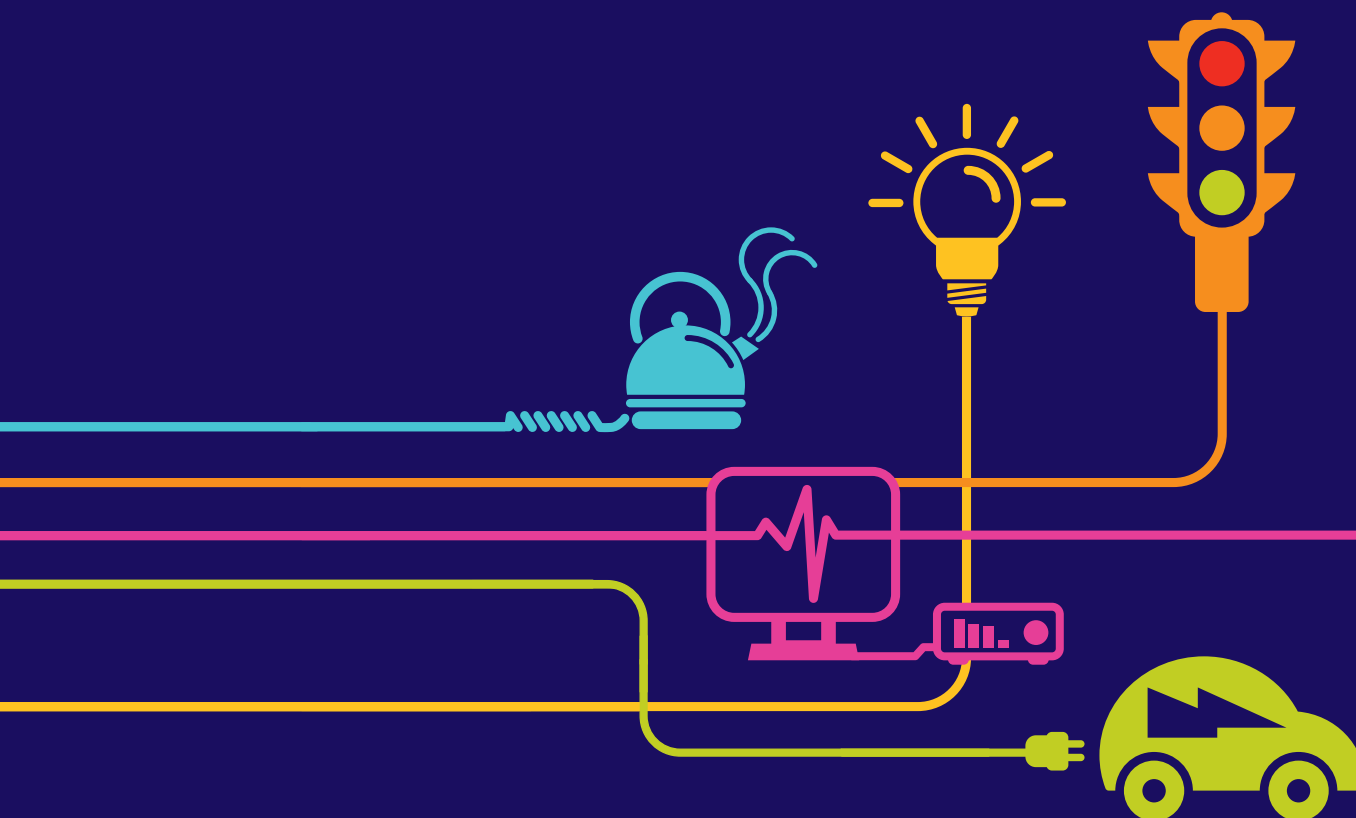


Environmental Statement Project Need and Alternatives Appendix 2K

Hinkley Point C Connection Project

*Regulation 5(2)(a) of the Infrastructure Planning
(Applications: Prescribed Forms and Procedure)
Regulations 2009*



Environmental Statement

Hinkley Point C Connection Project

5.2.2 – Project Need and Alternatives – Appendices (orange highlight indicates the contents of this Volume)

Appendix	Title
Volume 5.2.2.1	
2A	Hinkley Point C Connection Project Strategic Optioneering Report (2009)
2B	Hinkley Point C Connection Strategic Optioneering Report Additional Information (2010)
2C	Hinkley Point C Connection Project Strategic Optioneering Report (2011)
Volume 5.2.2.2	
2D	Hinkley Point C Connection Project Route Corridor Study (2009)
2E	Hinkley Point C Connection Project M5 Routeing Study (2012)
Volume 5.2.2.3	
2F	Hinkley Point C Connection Project Selection of Preferred Connection (2011)
Volume 5.2.2.4	
2G	Hinkley Point C Connection Project Connection Options Report (2012)
Volume 5.2.2.5	
2H	Hinkley Point C Connection Project Changes to the Hinkley Point Transmission Line Entry Points: Technical and Environmental Appraisal (2012)
2I	Land Hinkley Point C Connection Project Environmental Review of Technical Options at Bridgwater Tee (2013)
2J	Hinkley Point C Connection Project Cable Sealing End Siting Study (2012)
Volume 5.2.2.6	
2K	Hinkley Point C Connection Project Pylon Design Options Report (2013)
Volume 5.2.2.7	
2L	Distribution Systems Options Report (2012)
Volume 5.2.2.8	
2M	Western Power Distribution Substation Siting Study (2012)
Volume 5.2.2.9	
2N	Hinkley Point C Connection Project Local Electricity Network Substation Siting Appraisal (2012)
2O	Western Power Distribution 132kV Route Corridor Study (2012)
2P	Hinkley Point C Connection Project Local Electricity Network Preferred Options Report (2012)
Volume 5.2.2.10	
2Q	Western Power Distribution Connection between the Proposed Sandford Substation and the Existing AT Route Connection Options Report (2013)
2R	Western Power Distribution Modification Works at Churchill Substation and Turn-in of Y and W Routes Technical and Environmental Appraisal (2013)
Volume 5.2.2.11	

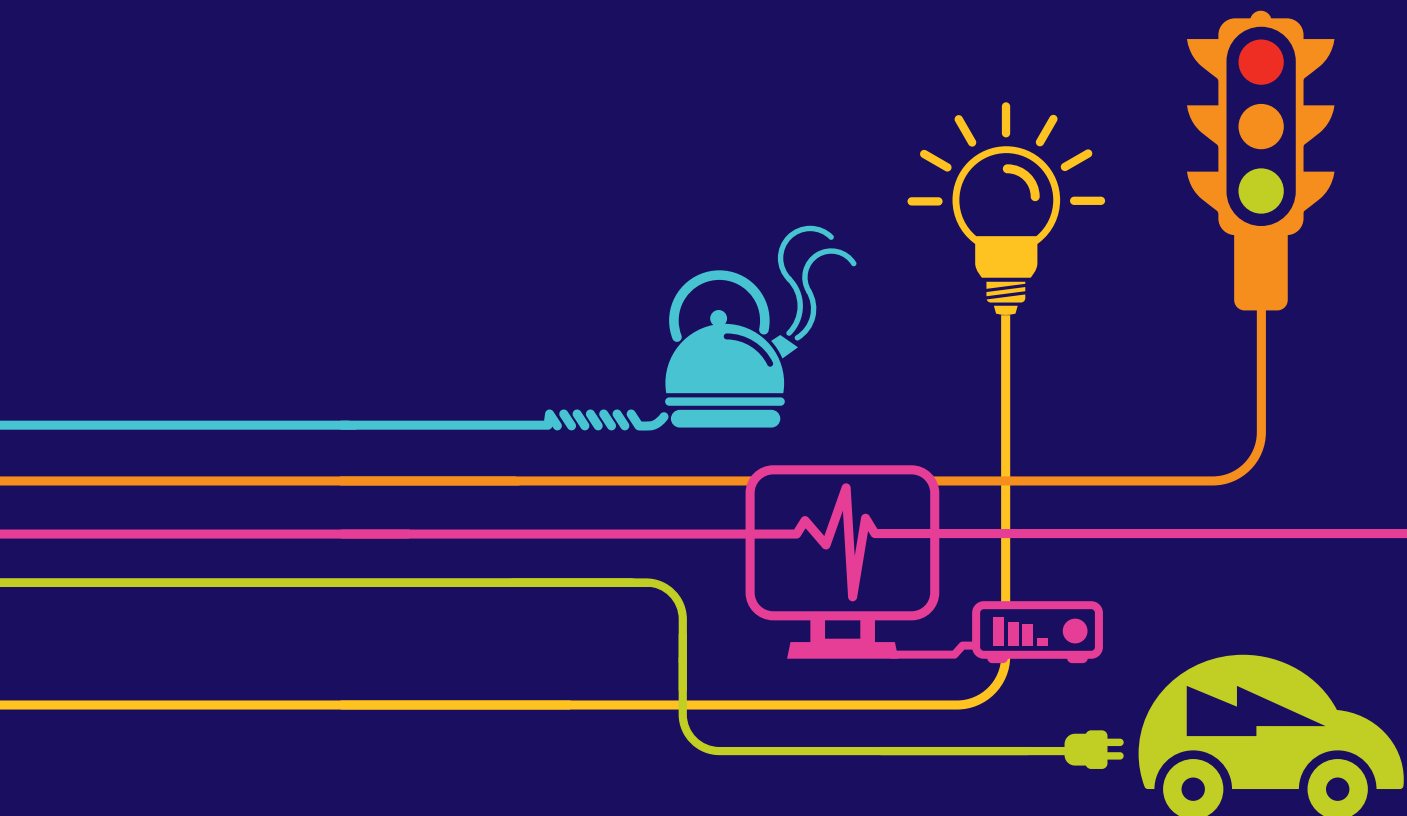
Appendix	Title
2S	Western Power Distribution Connection between the Proposed Sandford Substation and the Existing N Route Overhead Line Technical and Environmental Appraisal (2013)
2T	Western Power Distribution 132kV W Route Undergrounding Options Report (2013)
2U	Western Power Distribution Undergrounding Cable Sealing End Platform Pylon Location Technical and Environmental Appraisal (2013)
2V	Western Power Distribution Undergrounding of Sections of 132kV Overhead Lines G, BW Route and Seabank Line Entries Technical and Environmental Appraisal (2013)

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Appendix 2K – Hinkley Point C Connection Project Pylon Design Options Report (2013)

Pylon Design Options Report

Hinkley Point C Connection Project





Hinkley Point C Connection Project

Pylon Design Options Report

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August 2013

National Grid

1	INTRODUCTION	1
2	BACKGROUND TO THE PROPOSAL	3
3	POLICY BACKGROUND	11
4	DEFINITION OF SECTIONS	19
5	DESCRIPTION OF OPTIONS	21
6	APPRAISAL TOPICS	28
7	APPRAISAL SECTION A – PURITON RIDGE	35
8	APPRAISAL SECTION B – SOMERSET LEVELS AND MOORS SOUTH ...	68
9	APPRAISAL SECTION D - SOMERSET LEVELS AND MOORS NORTH..	111
10	APPRAISAL SECTION E – TICKENHAM RIDGE	168
11	APPRAISAL SECTION F – PORTISHEAD/PORTBURY	214
12	APPRAISAL SECTION G – AVONMOUTH	269
13	CONCLUSION AND NEXT STEPS	334

APPENDICES

A	HOLFORD RULES
B	LANDSCAPE AND VISUAL AMENITY PRINCIPLES
C	OUTLINE ENVIRONMENTAL METHODOLOGIES

FIGURES

Figure 1: Section Boundaries

Figure 2: Dimensions of the standard/ low height lattice and T-pylon suspension pylons

Figure 3: Typical dimensions of the terminal Double Diamond T-pylon

Figure 4.1: Lattice and T pylon route alignments – Section A

Figure 4.2: Lattice and T pylon route alignments – Section B

Figure 4.3: Lattice and T pylon route alignments – Section C

Figure 4.4: Lattice and T pylon route alignments – Section D

Figure 4.5: Lattice and T pylon route alignments – Section E

Figure 4.6: Lattice and T pylon route alignments – Section F

Figure 4.7: Lattice and T pylon route alignments – Section G

ABBREVIATIONS

AC	Alternating Current
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
C	Century
COR	Connection Options Report
CPRE	Campaign to Protect Rural England
CSE	Cable Sealing End
DCO	Development Consent Order
DD	Double Diamond T-Pylon
DECC	Department for Energy and Climate Change
DMV	Deserted Medieval Village
EIA	Environmental Impact Assessment
EN-1	Overarching National Policy Statement for Energy (EN-1)
EN-5	National Policy Statement for Electricity Networks Infrastructure (EN-5)
ES	Environmental Statement
GI	Grade One Listed Building
GII	Grade Two Listed Building
Ha	Hectare
HER	Historic Environment Record
ICNIRP	International Commission on Non-Ionising Radiation Protection
IPC	Infrastructure Planning Commission
km	Kilometre
kV	Kilovolt
LCA	Landscape Character Area
LWS	Local Wildlife Site
m	metre/million
MEWP	Mobile Elevated Working Platform
NCA	National Character Area
NCR	National Cycle Route
NLCA	National Landscape Character Areas
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
PILs	Persons with an Interest in Land
PINS	Planning Inspectorate
PRoW	Public Right of Way
RIBA	The Royal Institute of British Architects
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SNCI	Site of Nature Conservation Interest
SSSI	Site of Special Scientific Interest
WPD	Western Power Distribution

1 INTRODUCTION

Purpose of Report

- 1.1 In November 2012, National Grid Electricity Transmission plc. ("National Grid") announced its Proposed Route for the proposed 400kV connection between Bridgwater in Somerset, and Seabank substation near Avonmouth (the Hinkley Point C Connection Project).
- 1.2 The Proposed Route is divided into a number of Sections (A to G – see Figure 1); sites of associated development are referred to in project documentation as Section H (Hinkley) and Section I (Aust). The preferred technology for the connection is overhead line with the exception of Section C (Mendip Hills Area of Outstanding Natural Beauty – AONB) and short lengths continuing into Sections B and D where underground cables are preferred. This report considers the use of a new pylon design, the T-pylon, as an alternative to the traditional steel lattice design for the overhead line sections of the connection. This appraisal demonstrates how statutory duties, policy considerations and environmental issues have been considered and makes recommendations for a pylon design that National Grid should take forward to consultation for the Hinkley Point C Connection Project. Following consultation, the scheme would be further refined and an application for an Order granting Development Consent will be finalised, having regard to consultation feedback, and submitted to the Planning Inspectorate¹.

