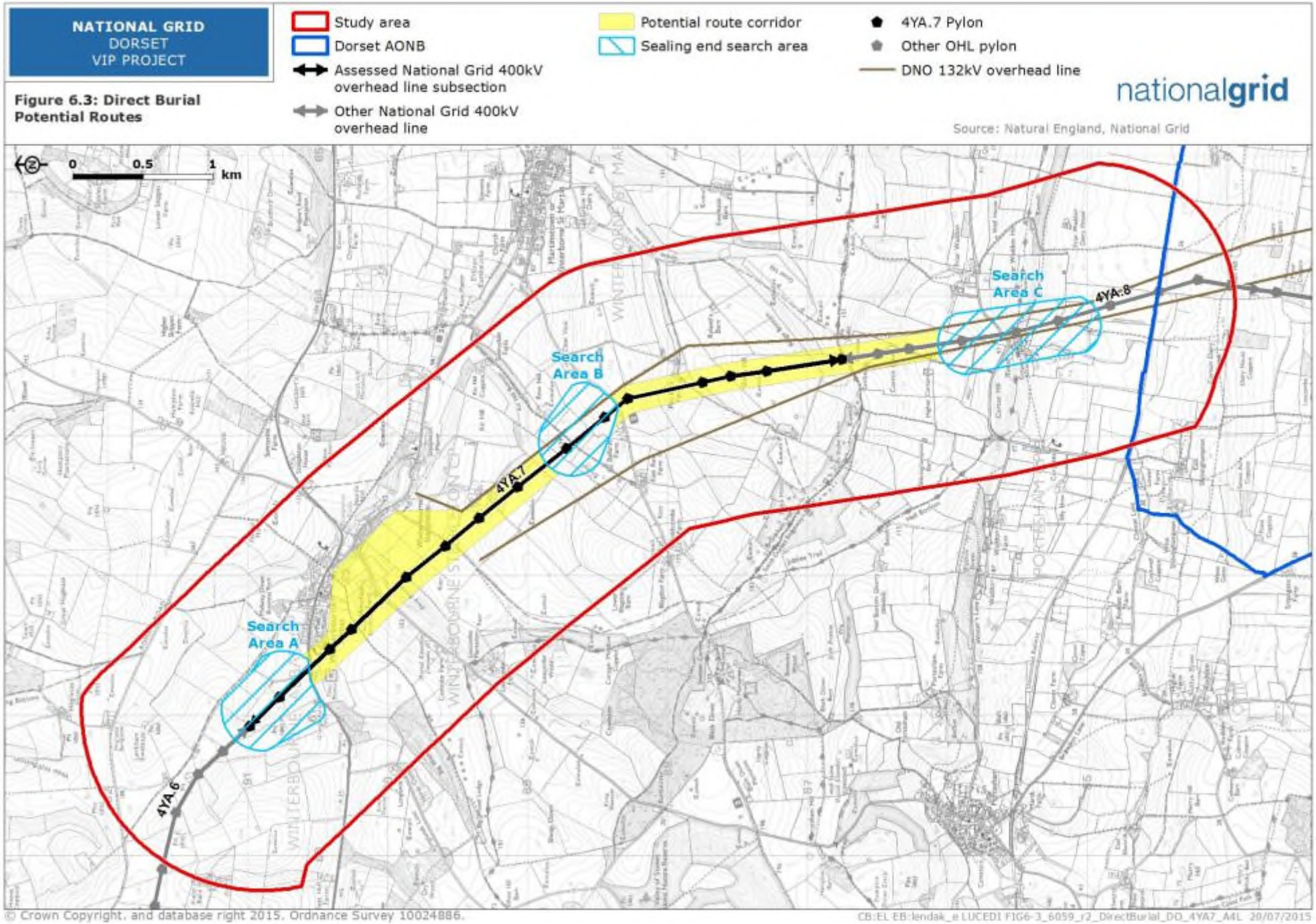
Conclusion

6.59 This section of the report has presented the option which seems to be the most feasible for addressing the visual impact of this existing subsection of National Grid overhead line.

6.60 It is proposed that, should the VIP Stakeholder Advisory Group recommend to National Grid that 4YA.7 be taken forward into the next stage of the VIP process, National Grid would work closely with the stakeholders in identifying a specific route alignment and locations for the two SECs within the search areas. In order to do this, it would be necessary to undertake physical site investigations (such as borehole surveys). The provision of this information would inform further decision making, again through the Stakeholder Advisory Group, for progressing this project under VIP.

Overall Conclusion

6.61 This report has individually reviewed each of the 3 shortlisted subsections of line within the Dorset AONB and presented the most feasible options for each of them. As these sections individually merited a place on the shortlist we have not put forward a preferred scheme or ranking. It will be up to the VIP Stakeholder Advisory Group to judge each of these on their merits and decide whether to take any of them forward into the next stage of the VIP process.


NATIONAL GRID
DORSET
VIP PROJECT
Figure 6.3: Direct Burial Potential Routes
Study area
Dorset AONB
Assessed National Grid 400kV overhead line subsection
Other National Grid 400kV overhead line
Potential route corridor
Sealing end search area
4YA.7 Pylon
Other OHL pylon
DNO 132kV overhead line
nationalgrid
Source: Natural England, National Grid
0
0.5
1
km
Search Area A
Search Area B
Search Area C
4YA.6
4YA.7
4YA.8
WINTERBOURNE
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CB:EL EB:lendak_e LUCED1 FIG6-3_6059_r2_DirectBurial_DD_4YA7_A4L 20/07/2015

Appendix 1 Summary of Potential Primary Consenting Requirements

Consent	1: **OHL** (Alternative Pylon Design) along Existing Alignment	2: **OHL** (Alternative Pylon / Conventional Lattice Design) along Alternative Alignment	3: **Underground cable** (direct burial) of 400kV line	4: **Underground cable** (Cable tunnel)
Development Consent Order (DCO) under the Planning Act 2008 (as amended)	Required as new line is >2km and defined as a Nationally Significant Infrastructure Project (NSIP)	Required as new line is >2km and defined as a Nationally Significant Infrastructure Project (NSIP)	n/a	n/a
Town and Country Planning Act (T&CPA) 1990 (as amended)	n/a	n/a	Yes - for SECs	Required for SECs and tunnel head houses
Section 37 (S37) Electricity Act 1989 (as amended)	n/a	n/a	Potentially if diversion to new SEC required	Potentially if diversion to new SEC required
Environmental Impact Assessment (EIA) Regulations (various) Development	Likely, due to sensitivity of environment (Schedule 3 criteria)	Likely, due to sensitivity of environment (Schedule 3 criteria)	Likely, due to sensitivity of environment (Schedule 3 criteria)	Likely, due to sensitivity of environment (Schedule 3 criteria)
'Appropriate Assessment' under Habitat Regulations 2010	Unlikely, but subject to screening	Unlikely, but subject to screening	Unlikely, but subject to screening	Unlikely, but subject to screening
Permitted Development (PD) Rights under **T&CP (General Permitted Development) Order 1995**	n/a	n/a	Screening of PD rights for cable (subject to restrictions and conditions)	Screening of PD rights for cable (subject to restrictions and conditions)