Structure of Report

- 1.3 The report is structured as follows:
- Chapter 2 - sets out how National Grid approaches the design and routeing of new electricity transmission lines, summarises the development of the Hinkley Point C Connection Project and the development of the T-pylon;
 - Chapter 3 – provides the planning policy background (at national, regional and local level) which sets the context for the development;
 - Chapter 4 – defines the Sections of the route;
 - Chapter 5 – outlines the key characteristics of the steel lattice pylon and T-pylon and provides details on their construction, operation and maintenance;

¹ From April 2012 the duties of the Infrastructure Planning Commission, including the processing of applications for Development Consent Orders under the Planning Act 2008, were transferred to the Planning Inspectorate.

- Chapter 6 – describes the basis of the appraisal, identifying those factors which have been taken into account in the appraisal process and discussing other factors which were considered not to help differentiate between pylon options. It also sets out how the topic „study areas“ were defined;
- Chapters 7-12 – present the findings of the appraisal for individual Sections;
- Chapter 13 – summarises the findings of Chapters 7-12 and outlines the next steps in developing the Proposed Route.

2 BACKGROUND TO THE PROPOSAL

National Grid and its Duties

- 2.1 National Grid is the operator of the high-voltage transmission system for the whole of Great Britain and the owner of the high voltage transmission network in England and Wales.
- 2.2 National Grid's transmission system in England and Wales consists of approximately 7,200km of overhead lines and a further 700km of underground cabling, operating at 400kV and 275kV. The overhead lines and cables connect around 340 substations to form a highly interconnected network.
- 2.3 Under Section 9(2) of the Electricity Act 1989², National Grid has a duty:
- *"to develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and*
 - *to facilitate competition in the supply and generation of electricity".*
- 2.4 Section 38 and Schedule 9 of the Electricity Act require National Grid, when formulating proposals for new lines and other works, to *"...have regard to the desirability of preserving natural beauty, of conserving flora, fauna, and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and shall do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects"*.

National Grid Policy and Approaches

- 2.5 In its Stakeholder, Community and Amenity policy³, National Grid sets out how the company will meet the duty placed upon it by the aforementioned legislation. This includes:
- only seeking to build new overhead lines and substations where the existing transmission infrastructure cannot be upgraded to meet transmission security standards;

² Electricity Act 1989

³ National Grid plc. : National Grid's commitments when undertaking works in the UK - our Stakeholder, Community and Amenity Policy : February 2010

- seeking to avoid nationally and internationally designated areas where new infrastructure is required; and
 - minimising the effects of new infrastructure on other sites valued for their amenity.
- 2.6 The Stakeholder, Community and Amenity Policy also commits to applying best practice methods, assessing the environmental impacts of proposals and identifying appropriate mitigation measures, and to promoting effective stakeholder and community engagement.
- 2.7 In August 2012, National Grid published its Approach to the Design and Routeing of New Electricity Transmission Lines⁴. This states that *“whether the preferred route corridor is predominantly overhead, underground or sub-sea, detailed survey and assessment work is carried out to find the alignment of the transmission line which best satisfies all of our obligations and the needs of stakeholders. In doing this we seek to avoid as far as possible any impacts on people, settlements, and environmentally sensitive areas. We continue to refine the route alignment to minimise any visual and other environmental impacts, in consultation with stakeholders and communities”*.
- 2.8 The Approach to the Design and Routeing of New Electricity Transmission Lines describes the process which National Grid adopts for its project development. This involves increasing refinement of the design as more information is gathered about the proposal, its setting and constraints. The results of this refinement are normally reported at each stage of the project evaluation and will inform any subsequent project consultation. The Approach to Options Appraisal was published⁵ in August 2012. This explains that options appraisal provides a framework which allows National Grid to identify and balance technical, socio-economic, environmental and cost considerations in selecting project options. It also enables the information on which judgements are based to be documented in a transparent manner.

Outline of Proposed Hinkley Point C Connection Project

- 2.9 The Hinkley Point C Connection project commenced in 2009 and has undergone various stages of development and consultation. These are summarised in Table 2.1 alongside reference to the relevant National Grid documents in which the proposals are described and considered in more detail:

⁴ National Grid plc. : Approach to the Design and Routeing of New Electricity Transmission Lines : August 2012

⁵ National Grid plc. : Our Approach to Options Appraisal : August 2012

Table 2.1: Summary of the Hinkley Point C Connection Project and Documentation

Project Element and Description	Document Reference
Bridgwater and Seabank Connection: explains the proposed connection and the options considered by National Grid at each stage in the process. It explains where National Grid proposes to build a new 400kV overhead line, to take down existing 132kV overhead lines and where National Grid proposes to use underground cables.	Strategic Optioneering Report (November 2009 and August 2011); (Route Corridor Study (September 2009); Statement of Preferred Connection (September 2011); Bridgwater to Seabank Connection Options Report (October 2012)
Proposed Substation and connections at Hinkley Point: A new 400kV substation would be constructed close to the proposed Hinkley Point C power station (this substation formed part of EdF Energy's DCO application that was recently granted consent). New overhead line connections will be established between the substation and the existing 400kV substation and the existing Hinkley Point to Bridgwater and Hinkley Point to Taunton overhead lines. This report explains the options considered and where National Grid proposes to build new 400kV overhead lines.	Changes to the Hinkley Point Transmission Line Entry Points: Technical and Environmental Appraisal (October 2012)
Proposed 400,000 volt (400kV) cable sealing end (CSE) compounds: identifies potential areas to the north (also used for a proposed substation) and south of the Mendip Hills AONB within which a CSE compound, required to facilitate the transition between overhead and underground cabling, could be sited.	Cable Sealing End Siting Study (October 2012)

Project Element and Description	Document Reference
Proposed new Substation near Sandford: National Grid and Western Power Distribution needs to build a new 400/132kV substation near Sandford in North Somerset to maintain supplies on the local distribution network. These reports explain where National Grid proposes to build this new substation and how it would be connected to the local electricity network.	Distribution System Options Report (May 2012); WPD Substation Siting Study (May 2012); WPD 132kV Reroute Corridor Study (May 2012); Local Electricity Network Preferred Options Report (October 2012)
Proposed substation in South Gloucestershire Identifies the preferred option to resolve specific issues arising on the transmission network between Seabank and South Wales following the connection of power stations in the area, specifically, overloads arising on the cable circuits running under the Severn.	Resolving Technical Issues in the South Wales and Gloucestershire Regions (October 2102); Substation Siting Study for Options to Resolve Cable Overloads (October 2012)
Consultation Feedback Reports Provide feedback on the consultation process undertaken to date and summarise the key representations received and National Grid's response to them.	<i>Stage 1:</i> Hinkley Point C Connection Project – Consultation Feedback Report (August 2011); <i>Stage 3:</i> Hinkley Point C Connection Project – Bridgwater to Seabank (Feedback Report) (Summer 2012); <i>Stage 3:</i> Consultation on Draft Route and Associated Development; Feedback Report (April 2013)

Amendments to the Draft Route

2.10 For the majority of the draft route consulted on in November /December 2012, there have only been minor changes. Where changes have occurred it is largely as a result of discussions with Persons with an Interest in the Land (PILs), statutory consultees and the local community. These changes to the route are detailed in Chapter 10 of the Consultation Feedback report (April 2013), and are limited to the following areas:

- Bridgwater Tee;
- south of the Huntspill River;
- north of the A38;
- in the vicinity of North End;
- south of Stone-Edge Batch;
- Tickenham Ridge;
- Portbury/Portishead; and
- Avonmouth

2.11 These changes have been incorporated within the Proposed Route, considered within the Scoping Report issued to PINS in April 2013, and will be taken forward as part of the proposed application that National Grid will formally consult on under Sections 42 and 47 of the Planning Act 2008.

Consideration of the T-pylon

Development of the T-Pylon

2.12 In May 2011, The Royal Institute of British Architects (RIBA) in partnership with the Department for Energy and Climate Change (DECC), launched an international competition to find a potential design in accordance with technical parameters provided by National Grid for the next generation of electricity pylons. The winning design was the „T-pylon“, designed and developed by Danish Architects, Bystrup.

2.13 As reported in earlier consultation material for the Hinkley Point C Connection project, National Grid has worked closely with Bystrup and other experts on the technical feasibility of the T-pylon design. This design offers several key variations to traditional steel lattice pylon design such as shorter height, a more simplistic structure with increased mass, a reduced footprint and different construction

methods. A more detailed description of the key characteristics of the T-pylon and the more traditional steel lattice pylon is provided in Chapter 5.

- 2.14 The consideration of alternative pylon designs for the connection project is in line with Supplementary Note C to the Holford Rules (provided in Appendix A). This states that *“In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative tower designs now available where these would be advantageous visually, and where the extra cost can be justified.”*

T-Pylon Alignment

- 2.15 The Hinkley Point C Connection Project began with the identification and assessment of strategic options. This assessment concluded that a new predominantly overhead line connection between Bridgwater, Somerset and Seabank, near Avonmouth was the option most compliant with National Grid's statutory duties and environmental obligations. A subsequent route corridor study was undertaken which assumed that steel lattice pylons would form the basis of the overhead line sections of the connection. This route corridor study considered the Holford Rules (see Appendix A) together with a range of environmental and routeing constraints and identified two possible corridors which avoided these constraints as far as reasonably practical. Whilst this work was undertaken prior to the development of the T-pylon it is considered that the two corridors identified at this stage were equally applicable for the T-pylon because they were both straight and direct whilst avoiding areas of constraint as far as possible. As the design of the T-pylon was still evolving, consideration was given its broad technical parameters in the identification of technically feasible overhead line routes for the connection and determining the draft route that was announced in November 2012.
- 2.16 Whilst there are differences between the steel lattice and T-pylon designs, they share similar technical characteristics. These include:
- they are above ground structures capable of carrying high voltage electricity;
 - they are both capable of carrying three sets of twin conductor bundles on each side of the supporting structure;
 - there is a standard span of 360m between each of the structures;
 - both structures would have similar finishes; and
 - both structures would need to maintain statutory safety clearances.

- 2.17 The principal difference between the two pylon designs when considering appropriate routes is the design characteristic of the T-ylon which seeks to minimise the use of large angles of deviation, preferring instead to negotiate changes in direction with the use of flying angle pylon designs (see paragraph 5.22). In some instances this may result in a change in the number of supporting structures or deviation pylons required. Applying this principle to the draft route has resulted in a small number of minor modifications to accommodate these flying angles. These minor deviations occur just north and south of the village of Mark (Section B), west of North End (Section D), north of Nailsea (Section E), west of Portbury (Section F) and at Avonmouth Docks (Section G). Whilst there are minor changes to the route to accommodate these modifications, the route proposed seeks to identify the best balance between technical routeing requirements and the obligation to minimise environmental effects.

Summary of the Approach to the Appraisal

- 2.18 The overall approach to the appraisal has been guided by National Policy Statements EN-1 (Overarching Energy) and EN-5 (Electricity Networks), relevant planning policies at national and local level and by National Grid's Approach to the Design and Routeing of New Electricity Transmission Lines and the Approach to Options Appraisal which were published in August 2012.
- 2.19 The appraisal has been co-ordinated by the project team with inputs from National Grid's construction partners Electricity Alliance (technical issues), TEP (environmental issues) and SKM Enviros.
- 2.20 The approach adopted for this appraisal has included a number of elements:
- appraisal of the case for the use of T-pylons against steel lattice pylons in each Section of the Proposed Route (as defined in the Bridgwater to Seabank Connection Options Report (COR));
 - comparing the effects arising from the use of T-pylons with those of steel lattice pylons for the Proposed Route in each Section;
 - consideration of how these solutions may be assembled to form a Proposed Route for the whole connection between Bridgwater and Seabank.

Scheme Development and Consultation Process

- 2.21 The findings of this report will inform the pylon design proposed for different Sections of the Proposed Route. This decision will be integrated with the results of other studies to inform the proposed application for an Order granting Development Consent, which will be subject to formal publicity and consultation under Section 42, Section 47 and Section 48 of the Planning Act 2008. Feedback from that formal consultation will be taken into account in finalising any proposed application for an Order granting Development Consent before submission to the Planning Inspectorate.
- 2.22 The next stages in the refinement of the proposed application will therefore involve:
- continuing engagement - with statutory and non-statutory bodies, other agencies and the public;
 - consultation – in accordance with the Statement of Community Consultation and Section 42, Section 47 and Section 48 of the Planning Act 2008, on the proposed application and preliminary environmental information and consideration of responses to this consultation, and consequential amendments to the proposal, in accordance with s49 of the Act;
 - refinement of the Proposed Route for overhead lines and underground cables, including the location of pylons, pylon design, cable sealing end (CSE) compounds, access roads and substations and consideration of appropriate mitigation techniques; and
 - submission - submission to the Planning Inspectorate of an application for an Order granting Development Consent.

3 POLICY BACKGROUND

National Policy Statements

- 3.1 The context for any options appraisal relating to energy infrastructure is provided by the Overarching National Policy Statement (NPS) for Energy (EN-1). This states that in considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the IPC⁶ should take into account:
- its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long term or wider benefits; and
 - its potential adverse impacts, including any long term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.
- 3.2 It goes on to note that, in this context, the relevant Secretary of State should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels. The NPS provides guidance on assessment relevant to all energy projects which is supplemented by guidance specific to the project type. In the case of the Hinkley Point C Connection, the relevant guidance is to be found in the National Policy Statement for Electricity Networks Infrastructure (EN-5). EN-1 recognises that *“in most cases, there will be more than one technological approach by which it is possible to make such a connection or reinforce the network (for example, by overhead line or underground cable) and the costs and benefits of these alternatives should be properly considered as set out in EN-5 (in particular section 2.8) before any overhead line proposal is consented.”* (EN-1 paragraph 3.7.10). This report, along with the COR, presents the considerations that have been made for the Bridgwater to Seabank Connection.
- 3.3 Section 4.4 of EN-1 provides guidance on the consideration of alternative options for infrastructure projects, including the principles that should guide the relevant Secretary of State when deciding what weight to give to alternative options. This includes *“alternative proposals which mean the necessary development could not proceed, for example because the alternative proposals are not commercially viable or alternative sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the IPC’s decision”*.

⁶ In April 2012 the Infrastructure Planning Commission (IPC) was abolished and transferred its property, rights and liabilities to the Secretary of State. Applications for major Infrastructure Projects were thereafter submitted to The Planning Inspectorate with a Decision being made by the relevant Secretary of State

- 3.4 Good Design is an important part of EN-1 which makes it clear that good design goes beyond physical appearance, with the functionality of an object, including fitness for purpose and sustainability, being equally as important. Paragraph 4.5.3 states that *“the IPC should satisfy itself that the applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible. Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation”*.
- 3.5 Paragraph 2.8.2 of EN-5 states that *“Government does not believe that development of overhead lines is generally incompatible in principle with developers” statutory duty under section 9 [sic] of the Electricity Act to have regard to amenity and to mitigate impacts. In practice new above ground electricity lines, whether supported by lattice steel pylons/pylons or wooden poles, can give rise to adverse landscape and visual impacts, dependent upon their scale, siting, degree of screening and the nature of the landscape and local environment through which they are routed. For the most part these impacts can be mitigated, however at particularly sensitive locations the potential adverse landscape and visual impacts of an overhead line proposal may make it unacceptable in planning terms, taking account of the specific local environment and context.”*
- 3.6 EN-5 goes on to say that although Government expects that overhead lines will often be appropriate and their effects can often be mitigated, where there are serious concerns about the potential adverse landscape and visual effects of a proposed overhead line, *“the IPC will have to balance these against other relevant factors, including the need for the proposed infrastructure, the availability and cost of alternative sites and routes and methods of installation (including undergrounding)”*.
- 3.7 EN-5 states that the main opportunities for mitigating potential adverse landscape and visual impacts of electricity networks infrastructure includes the *“selection of the most suitable type and design of support structure (i.e. different lattice tower types, use of wooden poles etc.), in order to minimise the overall visual impact on the landscape”*. This report presents the consideration of these particular factors in reaching a recommendation on pylon design to take forward for consultation.

- 3.8 EN-5 gives its support to the Holford Rules, stating that *“The IPC should recognise that the Holford Rules, and any updates, form the basis for the approach to routeing new overhead lines and take them into account in any consideration of alternatives and in considering the need for any additional mitigation measures.”*

National Planning Policy Framework

- 3.9 The National Planning Policy Framework⁷ (NPPF) may be considered as an „important and relevant“⁸ matter to be considered in decision making for Nationally Significant Infrastructure Projects (NSIP). Paragraph 6 of the NPPF states that *“the purpose of the planning system is to contribute to the achievement of sustainable development”*. It goes on to note that planning has a key role to play in *“supporting the delivery of renewable and low carbon energy and associated infrastructure”*. The Hinkley Point C Connection is intended to provide additional transmission capacity to permit the connection of wind and nuclear powered generation and thereby assist the UK to meet its renewable energy targets. While the NPPF does not include policies specifically related to electricity transmission infrastructure, it does include policies for conserving and enhancing the natural and historic environment which have been taken into account in planning and assessing potential alignments.
- 3.10 Paragraph 56 states that *“the Government attaches great importance to the design of the built environment. Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people”*. Paragraph 60 also states that *“Planning policies and decisions should not attempt to impose architectural styles or particular tastes and they should not stifle innovation, originality or initiative through unsubstantiated requirements to conform to certain development forms or styles. It is, however, proper to seek to promote or reinforce local distinctiveness”*.
- 3.11 Paragraph 115 states that *“great weight should be given to conserving landscape and scenic beauty in National Parks and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas....”*

⁷ Department for Communities and Local Government : National Planning Policy Framework : March 2012

⁸ National Planning Policy Framework paragraph 3

- 3.12 Paragraph 116 states that *“planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated that they are in the public interest.”* It goes on to state that applications for such development should be accompanied by assessments of the need for the development; the scope for meeting the need outside the designated area; and the effects of the development on landscape and recreational opportunities and the extent to which these could be mitigated. The need for additional energy infrastructure in general and electricity transmission infrastructure in particular, is recognised in the Overarching NPS for Energy EN-1 and the NPS for Electricity Networks EN-5.
- 3.13 Paragraph 118 calls on local planning authorities to aim to conserve and enhance biodiversity in determining planning applications by protecting nationally and internationally designated sites from development which would have an adverse effect upon them and, in all locations, by refusing development which could result in significant harm to biodiversity and which cannot be avoided or adequately mitigated or compensated. Specific mention is made of the need to protect irreplaceable habitats, including ancient woodland and veteran trees. The potential effects on biodiversity, including woodland, hedgerows and trees are considered in Chapters 7-12.
- 3.14 Paragraph 128 states that in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. Paragraph 132 states that *“when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting.”* Subsequent paragraphs provide for weighing the harm to heritage assets against the public benefits which would be achieved through the proposed development. The potential effects on the Historic Environment are considered in Chapters 7-12.

Development Plans

- 3.15 Although an application for an Order granting Development Consent is not subject to Section 38(6) of the Planning and Compulsory Purchase Act 2004, development plans are a material planning consideration.

- 3.16 The Somerset Structure Plan⁹ applies to the route south of Webbington. Policy 63 covers development by the utilities and states that:

"Provision should be made for utility developments where they respect the environment in which they are located in terms of their scale, location and design".

- 3.17 The Structure Plan includes a raft of strategic-level policies directed at the protection of the environment and resources of the county. Policy 4 states that *"the biodiversity and unique character of the Somerset Levels and Moors should be maintained and enhanced"*.

- 3.18 At a strategic level, the area to the north of Webbington, including North Somerset and South Gloucestershire, is covered by the Joint Replacement Structure Plan¹⁰. Policies 14 and 15 promote further employment and port-related development in the Avonmouth/Sevenside and Portbury areas respectively. The need to maintain a viable Green Belt between Portishead and Portbury is identified.

- 3.19 Within the various environmental protection policies, the conservation and enhancement of landscape character is promoted by Policy 17 which makes specific reference to the Mendip Hills AONB where:

"the priority will be the conservation of their particular landscape character and distinctiveness, with due regard to the continued economic and social well-being of the area. Major industrial or commercial development within an AONB or which would adversely affect it by virtue of proximity, will not be permitted unless an exception is justified by proven national need and a lack of alternative sites".

- 3.20 Local planning policies for Sedgemoor District (covering the route between Bridgwater and the southern edge of the Mendip Hills) are contained in the Sedgemoor Core Strategy¹¹. Policy MIP1 sets out the Councils' approach to the consideration of major infrastructure proposals. It states that *"the objective from the Council's perspective is that such proposals should, where possible, contribute positively to the implementation of the spatial strategy and meet the underlying objectives of the plan"* and outlines the need to consider the benefits and impacts of proposals.

⁹ Somerset County Council and Exmoor National Park Authority : Somerset and Exmoor National Park Joint Structure Plan Review 1991 - 2011 : April 2000

¹⁰ Bath and North East Somerset, Bristol, North Somerset, South Gloucestershire Councils : Joint Replacement Structure Plan : September 2002

¹¹ Sedgemoor District Council : Sedgemoor Core Strategy – Shaping the Future of Sedgemoor 2006-27 : September 2011

- 3.21 Policy D1 seeks to enhance and conserve the landscape and biodiversity. Development proposals within the Mendip Hills AONB or the Quantock Hills AONB will only be supported where they enhance or conserve the natural beauty, or the exceptional character or quality of the landscape in these areas.
- 3.22 Policy D7 states that development proposals should contribute to enhancing and maintaining the historic environment. Policy D20 safeguards green infrastructure.
- 3.23 The Core Strategy promotes the transformation of Bridgwater through a range of regeneration and development initiatives, including growth to the North East of Bridgwater and at the former Royal Ordnance Depot at Puriton.
- 3.24 The North Somerset Core Strategy¹² was adopted in April 2012 and applies to the route between the southern edge of the Mendip Hills and the River Avon. The document contains a number of environmental protection policies and draws attention to the particular characteristics of the North Somerset environment. In February 2013, following a partially successful legal challenge by the University of Bristol, a High Court judge concluded that a Planning Inspector's approval of the council's strategy was unlawful. The judge ordered that a number of the core strategy policies, including CS6 and CS19 summarised below, should be referred back to the Planning Inspectorate for re-examination and treated as not having been recommended for adoption or adopted. However, *"the policies can still be accorded appropriate weight in any decision making and housing can be brought forward through the development control process"*
- 3.25 Policy CS4 aims to protect and enhance biodiversity, including seeking to protect, connect and enhance important habitats, particularly designated sites, ancient woodlands and veteran trees.
- 3.26 Policy CS5 aims to protect landscape character and the historic environment. With regard to the Mendip Hills AONB, Policy CS5 states that it *"will be protected by ensuring that development proposals conserve and enhance its natural beauty and respect its character, taking into account the economic and social well-being of the area"*.

¹² North Somerset Council : Local Development Framework – Core Strategy Corrected Version : April 2012

3.27 Policy CS6 confirms that the boundaries of the Green Belt will remain unchanged for the plan period. Policy CS9 seeks to safeguard and enhance areas of green infrastructure and, in this context, draws attention to a number of specific areas including:

- the promotion of the north slopes of the Mendip Hills AONB as sub-regional corridors for biodiversity, recreation and landscape retention;
- the promotion of the Congresbury Yeo, River Banwell, North Somerset Levels and Moors, and Grumblepill Rhyne as local corridors for biodiversity and landscape enhancement; and
- the connection of disjointed woodlands, particularly ancient and semi- natural woodland, such as those around the Wraxall/Failand ridge.

3.28 The protection of "strategic gaps" is promoted by Policy CS19, though none of the areas identified in the supporting text are relevant to the route for the connection.

3.29 Many of the policies of the North Somerset Replacement Local Plan¹³ have been superseded by policies in the adopted Core strategy. The Proposals Map highlights the range of environmental constraints affecting the route passing through the Mendip Hills AONB. It identifies sites of nature conservation interest, including protected rhynes, at Puxton Moor and to the west of Yatton, between Yatton and Clevedon and to the west of Nailsea. To the east of Portishead the route passes through the Green Belt as far as the Portbury Docks.

3.30 North of the River Avon the policies of the Bristol Core Strategy¹⁴ apply. Policy BCS4 identifies Avonmouth as a priority area for industrial and warehousing development and renewal. It refers to support for port-related activities and opportunities for renewable energy generation. It notes that development will be expected to respect the area's environmental assets.

3.31 Some "saved" policies of the Bristol Local Plan¹⁵ also still apply. Policy ME14 states that:

"In determining planning applications for public utility developments, account will be taken of the technical and locational needs of operators and the benefits of minimising visual impact and obtrusiveness, with particular regard to the following:

¹³ North Somerset Council : North Somerset Replacement Local Plan : March 2007

¹⁴ Bristol City Council : Bristol Development Framework Core Strategy : June 2011

¹⁵ Bristol City Council : Bristol Local Plan : December 1997

(i) the efficient use of existing equipment and services (including, where appropriate, the sharing of masts etc.);

(ii) the use of appropriate materials and colours, and the sympathetic use of screening; and

(iii) the character and appearance of the locality in which it is proposed."

- 3.32 Policy E2 of the South Gloucestershire Local Plan¹⁶ promotes the development of a strategic employment site at Severnside, immediately north of Seabank. This allows for the balancing of the employment potential of the area with the protection and enhancement of the coastal zone landscape and ecology. This stance is maintained in the draft Core Strategy¹⁷ submitted to the Secretary of State for examination. Policy CS36 of this document sets out the Council's approach to the consideration of major infrastructure projects.

¹⁶ South Gloucestershire Council - South Gloucestershire Council Local Plan : January 2006

¹⁷ South Gloucestershire Council : South Gloucestershire Council Core Strategy incorporating Post-Submission Changes : December 2011

4 DEFINITION OF SECTIONS

Relationship to Selection of Route

- 4.1 As part of the COR, a number of study areas were defined to split the long linear connection and manage the presentation of environmental information. To avoid confusion with the term „Study Area“ in environmental impact assessment, the areas previously defined in the COR have been re-named as „Sections“ (their boundaries and extent remain unchanged). Section C (Mendip Hills AONB) is not covered by this appraisal as this is where underground cables are proposed.
- 4.2 The boundaries of the Sections are shown on Figure 1 and further information on their definition is provided in the COR.

Description of Sections

- 4.3 The Sections considered in this appraisal are:
- A – Puriton Ridge;
 - B – Somerset Levels and Moors South;
 - D – Somerset Levels and Moors North;
 - E – Tickenham Ridge;
 - F – Portishead/Portbury; and
 - G – Avonmouth.
- 4.4 The landscape and other characteristics of each of the Sections are described in detail in Chapters 7-12 and are summarised below.
- 4.5 **Section A Puriton Ridge** - extends from the existing Hinkley Point to Bridgwater 275kV overhead line (275kV VQ route) in the south to Woolavington Road in the north. The ridge contains numerous woodlands and comprises an area of higher ground which forms part of the Polden Hills. The nearest villages to the route within this Section are Knowle, Woolavington and Puriton.
- 4.6 **Section B Somerset Levels and Moors South** - extends from Woolavington Road in the south to Webbington Road in the north, which forms the southern boundary of the Mendip Hills AONB. The landscape within this Section is flat and open with wet pasture, arable and wetland divided by networks of wet ditches or „rhynes“. The

nearest villages to the Proposed Route within this Section are East Huntspill, Mark, Rooks Bridge, Tarnock and Biddisham.

- 4.7 **Section D Somerset Levels and Moors North** - extends from the AONB boundary on the A368 to Clevedon Road (near Stone-Edge Batch). The landscape within this Section is flat and open with wet pasture, arable and wetland divided by networks of wet ditches or „rhynes“ many of which are designated as Sites of Special Scientific Interest (SSSI). The nearest towns and villages to the route within this Section are Congresbury, Yatton, Kingston Seymour, Nailsea and Tickenham.
- 4.8 **Section E Tickenham Ridge** - extends from Clevedon Road (near Stone-Edge Batch) in the south across the ridge to the M5 motorway. The landscape within this Section includes numerous woodlands (many of which are ancient woodlands), forming an area of higher ground. The nearest towns and villages to the route within this Section are Clapton-in-Gordano and Portbury.
- 4.9 **Section F Portishead/Portbury** - extends north from the M5 motorway to the existing Portishead 132kV electricity substation and east to the Portbury Docks complex. The area around Section F comprises a flat open estuarine/riverside landscape which is predominantly pastoral and has little woodland. Within this Section the town of Portishead lies to the west of route with the linear settlement of Sheepway and the village of Portbury to the east. This section includes a „Proposed Route Option A“ (Option A in the Overview Report) and an „Alternative Route Option B“ (Option B in the Overview Report) route as described in Chapter 11.
- 4.10 **Section G Avonmouth** - extends north east from the Portbury Docks complex to Seabank substation. The landscape within this Section is densely developed and includes industry based around Portbury and Avonmouth Docks, residential development within Avonmouth Village and offices, storage and distribution related development in the Severnside area to the north of Avonmouth. The town of Avonmouth lies immediately north of the River Avon in the centre of this Section with the Bristol suburbs of Shirehampton and Lawrence Weston to the east of the route beyond the M5 and M49 motorways. This section includes Proposed Route Option A and Alternative Route Option B to the South of the river Avon as described in Chapter 12.

5 DESCRIPTION OF OPTIONS

- 5.1 The purpose of this report is to consider the use of alternative pylon design and to identify the most appropriate pylon design for those Sections of the Proposed Route where overhead line has been identified as the preferred technology. With the exception of some relatively minor deviations that arise due to technical constraints, the Proposed Route for the T-ylon is generally the same as that for the steel lattice pylons.
- 5.2 The physical characteristics and location of CSE compounds will be the same for both designs of pylon, and have therefore been excluded from further consideration within this appraisal.
- 5.3 The height of any pylon is related to the sag of the conductor and span between two pylons. Traditional steel lattice pylons used for a 400kV double circuit overhead line would have a standard height of 46.5m and would be spaced at approximately 300 – 400m apart (the conductor span for the Proposed Route is typically 360m). The weight of the conductor will also influence the amount of sag. Minimum safety clearances for all overhead lines are legally prescribed and are legally binding. The statutory safety clearances must be maintained between conductors and the ground, trees, buildings and any other structure such as street lighting columns. The clearance required will depend on the operating voltage of the line, its construction and design, the topography of the location over which the line passes and the type of development proposed. Pylons need to be sufficiently tall to ensure that statutory safety clearances are achieved from the overhead line.. It is, therefore a recognised trade-off in designing overhead lines between fewer, taller pylons which result in longer spans, and shorter pylons in greater numbers but which would result in shorter spans. The number of pylons that would be required along the Proposed Route would be very similar for both the steel lattice and T-ylon options. Where an overhead line changes direction and where lines terminate at substations, stronger pylons are required. These have heavier steelwork and larger footprints than the typical suspension pylons. Longer and shorter spans are likely to be needed in some locations, with longer spans often required to span potential obstacles.
- 5.4 „Low height“ steel lattice pylons (11m shorter than standard lattice pylons), have been considered as an alternative to the standard height steel lattice pylons, where their lower height may offer benefit. Examples of this would include discrete areas

such as high ground / ridgelines. Whilst these low height steel lattice pylons are shorter and wider than traditional standard height steel lattice pylons, the standard conductor span between these pylons is typically 310m. Low height steel lattice pylons are also not designed to be used for sharp deviations (angles greater than 30 degrees) and would require a bespoke pylon design to be developed for use on this project. As a result of these constraints, low height steel lattice pylons are not considered appropriate for use on the route as a whole and are only considered in discrete areas.

- 5.5 Figure 2 shows the design (including dimensions) of each of these pylons as well as the existing WPD 132kV steel lattice pylons that would be removed along the majority of this route as part of the proposals.
- 5.6 No additional infrastructure, for example gantries, is required as an interface to connect steel lattice pylons with T-pylons.
- 5.7 The following sections describe the key characteristics of the pylon designs that have been considered in this appraisal.

Pylon Options: Design, Construction and Maintenance

- 5.8 Figure 2 compares the outline and dimensions of the standard steel lattice, low height steel lattice and T-ylon suspension pylon. For comparison, it also includes the existing 132kV pylons.

Steel Lattice and 'Low Height' Steel Lattice

- 5.9 Steel lattice suspension pylons are approximately 46.5m high and between 7m to 7.5m wide at the base. The pylons are constructed of steel members forming a vertical pylon with three cross arms at heights of approximately 24m, 38m and 42m above the ground. The maximum width of the cross arms is approximately 18m. Between two and three sets of conductors (wires) would be suspended from each of the six side arms of each pylon, with a single earth wire strung from the peak of each pylon.
- 5.10 Steel lattice tension / angle pylons are used where the overhead line changes direction. These pylons are similar in design but larger than the suspension pylons with a wider steel lattice structure constructed of steel members of thicker gauge. The size of the pylon, particularly its width, increases as the angle of the overhead

line deviation increases to a maximum of 90 degrees (which would result in a base width of approximately 14m).

- 5.11 „Low Height“ steel lattice pylons are approximately 35m in height (approximately 11m lower than the standard steel lattice pylons) with a base of approximately 7m wide. This pylon has two cross arms at heights of approximately 22m and 31m above the ground. The lower arm has a width of approximately 29m. This design is constructed using steel members of a thicker gauge and with more reinforcing members than the standard steel lattice pylon. This pylon is not currently designed to be used for angle deviations greater than 30 degrees.
- 5.12 For the construction of an overhead line, temporary access roads and working areas would need to be installed at each pylon location. Each temporary access road (approximately 3m to 4m wide) may provide access to one or more pylon locations. For access on agricultural land, temporary tracks would be installed using crushed stone with a reinforcing geotextile membrane to protect soils. The working areas adjacent to each pylon location would be temporary stone pads. These working areas would vary in size depending on the pylon base and the type of foundation being installed ranging from 40m x 40m for a standard pylon to 70m x 70m for a 90 degree deviation pylon. Once the overhead line is constructed, the temporary access tracks and working areas at the pylon sites will be removed and the ground reinstated by removing stone and track-ways.
- 5.13 Pylon steelwork would be delivered directly to site in numbered parts, lifted into position using a mobile crane and assembled (bolted) together. Delivery of conductors (wires) would be initially to a centralised storage facility before being transported to its installation location on drums. The conductors are then pulled into position using pilot wires. At selected tension pylon sites, the conductors would then be tensioned to their design sag. Normal construction traffic routes will be agreed with the highway authorities.
- 5.14 To carry out the construction of foundations, erection of the pylon and to undertake wiring works some specialist equipment is required common to both the steel lattice and the T-ylon designs. For example, if concrete foundations are needed or if drainage works are required an excavator will be needed on site. If piled foundations are needed then a piling rig will be required to drive in the steel or concrete pile or to drill a hole for a reinforced concrete pile. Wagons will bring

materials and equipment to site and a 130-160T crane will be required to lift the pylon sections into place.

- 5.15 The type of foundation for steel lattice pylons is very much dependent on the ground conditions. Traditionally steel lattice pylons have used „standard“ excavated foundations (also known as pad and chimney foundations) where each pylon leg is encased in concrete. However, where the ground conditions are poor (not of good ground bearing capacity) the preferred option is for steel tube piled foundations (with single or multiple piles per leg) connected via a concrete pile cap.
- 5.16 Initial ground investigations completed to date show that the preferred method for the steel lattice pylon is likely to be the steel tube piled foundations in the majority of locations.
- 5.17 Maintenance for the steel lattice pylon includes replacement of anti-climbing devices and supports as required. Typically, the steel lattice pylon has a life expectancy of approximately 80 years, the conductors have a life expectancy of approximately 60 years and the insulators and fittings have a life span of approximately 40 years.

T-Pylon

- 5.18 As with traditional steel lattice pylons, the T-ylon range comprises suspension, tension and terminal forms.
- 5.19 The T-ylon has a height of approximately 34.5m (similar to that of the low height steel lattice design), a cross beam width of approximately 22.5m and an overall width of 31m including the insulators. The T-ylon height gives a „standard span“ of 360m although the final height of the T-ylon can be altered depending on topography/features with construction of the single support structure in modular sections.
- 5.20 The conductors suspended from the T-ylon are arranged in a compact „diamond“ configuration on both sides of the cross beam. The conductor configurations, which include a separate earth wire for each side of the pylon above the conductors, are approximately 12m high and 8m wide. These extend beyond the cross beam by approximately 4m on each side giving the maximum 31m horizontal dimension. The two earth wires, one for each circuit, shields the phase wires from lightning strikes. This design helps to keep the overall height down as a single earth wire

- would have to be located centrally and high above the „T“ cross beam in order to protect the wires.
- 5.21 The insulator arrangement of the T-pylon is very different from a steel lattice pylon with all three phases supported by one diamond insulator array and connected to the support by a single connection.
- 5.22 Flying angle pylons are designed in a similar way to a suspension pylon but are able to take a deviation of up to 10 degrees.
- 5.23 Tension pylons (where the overhead lines change angle) include deviations up to 30 degrees. For deviations larger than this a „Double Diamond“ pylon design which can be used for greater angle deviations and also as a terminal pylon. The „flying angle“ and „D30“ designs are similar to the suspension T-pylon design. The T-pylon Double Diamond design, however, varies from the suspension design with a typical height of approximately 34.5m for a tension design and approximately 27.5m where used in a terminal situation. It also consists of two separate solid monopole columns, each approximately 1.6m wide. The cross beam to each column is a diamond shape that varies between approximately 1.2m and 0.36m in diameter. The position of the two structures is dependent on the angle of deviation (bigger angles would see the structures further apart; smaller angles would see them closer together). This design has an arrangement of three conductor bundles connecting through each of the three lower points of each diamond with a single earth wire strung from the highest point of the pylons. The Double Diamond“ pylon design is shown in Figure 3.
- 5.24 As with steel lattice pylons, temporary roads, trackways to the pylon location would need to be constructed. Construction working areas are also similar to that of the steel lattice design. The T-pylon is fabricated from rolled steel and delivered to site in multiple sections.
- 5.25 Like steel lattice pylons, the type of foundation used to support the T-pylon is dependent on the ground conditions encountered. Three foundation types are suited to T-pylons. These are: a single monopile comprising a hollow steel tubular section approximately Ø1.8 – Ø2.3m and driven to a depth of up to approximately 20m; a minipile group with piles of approximately Ø300mm linked with a single pile concrete cap (raft); and steel tube pile with piles of approximately Ø700mm group linked with a single pile concrete cap. Initial ground investigations completed to date

indicate that a combination of all these T-pylon foundations are likely along much of the Proposed Route. It is considered that the construction of the monopile option represents the shortest construction period for any of the pylon foundation options.

5.26 The T-pylon does not require any anti climbing device as the smooth single support is considered un-climbable. There are multiple finishes available for the T-pylon, however for the purpose of this appraisal it has been assumed that the T-pylon would be finished to the similar specification as the steel lattice pylons. Based on the information currently available the maintenance regime and lifespan of the T-pylon, its conductors and fittings are expected to be comparable to that of the steel lattice option.

5.27 Table 5.1 summarises the pylon design option specifications.

Table 5.1: Summary of Pylon Comparisons

	Steel Lattice (Standard)	Steel Lattice (Low height)	T-pylon	Standard Double Diamond -DD
Approximate Maximum Height (m) (based on 360m span)	46.5	35.0	34.5	27.5 (terminal) 34.5 (tension)
Approximate Maximum Width (m)	18.0	29.0	31.0	Typically 31m (based on two structures)
Approximate Maximum Base dimensions (m)	7 x 7 (tension pylons can be typically 9.5m x 9.5m for 25 degree angles up to approximately 14m x14m for 90 degree)	7.1 x 7.1	2m diameter	2x 1.6m diameter
Foundation type:	Steel tube piling at each leg with concrete cap; or excavation at each leg (pad and chimney) encased in concrete.	Steel tube piling at each leg with concrete cap; or excavation at each leg (pad and chimney) encased in and concrete.	Monopile; and minipile and single cap; steel tube pile and cap.	Monopile; minipile and single cap; steel tube pile and cap.

- 5.28 Within Section G there are additional height requirements for pylons when crossing the River Avon and passing through Avonmouth. These differences in typical pylon height are the same for both T-pylon and steel lattice pylon options and are explained further in Chapter 12.

6 APPRAISAL TOPICS

Topics to be considered in this appraisal

- 6.1 As noted in Chapter 2, the Approach to the Design and Routeing of New Electricity Transmission Lines explains that appraisal techniques are used to test different options. In “Our Approach to Options Appraisal” reference is made to a list of topics which could be addressed in such an appraisal.
- 6.2 Where the consideration of certain topics is not likely to assist in determining which of the options under consideration should be taken forward, these topics may be “scoped out”. Justification for the topics to be scoped out of the appraisal is given later in this Chapter.
- 6.3 The appraisal is not an Environmental Statement (ES) reporting on an Environmental Impact Assessment (EIA). Such an assessment will be undertaken at a later stage in the process and an ES will be submitted to accompany the application for an Order granting Development Consent for the Hinkley Point C Connection. The scope of the EIA has been separately addressed with the Planning Inspectorate by way of a Scoping Opinion (issued in June 2013). This scope includes topics which are not material differentiators between options in the current appraisal.
- 6.4 The following topics have been addressed in this appraisal across all Sections of the Proposed Route (except Section C, H and I as previously noted at paragraph 1.2):
- Landscape and Visual Amenity;
 - Historic Environment; and
 - Ecology.
- 6.5 Effects on both **landscape and visual amenity** are recognised as important factors in determining the merits of different options. This was confirmed by representations received during the consultation to date and recognised by the establishment of a Landscape and Views Thematic Group covering these topics. The appraisals do not include highly subjective criteria such as attractiveness of design but assess the predicted impact of each option upon landscape and visual amenity. The variation in height, width, mass and visual appearance between the pylon options has the potential to result in variation between overhead line options

depending on local landscape character and quality and the relationship with sensitive receptors. Where existing steel lattice pylons are present the introduction of a new landscape feature, and consideration of the coherence of pylon design, can also give rise to variations between overhead line options. Landscape and Visual Amenity Principles for comparing steel lattice variants with the T-pylon are presented in Appendix B.

- 6.6 The importance of assessing effects on the **historic environment** is recognised by the establishment of a Historic Environment Thematic Group covering this topic. Although design options are likely to have similar effects on as-yet undiscovered buried archaeology, effects on the setting of a range of heritage assets may differ as a result of differing height, width, mass and visual appearance as described above.
- 6.7 The importance of assessing effects on **ecology** is recognised by the establishment of an Ecology and Biodiversity Thematic Group covering this topic. Pylon options have the potential to give rise to different effects on ecological sites or features of interest as a result of their different designs, footprints and foundation designs.
- 6.8 The outline methodologies for the above are set out in Appendix C.

Cost

- 6.9 National Grid has determined, over many years of experience, that the use of **capital cost**, which comprises cost of equipment and installation costs, is a reliable basis on which to make investment decisions. In order to consider the implications of different potential operational and maintenance cost and the cost arising from losses between the pylon designs, National Grid has also undertaken a review of **lifetime costs**.
- 6.10 For this proposed scheme the estimated capital and lifetime costs for each Section are presented in Table 6.1. The overall difference in capital or lifetime cost estimates in each Section is not so significant that it helps differentiate between pylon design options at this stage.

Table 6.1: Summary of Estimated Capital and Lifetime Costs

Route Section and Approximate Length	Capital Cost (£M) Steel Lattice	Capital Cost (£M) T-ylon	Lifetime Cost (£M) Steel Lattice	Lifetime Cost (£M) T-ylon
A (2.8km)	4.5	5.3	13.0	14.0
B (14.2km)	22.7	27.0	65.0	69.0
D (13.9km)	22.2	26.4	64.0	68.0
E (3.9km)	6.2	7.4	18.0	19.0
F (1.8km Proposed Route Option A; 3.0km Alternative Route Option B)	2.9 (Proposed Route Option A) 5.0 (Alternative Route Option B)	3.4 (Proposed Route Option A) 5.7 (Alternative Route Option B)	8.0 (Proposed Route Option A) 14.0 (Alternative Route Option B)	9.0 (Proposed Route Option A) 15.0 (Alternative Route Option B)
G (9.8km Proposed Route Option A; 10.1 Alternative Route Option B)	15.7 (Proposed Route Option A) 16.2 (Alternative Route Option B)	18.6 (Proposed Route Option A) 19.2 (Alternative Route Option B)	43.0 (Proposed Route Option A) 46.0 (Alternative Route Option B)	48.0 (Proposed Route Option A) 49.0 (Alternative Route Option B)

Topics to be ‘scoped out’ of this Appraisal

- 6.11 A number of topics and sub-topics, which are referenced in National Grid’s “*Our Approach to Options Appraisal*”, do not help to differentiate between the pylon options and have been scoped out of the appraisal for the reasons stated below:
- 6.12 The **technical** topic area covers a range of issues mainly relating to the „buildability” of the option, for example its technical complexity, construction delivery risk, use of resources, programme implications and outage requirements. Whilst there are likely to be differences between the two options for some technical topic areas these would not help to differentiate between the pylon designs. In addition, initial

studies have indicated that there is unlikely to be a significant difference between identified foundation options to help differentiate between pylons types. National Grid will back-check and review any decisions made on the pylon type to be adopted for this scheme in light of new technical information. .

- 6.13 Neither pylon design would have any effects on **local air quality** during the operational phase. During construction, pylon options have the potential to generate dust and emissions from plant and traffic movements. However these effects would be temporary and dust and other emissions are capable of mitigation using well established techniques. There will not be a significant difference between the effects of different options on air quality and therefore this criterion cannot be used to distinguish between options.
- 6.14 The National Policy Statement for Electricity Networks EN-1 notes that **noise** from overhead lines is unlikely to lead the relevant Secretary of State to refuse an application as a variety of mitigation measures are possible, such as the positioning of lines and the design and maintenance of conductors. Noise generated during the operation of an overhead line is largely low level. Whilst there may be minor differences in the noise generated during the operation of the overhead line, this is not considered to be a differentiator between pylon designs. Construction activities associated with the erection of an overhead line have the potential to generate noise and vibration. However these effects would be temporary and are capable of mitigation using well established techniques. There will not be a significant difference between the effects of different options on noise and vibration and therefore these criteria cannot be used to distinguish between options.
- 6.15 There are no sites designated for their geological/geomorphological interest that would be affected and the local **soils and geology** pose no particular constraint to the erection of the pylon options considered. Any agricultural land temporarily affected during construction would be restored to an equivalent quality in all cases. While there would be a small variation in permanent land take associated with the overhead line options, this would be insignificant in terms of the local land resource and cannot be used to distinguish between options.
- 6.16 Once operational, the pylon designs considered are not expected to have significant effects on the **water environment**. Access for emergency repair, could have temporary effects on the operation of the ditch and rhyne network which characterises the Somerset Levels and Moors. However acknowledged mitigation

measures to control the discharge of materials during construction are available and any residual differences would be insufficient for them to be material differentiators in options selection. The effects on aquatic ecology will be addressed under the ecology topic heading.

- 6.17 During the construction phase, **traffic and transport** issues such as the movement of plant, equipment and materials will vary depending on the pylon option. It is acknowledged that there would be differences between the two pylon types however, these differences are not considered to be significant and do not help to differentiate between the options. Once operational, the effects on traffic and transport will be negligible for all options.
- 6.18 Both pylon design options would utilise a comparable alignment and would have land take impacts on broadly similar **socio-economic** receptors throughout the route. Minor local positive impacts are anticipated from local expenditure by contractors for both options and whilst there may be some differences in this, these would not be sufficient to provide a significant differentiator between the options. The effects on views from key socio-economic receptors are considered in the landscape and visual appraisals.
- 6.19 No **aviation or defence** interests have been identified or brought to the attention of the project team which would be adversely affected by development in the route corridor or along the Proposed Route.
- 6.20 National Grid designs its system to be compliant with ICNIRP guidelines¹⁸ on exposure to **electric and magnetic fields**. The detailed design will take these guidelines fully into account, whichever option is selected. An assessment of the potential impact of electric and magnetic fields will be included in the environmental impact assessment but is not included in this appraisals there would not be a material difference between the options.
- 6.21 Both pylon designs would require similar equipment, foundation types and vehicular movements during both construction and operation and the anticipated lifetime of the electrical components would be broadly similar. Whilst there are expected to be minor differences between the two pylon types in terms of their relative **sustainability** these would not be sufficient to provide a significant differentiator between the options.

¹⁸ International Commission on Non-Ionising Radiation Protection : Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields : 1998

Topic Study Areas

- 6.22 Within each of the Sections the study area for each appraisal topic is based upon the Proposed Route. Depending on the topic being considered, the lateral extent of each topic study area was further varied to ensure that features relevant to the appraisal of that topic were captured, as set out below. In order to inform this appraisal National Grid has undertaken additional desk studies and field surveys relating to landscape, visual amenity, ecology and the historic environment.

Landscape and Views

- 6.23 Survey data on landscape and visual amenity to inform this report generally extends to 3km from the Proposed Route in order to consider the likely extent of the greatest scale of effects although effects on views to approximately 10km from the Proposed Route have been considered.
- 6.24 When considering the potential visual effects of different pylon options the distance of the proposed overhead line from a receptor is relevant. For the purpose of this pylon design options report the following terms are used :
- near distance views - typically less than 250m;
 - middle distance views - typically between 250m and 1km; and
 - distant views - typically over 1km.
- 6.25 These typical approximate distances have been used to allow a comparison of the potential visual effects of different pylon options. Visual effects of each pylon type at these typical distances are described further in Appendix B Landscape and Visual Amenity Principles, and are considered alongside landscape type, filtering and screening of views, and backgrounding.

Historic Environment

- 6.26 Baseline data relating to known non-designated heritage receptors has been collected for a study area extending to 100m around the Proposed Route, and baseline data for designated heritage receptors was gathered for an area up to 10km either side of the Proposed Route.

Ecology

- 6.27 The topic study area for ecology covers features within 1km of the Proposed Route. The appraisal also takes account of more distant designated sites whose qualifying species or habitats could potentially be affected by works along the Proposed Route.

7 APPRAISAL SECTION A – PURITON RIDGE

Section Boundaries

- 7.1 Section A extends from the existing 275kV Hinkley Point to Bridgwater overhead line (“275kV VQ route”) in the south to Woolavington Road in the north. The existing 132kV overhead line (“132kV Bridgwater to Avonmouth route”) runs south-north across the study area passing to the west of the settlements of Bradney, Bawdrip and Woolavington. This 132kV overhead line would be removed between Bridgwater and Avonmouth substations as part of the proposal.

Definition of Proposed Route Options

- 7.2 Both the steel lattice pylon and the T-pylon options follow the same alignment through this Section and are shown on Figure 4.1. The Proposed Route through this Section would be 2.8km long. Low height steel lattice pylons have been considered in this Section for the reasons stated in Chapter 5.
- 7.3 Both pylon options would be connected to the existing steel lattice pylon overhead line 275kV VQ route (to be upgraded to 400kV), with one of the new circuits utilising underground cables to pass beneath this overhead line. The new routes would therefore commence at a CSE compound on Horsey Level.
- 7.4 From the CSE compound at Bridgwater Tee the steel lattice and T-pylon options travel in a north easterly direction crossing King’s Sedgemoor Drain and passing to the east of Home Covert. Beyond Home Covert the overhead line changes direction in two places and crosses Woolavington Road utilising a gap between properties at East Farm and Martlands Farm.

Landscape

Baseline Conditions

Designated Landscapes

- 7.5 The Quantock Hills AONB is approximately 10km south-west of Section A beyond Bridgwater. The area is of national importance and was designated under the 1949 National Parks and Access to the Countryside Act, the primary purpose of which is to conserve and enhance the natural beauty of the designated landscape.
- 7.6 The Quantock Hills (National Landscape Character Area 144) stretch south eastwards from the Bristol Channel as a 19km long ridge standing high above the surrounding agricultural plain. The ridge comprises open moorland and heath and views are possible across the surrounding landscape.

National Landscape Character Assessment

- 7.7 Section A comprises the Somerset Levels and Moors and Mid Somerset Hills National Landscape Character Areas (NLCA 142 and 143), described by the former Countryside Agency (now Natural England) in 2005.
- 7.8 The Somerset Levels and Moors Character Area (NLCA 142) is described as a broad area of low-lying farmland and wetland surrounded and divided by low hills and ridges which form the Mid Somerset Hills (NLCA 143). There is a close visual association between these character areas with the hills and ridges forming a distinct and varied backdrop and skyline to the lower lying Levels and Moors with expansive views from the higher ground across the Levels and Moors.
- 7.9 The Somerset Levels and Moors are described as a flat open landscape of wet grassland, arable and wetland divided up by wet ditches or deep, wide, wet „rhynes“ which have a strong unity and distinctive character. The Levels are closer to the coast and comprise a belt of clay that restricts the drainage of the Moors which are further inland. The Levels are a more irregular and older landscape with a slightly denser population, whereas the Moors comprise a rectilinear planned landscape with a long history of management comprising enclosures, historic trackways, and peat workings. The Moors are more sparsely populated.
- 7.10 The Levels and Moors are described as a highly managed yet wild and tranquil landscape. The National Character Area (NCA) profile (produced by Natural England) for the Somerset Levels and Moors (NCA142) refers to the 2007 Intrusion

Map produced by Campaign for the Protection of Rural England (CPRE) and states that there is very little undisturbed land in the west of the NCA around Bridgwater (and Burnham in Section B).

- 7.11 Woodland is described as being relatively sparse within this landscape although pollarded willows are widespread along the „rhynes“ and there are occasional shelterbelts around farmsteads. The majority of the land is pasture supporting dairy cattle. There are few properties on the lower lying land with nucleated settlements on the higher ridges and islands.
- 7.12 The Mid Somerset Hills NLCA includes the Polden Hills. The westernmost extent of the Polden Hills is the Puriton Ridge in the northern part of Section A.
- 7.13 Hedgerow, shrub and tree cover is described as increasing on the ridges and „islands“ that comprise slightly higher drier ground above surrounding low-lying farmland divided by ditches and „rhynes“. Orchards are characteristic features at the edge of the slopes of higher ground. The orchards and shrub and tree cover give an appearance of wooded hills. Settlement is described as being more common on the hills, ridges and islands above the lower lying Levels.

Local Landscape Character Assessment

- 7.14 Sedgemoor District Council’s “Sedgemoor Landscape Assessment and Countryside Design Summary” Revised Edition, 2003, characterises the land comprising Section A as the Polden Hills (Lowland Hills) and the Levels.
- 7.15 The Polden Hills are described as a strong landscape feature with visual prominence from the lowland wetland landscape. The southern side of Puriton Ridge (Polden Hills) has steeper slopes and hillocks and the northern side has shallower gradients that lead down to the Somerset Levels and Moors.
- 7.16 The hills have been settled since prehistoric times offering dry land for settlement with easy access to rich fishing, hunting and later agricultural land on the adjacent wetland. There is a strong visual and historical association between the Lowland Hills (Polden Hills) and the Levels. Small woodlands are important features of the higher ground. Parkland and estates are evident in a number of locations including Knowle Hall and Knowle Park on the southern side of Puriton Ridge.
- 7.17 The Levels are a largely flat landscape around 6mAOD. Field patterns are irregular and defined by sinuous drainage ditches or „rhynes“. „Islands“ of slightly higher drier

ground (characterised by Sedgemoor Landscape Character Assessment as Levels - Islands) include Chedzoy and Westonzoyland south-east of the proposed 400kV overhead line. A longer history of settlement is noted in the higher Levels and the assessment notes that widespread hedgerow cover gives rise to a more inhabited and civilised character than the adjacent Moors.

- 7.18 Woodland is a feature of Puriton Ridge with much of the remaining land in agricultural use. Several settlements are situated along the ridge, particularly the northern slopes.

Section A Landscape Character

- 7.19 Many of the landscape characteristics discussed above and described in published landscape character assessments are present in Section A. Section A includes Horsey Level, part of the wider Somerset Levels and Moors, comprising flat low-lying farmland divided by field drains and „rhynes“, including Bath Road Rhyne, and mature hedgerow in places. King’s Sedgemoor Drain runs in a northwest direction to the north of Horsey Level at the foot of Puriton Ridge. Farmland is both pasture and arable on the Levels and on Puriton Ridge, with a larger field pattern across Horsey Level compared to the field pattern on the northern slopes of the ridge. Puriton Ridge provides a distinct backdrop and skyline, and provides distant views across the Levels and Moors.
- 7.20 Across Horsey Level hedgerow and tree cover includes field boundary hedgerow and hedgerow trees particularly in the southern part of Horsey Level (including overgrown hedgerow with gaps as well as maintained hedgerow); mature trees along Horsey Lane track and surrounding Manor Farm (including garden trees); young tree planting adjacent Horsey Lane near Manor Farm, and also along the east side of the M5 motorway. Woodland is a feature of Puriton Ridge including Home Covert, New Ground Covert, Ashen Covert, Chisland Covert and Eleven Acre Covert. There is also mature parkland tree cover on Knowle Hill. Hedgerow, with some hedgerow trees, also defines field boundaries on the northern slopes of Puriton Ridge.
- 7.21 There are properties on lower ground including properties on Bath Road and Horsey Lane and new housing on the edge of Bridgwater west of the M5 motorway. There are also properties on Puriton Ridge, with settlement on the northern slopes including Puriton, Woolavington and Cossington. The M5 motorway, the A39 (Puriton Hill and Bath Road), and King’s Sedgemoor Drain are characteristics of

Horsey Level in Section A. The M5 and motorway traffic is particularly discernible, along with the large Morrison's distribution centre on the edge of Bridgwater.

Landscape Sensitivity

- 7.22 There are no national landscape designations in Section A. This Section comprises an area of the Levels and a ridge of higher ground, Puriton Ridge, which is valued locally.
- 7.23 Urban and industrial development is concentrated to the west of the M5 in the vicinity of Bridgwater and includes a large Morrison's distribution centre and housing development. The rural Levels landscape to the east of the M5 is generally in good condition, and farmland is generally intact.
- 7.24 The Somerset Levels and Moors are a large scale flat landscape with a character of lower sensitivity to change from larger structures such as overhead line pylons compared to the adjacent ridge landscape.
- 7.25 There are several existing overhead lines using lattice pylons present in the area. These include the 275kV VQ route to the south of Puriton Ridge; the 132kV Bridgwater to Avonmouth Route overhead line which runs in a north south direction over Puriton Ridge, the 33kV Western Power Distribution (WPD) overhead line on steel lattice pylons; and the 400kV Hinkley to Melksham overhead line (ZG Route) to the north of Puriton Ridge in Section B. The presence of existing overhead lines in the landscape reduces the sensitivity (susceptibility to change) of this landscape to the proposed overhead line, particularly as the 132kV Bridgwater to Avonmouth Route overhead line would be removed.
- 7.26 The Levels landscape in Section A has a moderate sensitivity to accommodate a new standard steel lattice pylon overhead line or T-pylon overhead line. The T-pylon would be a new feature in the landscape but is not totally uncharacteristic compared to existing overhead lines.
- 7.27 There is a close association between the ridge and the Levels and Moors, and although woodland on the ridge would provide some backgrounding to a new 400kV overhead line the landscape sensitivity of the higher ground to a new overhead line is higher due to the visual prominence of the ridge.

Assessment of Effects

Effects of a new overhead line

- 7.28 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used. A new 400kV overhead line in Section A would have negative effects on Puriton Ridge and the adjacent Levels and Moors landscape to the south and north (in Section B). There would be no effect on the Quantock Hills AONB due to the distance of approximately 10km between the Proposed Route and the designated landscape.
- 7.29 A new 400kV overhead line across a small part of the Levels and across Puriton Ridge in Section A would introduce a linear development comprising conductors suspended from arms on supports at regular distances into a landscape that includes existing overhead lines to the south and crossing Puriton Ridge. A new overhead line would be introduced on to a different part of Puriton Ridge to the existing 132kV overhead line, and would be seen running up, across and over the ridge backgrounded by the ridge landform and woodland. At the top of the ridge the new 400kV overhead line would be seen against the sky, to a greater extent than the existing 132kV overhead line. The extent and effectiveness of backgrounding of a new 400kV overhead line, and considered effects of the line may differ if different support types are used.
- 7.30 A new 400kV overhead line would avoid woodland on Puriton Ridge but would likely result in the removal or topping of trees and hedgerows along King's Sedgemoor Drain and other field boundaries due to the electrical safety clearances required. Trees and hedges along drains and field boundaries are components of the landscape character of Section A.
- 7.31 The removal of the existing 132kV Bridgwater to Avonmouth Route overhead line along with construction of the proposed 400kV overhead line in a different position to that of the existing overhead line would result in a minor positive effect on the landscape in the vicinity of the 132kV overhead line.

Comparison between the steel lattice pylon and the T-pylon

- 7.32 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the standard steel lattice pylon compared to a new 400kV overhead line using the T-pylon.

- 7.33 The existing overhead lines operating at 132kV and 275kV in Section A are suspended from steel lattice pylons. The presence of existing overhead lines with steel lattice pylons reduces the sensitivity (susceptibility to change) of the landscape in Section A from a new overhead line using standard steel lattice pylons, compared to the effect experienced if there was no existing infrastructure.
- 7.34 A new 400kV overhead line in Section A supported by T-pylons would not be totally uncharacteristic compared to existing overhead lines using steel lattice pylons. The existing overhead line and the T-pylon overhead line would share similar characteristics of being a linear development comprising conductors suspended from arms on supports. However, a new overhead line using T-pylons in Section A would introduce a new and different pylon structure in the context of the existing 275kV VQ Route overhead line, on steel lattice pylons, which would be a greater change in the local landscape than introducing a series of similar structures and may produce an incoherent appearance.
- 7.35 Due to its lower height the T-pylon would give rise to a less adverse effect on the landscape as compared to the standard steel lattice pylon because of the greater effectiveness of filtering and screening by intervening hedgerow and trees in particular parts of Horsey Level. However, when seen from the elevated ridge landform, a new overhead line using the T-pylon would tend to appear more prominent running down Puriton Ridge and across the Levels immediately south of the ridge (and to a lesser extent on the Levels to the north of the ridge where there is tree cover) due to it having a solid central column and cross beam, compared to the steel lattice of the standard steel lattice pylon.
- 7.36 A new standard steel lattice overhead line on the Proposed Route in Section A would have a moderate negative magnitude of effect (scale of change) on the landscape character of the Somerset Levels, which is generally intact and in good condition and has a moderate landscape sensitivity to the proposed overhead line. A new overhead line using the T-pylon is considered to have a greater negative effect; however the overall effect on this part of the Levels would also be moderate negative. Introducing a new and different pylon structure to a landscape affected by the existing 275kV VQ Route overhead line comprising steel lattice pylons, is considered to result in a greater change in a relatively small part of the Levels landscape in Section A compared to introducing a series of similar structures. The T-pylon would also tend to benefit less from backgrounding compared to the standard steel lattice pylon due to the solid central column and cross beam.

- 7.37 On Puriton Ridge, a new overhead line using the standard steel lattice pylon would be backgrounded more effectively by landform and woodland because the steel members in this open structure make background features visible beyond. A new overhead line using the T-ylon would give rise to a greater adverse effect because backgrounding would be less effective due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice; however the T-ylon would be lower in height.
- 7.38 The low-height lattice pylon is approximately 11m lower than the standard lattice pylon. A smaller extent of the low-height lattice pylon would be visible above the ridge against the sky compared to the taller standard steel lattice pylon.
- 7.39 A new 400kV overhead line on Puriton Ridge using the standard steel lattice pylon would result in a greater extent of the pylon seen against the sky compared to the low-height lattice pylon and the T-ylon.
- 7.40 A low-height lattice pylon on the top of Puriton Ridge would result in a lower magnitude of effect on this landscape compared to the standard lattice pylon due to its lower height. However the overall magnitude of effect (scale of change) of the low-height lattice pylon on the Puriton Ridge landscape would be similar to that considered for the standard steel lattice pylon due to the effect of the thicker gauge steel, additional reinforcing members and greater width of the low-height lattice pylon compared to the standard steel lattice pylon.
- 7.41 On Puriton Ridge, the low-height lattice pylon and the T-ylon are considered to be of similar prominence due to their similar heights and due to the solid central column and cross beam of the T-ylon, and the increased width and thickness of the steel for the low-height lattice pylon. However, backgrounding would be less effective for the T-ylon as compared to the standard and low-height lattice pylons, due to the solid central column and cross beam being considerably thicker than the steel lattice pylon. A new T-ylon overhead line would result in a greater magnitude of effect (scale of change) on Puriton Ridge compared to the standard steel lattice pylon. However a smaller extent of the T-ylon would appear above the ridge against the sky (similar to the low-height lattice pylon), compared to the standard lattice pylon.

Potential for Mitigation

- 7.42 It is not possible to avoid negative effects on the landscape of the Somerset Levels and Puriton Ridge with a new steel lattice pylon or T-ylon overhead line.
- 7.43 Proposed routes cross Puriton Ridge obliquely between blocks of woodlands and minimise sharp changes in direction which assists in reducing potential negative effects. Additional mitigation by way of planting to restore and augment gappy hedgerows on the Levels and Puriton Ridge with new planting and additional woodland planting on Puriton Ridge in the vicinity of a new overhead line may be undertaken, depending on land owners' consent being granted. This would generally be in keeping with the existing landscape character in Section A and could also assist in reducing potential effects.

Summary

- 7.44 The existing 132kV Bridgwater to Avonmouth Route overhead line would be removed if a new 400kV overhead line is installed, resulting in a minor positive effect on landscape character in the vicinity of the 132kV overhead line. This would be a residual effect on the local landscape although in the wider landscape the introduction of a new 400kV overhead line would result in an overall residual negative effect.
- 7.45 A new standard steel lattice overhead line on the Proposed Route in Section A would have a moderate negative residual effect on the landscape of the Somerset Levels, with the greatest magnitude of effect in Section A where it would cross the Puriton Ridge landscape.
- 7.46 A new T-ylon overhead line on the Proposed Route in Section A would result in a greater negative residual effect on the Somerset Levels compared to the standard steel lattice pylon; however the overall residual effect would be moderate negative similar to that of the standard steel lattice pylon.
- 7.47 The low height steel lattice pylon would give rise to a lower negative effect on the top of Puriton Ridge compared to the standard steel lattice pylon, because of its lower height and smaller extent visible against the sky. However the overall residual effect would be as considered in relation to the standard steel lattice pylon on Puriton Ridge, due to the thicker gauge steel, additional reinforcing members, and greater width of the low height steel lattice pylon influencing its prominence in the local landscape.

- 7.48 A new T-pylon overhead line would result in a greater magnitude of effect (scale of change) on Puriton Ridge as backgrounding would be less effective for the T-pylon compared to the open design of the steel lattice pylons. However (similar to the low-height lattice pylon) a smaller extent of the T-pylon would appear above Puriton Ridge compared to the standard steel lattice pylon, reducing the prominence of the new line on the top of the ridge in the wider landscape. Overall, a new T-pylon overhead line would result in a similar adverse effect to that considered for an overhead line using the standard steel lattice pylon and low-height lattice pylon on Puriton Ridge.
- 7.49 With regard to effects on the landscape, the standard steel lattice pylon on the Proposed Route in Section A is preferred overall across the Levels to the south of Puriton Ridge and on the northern lower slopes of the ridge. This preference is primarily because of the existing overhead lines in this landscape on steel lattice pylons. The steel lattice pylon would also tend to benefit more from backgrounding by the ridge landform, and by the Levels landscape. The low-height lattice pylon is preferred overall across part of Puriton Ridge because its shorter height compared to the standard lattice pylon means less of it would be seen against the sky. The relatively open nature of the ridge and approaches means that the greater width of the low-height lattice pylon would integrate better with the scale of the local landscape.

Visual Amenity

Baseline Conditions

- 7.50 Puriton Ridge is part of the Polden Hills and forms a characteristic feature in views in this Section of the Proposed Route. This ridge landform divides views in the area with receptors to the south of the ridge experiencing views to the southern side of the ridge and receptors to the north experiencing views to the northern side.
- 7.51 Receptors to the south of the ridge generally have open and some filtered long distance views across the flat Levels landscape towards Puriton Ridge which rises steeply. In places, particularly to the east and southwest, the intervening landform of Knowle Hill, along with field trees, hedgerows and built form limit views. The existing 275kV VQ Route overhead line and the existing 132kV Bridgwater to Avonmouth Route overhead line are visible in most views above trees, hedges and built form, with some views becoming filtered or screened. From the top of Puriton Ridge near Home Covert and South Hills long distance views are available south across the flat Levels landscape, backgrounded by the Quantock Hills in the distance.
- 7.52 The landform to the north of Puriton Ridge slopes down gradually towards the flat Levels landscape of Section B, beyond Woolavington. On the northern side of Puriton Ridge and in Section B receptors have open and some filtered views south up Puriton Ridge towards the top of the ridge which is partly wooded. From the ridge long distance views north are available across the flat Levels landscape of Section B, with backgrounding provided by the Mendip Hills and Brent Knoll in the distance. The existing 132kV Bridgwater to Avonmouth Route overhead line is visible as it runs over the ridge and onto the Woolavington Levels and the existing 400kV ZG Route overhead line is visible further in the distance running east west across the Puriton and Woolavington Levels. Large factory buildings associated with the former ordinance factory at Puriton are also present in some views above trees and hedges.
- 7.53 The main public views of the existing overhead lines in this Section are experienced by high sensitivity visual receptors using public footpaths, cycle routes and outdoor recreation facilities including sports pitches. These receptors have open views across fields as they cross Puriton Ridge. Some public footpaths run along the ridge and pass beneath the existing 132kV Bridgwater to Avonmouth Route overhead line.

- 7.54 There are open long distance views east and north from parts of the River Parrett Trail to the west and south a published long distance walking route that follows Public Rights of Way (PRoW) along the River Parrett between Steart Point and Chedington. There are also distant views north from the Samaritans Way South West to the east of Bridgwater which is a published long distance walking route from Clifton Suspension Bridge on the Avon Gorge to the Quantock Hills. These views include Puriton Ridge and the existing 275kV VQ Route overhead line which is visible in the near and middle distance.
- 7.55 There are open views of the existing overhead lines from National Cycle Route 3 the West Country Way and National Cycle Route 33 the Stop Line Way. These long distance cycle routes run along the minor road network, along King's Sedgemoor Drain and through Chedzoy, Bawdrip and Cossington. The existing 132kV and 275kV overhead lines are visible in some views to the south of the ridge and the 400kV ZG Route overhead line is visible in some views to the north of the ridge.
- 7.56 Long distance views of Puriton Ridge are possible from outdoor recreation facilities to the west of the M5 motorway. These include Sutton's Pond Nature Reserve, a small local attraction for appreciation of nature; Trinity Waters Fishery; and Lower Lake holiday lodges. The existing 275kV VQ Route overhead line runs close to each of these and forms part of foreground views.
- 7.57 To the south of Puriton Ridge individual properties along the A39 and Horsey Lane have views of Puriton Ridge with the existing 132kV Bridgwater to Avonmouth Route overhead line visible in some views. The existing 275kV VQ Route overhead line is also visible in views from the south of the ridge. Properties around Knowle Inn and near Martlands Farm are within 100m of the existing 132kV overhead line and have long views along it. To the north of Puriton Ridge there are views from individual properties on Woolavington Road south up the ridge and north across the Levels and Moors, with the existing 132kV and 400kV overhead lines visible.
- 7.58 The main views from settlements in Section A are from the edge of Bridgwater, Puriton and Woolavington. Views from other properties in the settlements are often obscured or partly obscured by intervening built form and vegetation. Properties on the edge of Bridgwater, to the south of Puriton Ridge, have open and filtered views from over 1km away towards the route of the new overhead line as it crosses the ridge. The M5 motorway and Hinkley to Bridgwater 275kV VQ Route overhead line

are in the foreground and middle distance of these views, with the existing 132kV overhead line to the east.

- 7.59 The settlements of Woolavington and Puriton are on the lower slopes to the north of Puriton Ridge. Receptors have long distance views north across the Levels with the existing 132kV Bridgwater to Avonmouth Route and 400kV ZG Route overhead lines visible. Receptors in Woolavington have views along the existing 132kV overhead line as it runs down the ridge and out across the Levels.
- 7.60 South of Puriton Ridge, to the east of the Proposed Routes, the linear settlement of Knowle and properties on the west edge of Bawdrip have open and filtered views of the existing 132kV Bridgwater to Avonmouth Route overhead line. Further south, properties on the northern and south western edge of Chedzoy, including Chedzoy Lane, Higher Road, Manor Road, Ward Lane and Front Street, and properties in the linear settlement of Bradney have open views to Puriton Ridge at a distance of around 1-2km. The existing 132kV and 275kV overhead lines are in foreground views with the elevated landform of Knowle Hill obscuring some views.
- 7.61 Views within Section A are locally important. The combination of the flat Levels landscape and Puriton Ridge are locally distinctive but of no greater distinction or value.

Assessment of Effects

Effects of a new overhead line

- 7.62 A new 400kV overhead line in Section A would have a negative effect on public and private visual receptors in the local area. A new 400kV overhead line crossing Puriton Ridge would be visible particularly where it crosses the highest point of the ridge where there is limited backgrounding. The greatest effects on views would be experienced by the closest high sensitivity visual receptors, such as users of PRoW that run under the new overhead lines and the nearest residential properties. For many visual receptors, the existing 132kV Bridgwater to Avonmouth Route and 275kV VQ Route on steel lattice pylons are already present in views.
- 7.63 At the southern extent of Section A, two CSE compounds would be required in the vicinity of the existing 275kV VQ Route overhead line to connect the two circuits. The CSE compounds would introduce localised negative visual effects for public and private receptors to the south of Puriton Ridge where the flat generally open Levels landscape allows expansive open views with limited screening. The

- presence of the existing 275kV VQ Route overhead line on steel lattice pylons in many views would mean that the level of adverse effects would be lower than if there was no existing overhead line infrastructure in views.
- 7.64 There would be negligible effects on views from the Quantock Hills AONB from a new 400kV overhead line due to the distance of approximately 10km between the Proposed Route and the designated landscape.
- 7.65 A new 400kV overhead line on the Proposed Route in Section A would have the greatest negative magnitude of effect (scale of change) on public views from two PRoW which run along the top of Puriton Ridge. The Proposed Route crosses these footpaths and users would have a new 400kV overhead line introduced into near distance views. There would also be views along a new overhead line to the north and south, considered to include the CSE compounds.
- 7.66 The greatest negative magnitude of effect (scale of change) on private views would be from approximately eighty properties within 1km of the new 400kV overhead line with direct views towards the line. To the south of the ridge these properties have middle distance views and include six properties between 300m and 800m from the new overhead line along the A39 Puriton Hill, near Home Covert, South Hills and Knowle Park; fifteen properties approximately 700m from the proposed overhead line on the A39 Bath Road, between Crandon Bridge and Horsey; around twenty seven properties on Horsey Lane between 400m and 700m from the new overhead line; and Bradney House and Bradney Cottage around 1km from the new overhead line on Bradney Lane. To the north of the ridge there are seven properties with near distance and middle distance views on Woolavington Road between 100m and 300m from the new overhead line between East Farm and Martland; and around twenty properties along the southern and eastern edge of Puriton with middle distance views, between 400m and 1km from the new overhead line. These properties would have a 400kV overhead line introduced into views where no overhead line is presently visible or is visible in the distance. Properties south of the ridge would also have some views of the CSE compounds at Bridgwater Tee.
- 7.67 A positive magnitude of effect (scale of change) on views would be experienced from over sixty properties, thirteen PRoW (eight of which are presently crossed by the 132kV Bridgwater to Avonmouth Route) and National Cycle Route 3 where the existing 132kV Bridgwater to Avonmouth Route overhead line would be removed from views and replaced with a 400kV overhead line further away in views. These

receptors are to the south and east of the new overhead lines around Knowle, Bawdrip, Bradney and Chedzoy.

- 7.68 A new 400kV overhead line in Section A would generally have a moderate negative magnitude of effect (scale of change) on views.

Comparison between the steel lattice pylon and the T-pylon

- 7.69 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon compared to a new 400kV overhead line using the T-pylon.
- 7.70 A new overhead line in Section A would be visible above trees, hedges and built form. The T-pylon would be less visible compared to the steel lattice pylon, due to its lower height. Where there is screening by trees and built form the T-pylon would be more readily screened than the taller steel lattice pylon where the same amount of cover would only partially screen the steel lattice pylon.
- 7.71 In views up and down Puriton Ridge it is considered that the T-pylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open steel lattice design, which benefits more from ridge backgrounding. The „diamond“ configuration of the T- pylon insulators and conductors would be more prominent but would be lower than the tallest conductors using the steel lattice pylons meaning in some views across the ridge and Horsey Level the T-pylon and conductors would be screened or partially obscured by trees, hedges, landform and built form.
- 7.72 The low height steel lattice pylon could be used on Puriton Ridge as an alternative to the standard steel lattice pylon where its lower height would make it less visible. The low height steel lattice pylon is approximately 11m lower than the standard steel lattice pylon, resulting in a smaller extent of the low height steel lattice pylon being visible above the ridge against the sky compared to the taller steel lattice pylon. The low height steel lattice pylon is constructed using steel members of a thicker gauge than the standard steel lattice pylon and has more reinforcing members. On and near the top of Puriton Ridge the T-pylon would tend to be less visible than the standard steel lattice pylon due to its lower height, but similar in height to the low height steel lattice pylon, and of similar prominence due to the increased width and gauge of steel for the low height steel lattice pylon making it more visible against the sky.

- 7.73 There would be several pylons in views from the two PRow which run along the top of Puriton Ridge and cross under the overhead line; the T-pylon is considered to be more prominent than the steel lattice pylon due to the solid central column and cross beam, the prominent „diamond“ configuration of insulators and conductors and because the conductors are closer together and form a larger element in the view.
- 7.74 Private receptors would also have views of the overhead line crossing the flat Levels landscape to the south of Puriton Ridge and to the north, where distant views look down towards the flat Levels in Section B. It is considered that in near distance views the T-pylon would tend to appear more prominent due to the solid central column and cross beam and the „diamond“ shape conductor bundle, as compared to the steel lattice design. However in distant views that extend beyond 1km down to the flat Levels landscape in Section B the T-pylon would tend to be less visible in the distance than the steel lattice pylon, where it connects to the existing 400kV ZG Route on steel lattice pylons, and continues north from the 400kV ZG Route across Section B, due to its lower height and the effect of intervening hedgerow and tree screening.
- 7.75 The new 400kV overhead line would be particularly evident in distant views that extend beyond 1km north from around eight properties on Woolavington Road, over thirty properties on the western edge of Woolavington and within Woolavington where the landform rises allowing views north and west over rooftops, and three footpaths on Puriton Ridge where long distance views that extend beyond 1km along the Proposed Route are available, backgrounded by the Mendip Hills. The T-pylon would be less prominent than the standard steel lattice pylon in middle distance between 250m and 1km and distant views beyond 1km due to it being approximately 12m lower and the effect of intervening hedgerow and tree screening. Six properties on the eastern edge of Puriton would also have a shorter extent of the T-pylon visible in views east due to screening by the ridge landform where the steel lattice pylon would have a greater extent visible due to increased height.
- 7.76 To the south of Puriton Ridge there are open views across Horsey Level from twelve properties on Puriton Hill and at Crandon Bridge where the T-pylon would be more prominent than the steel lattice pylon in views due to limited screening, its solid central column and cross beam and the more prominent „diamond“ configuration of conductors. However the lower height of the T-pylon would mean a smaller extent would be visible compared to the steel lattice pylon.

- 7.77 To the south of Puriton Ridge there would be a lower level of adverse effect on approximately thirty nine properties from the proposed overhead line in this location if the T-pylon was used due to the reduced height and the effects of tree and hedge screening as compared to the steel lattice pylon that would have a greater extent visible above trees. However the distinction is not great due to the short length of overhead line in this location and the presence of the existing 275kV VQ Route on steel lattice pylons. A T-pylon south of Puriton Ridge would introduce a different pylon structure near an existing steel lattice pylon, although a T-pylon is not totally uncharacteristic compared to existing overhead lines.
- 7.78 A new T-pylon overhead line in Section A would have lower magnitudes of effect (scales of change) on views than a steel lattice pylon where the existing 132kV overhead line would be removed from near and middle distance views and replaced with a 400kV overhead line further away in distant views over 1km from receptors near Knowle, Bawdrip, Bradney and Chedzoy. In views from over sixty properties, thirteen PRoW and a national cycle route the T-pylon is considered to be less visible than the steel lattice pylon views due to the reduced height of pylons and the increased effects of filtering, screening and distance. At this distance the difference in conductor configurations would be barely perceptible.
- 7.79 An overhead line using the steel lattice pylons would have a lower magnitude of effect on views in the local landscape, when compared to the T-pylon, due to the presence of the existing 275kV VQ Route overhead line (in Section A) and views of the existing Hinkley to Melksham (ZQ Route) 400kV overhead line (in Section B) on steel lattice pylons. Both existing overhead lines are present in many receptor views and a new overhead line using the steel lattice pylon would be consistent with the existing steel lattice pylon supports present in this Section.
- 7.80 Where visible closer in receptor views the standard steel lattice design would appear less prominent due to the effects of backgrounding when compared to the T-pylon's solid central column and cross beam and the „diamond“ shape insulator and conductor bundle. However in middle distant and distant views the T-pylon is considered to be less visible than the steel lattice pylon due to the reduced height of pylons and the increased effects of filtering and screening.

Potential for Mitigation

- 7.81 It would be possible to minimise negative effects on views through careful planning of access to avoid the need for road improvements to the local lane network, by

utilising existing gaps in hedgerows and by reinstating roads to their original condition once construction is complete. Some short term negative visual effects would be unavoidable until re-establishment.

- 7.82 Mitigation by way of additional hedgerow and tree belt planting in the vicinity of a new overhead line, subject to landowner agreement, would be in keeping with the existing landscape character and could assist in reducing potential effects on views. On the southern slope of Puriton Ridge woodland planting would be in keeping with the existing landscape character and would assist in reducing potential effects on views from receptors south of the ridge. Over the long term, for example after 15 years and beyond, adverse effects on views arising from use of the T-pylon would be reduced more than those from using a steel lattice design because maturing trees would be more effective in screening because of the T-pylon's lower height.

Summary

- 7.83 In Section A an overhead line using the T-pylon or the steel lattice pylon supports would have the same number of suspension and tension pylons. For both the steel lattice pylon and T-pylon routes the effect on views largely would be moderate negative, due to the distance of most receptor views and the presence of existing overhead lines in views, albeit there are receptors of high sensitivity.
- 7.84 The greatest negative effect would be experienced by a small number of sensitive receptors, including two PRow and approximately eighty properties within 1km of the new overhead line with direct near distance and middle distance views towards the proposed line and along the line in places. In near distance receptor views the T-pylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open lattice steel design, which benefits more from backgrounding. In addition the „diamond“ configuration of the T-pylon insulators and conductors means they would tend to be more prominent and visible over a greater distance than is the case for the steel lattice pylon conductors where there is limited screening. However, in middle distance views where there are greater effects of filtering and screening the T-pylon is considered to be less visible than the steel lattice pylon due to its lower height.
- 7.85 A positive effect would be experienced by receptors where the existing 132kV Bridgwater to Avonmouth Route overhead line would be removed from near distance and middle distance views and from where the proposed 400kV overhead line is either not visible or visible in the distance over 1km away. These visual

receptors include properties, PRow and National Cycle Routes 3 and 33. For these receptors a new T-pylon overhead line would give rise to less adverse effects on views than a steel lattice pylon as it tends to be less visible than the steel lattice pylon in distant views due to the reduced height of pylons and the greater effectiveness of filtering, screening and backgrounding. At this distance the difference in conductor configurations would be barely perceptible.

- 7.86 A new overhead line would be visible from a large number of public and private receptors where it crosses the elevated landform of Puriton Ridge. These include high sensitivity receptors using the River Parrett Trail and Samaritans Way South West long distance footpath and National Cycle Routes 3 and 33, although these views are distant. Both the steel lattice pylon and T-pylon routes minimise the effects of crossing the ridge by avoiding the steepest slopes, crossing the ridge obliquely and by crossing between blocks of woodland. Many views of the proposed overhead line will be backgrounded or filtered by landform and vegetation where the steel lattice design would be more readily backgrounded than the T-pylon's solid central column and cross beam. However the pylons crossing the highest point of the ridge will be visible against the sky.
- 7.87 On the slopes of Puriton Ridge it is considered that the T-pylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open steel lattice design, which benefits more from ridge backgrounding. On and near the top of Puriton Ridge, the low height steel lattice pylon and T-pylon would tend to be less visible above the ridge than the standard steel lattice pylon due to their lower height.
- 7.88 The existing 132kV Bridgwater to Avonmouth Route overhead line would be removed resulting in a positive effect. The proposed 400kV overhead line and the existing 275kV VQ Route overhead line on steel lattice pylons would however continue to form part of many views to the south of Puriton Ridge and the proposed 400kV overhead line and existing 400kV ZQ Route on steel lattice pylons in views to the north of the ridge. The presence of existing overhead lines with steel lattice pylons would reduce the scale of change that would occur in views if a new overhead line used steel lattice pylons, as they would be consistent with existing overhead lines. A new overhead line using a T-pylon would introduce a new landscape feature that would be different to existing overhead lines that are visible on steel lattice pylons. Although an overhead line using the T-pylon is not totally

uncharacteristic compared to existing overhead lines as both are supports that carry electrical conductors.

- 7.89 From a visual amenity perspective the standard steel lattice pylon is preferred in Section A across the Levels to the south of Puriton Ridge and on the northern lower slopes of the ridge, and the low-height steel lattice pylon is preferred on and near the top of Puriton Ridge. This is due to the reduced effect which would be experienced in receptor views where the existing overhead lines on steel lattice pylons are visible (275kV VQ Route in Section A and the 400kV ZG Route in Section B) and the increased effects in near distance views where the T-ylon would be more prominent. The T-ylon would be a new landscape feature and would have a greater effect where the existing steel lattice pylons are visible.
- 7.90 The T-ylon would have less adverse effects on receptors in middle distance and distant views due to the reduced height of pylons and the greater effectiveness of filtering and screening. However overall the standard steel lattice pylons and low height steel lattice pylons are preferred due to the presence of existing steel lattice overhead lines, the greater prominence of the T-ylon in near views and the reduced effects of backgrounding when compared with the standard steel lattice pylon.

Historic Environment

Baseline Conditions

- 7.91 There are no Listed Buildings within 100m of the Proposed Route.
- 7.92 Five Grade II Listed Buildings within 10km of the Proposed Route have a setting that includes it. Horsey Manor Farm is approximately 400m south-west of the southern end of the Proposed Route and dates largely from the late C16th with early C19th alterations; it has associated buildings dating from the C17th onwards and its setting also includes the Scheduled Horsey medieval village remains (see below). Bradney House is approximately 1.25km south-east of the southern end of the route, beside a lane in a rural landscape, with the existing 132kV Bridgwater to Avonmouth Route overhead line passing 400m away. Manor Farmhouse, Knowle, is approximately 1.25km south-east of the Proposed Route. West End Farmhouse and Manor Farmhouse are on Chedzoy Road, approximately 1.8km from the Proposed Route. These receptors are all of high sensitivity.
- 7.93 Seven Listed Buildings have settings that include the existing 132kV Bridgwater to Avonmouth Route overhead line but that would not be affected by the Proposed Route. At Bawdrip, the historic settlement core contains the Grade II* St Michael and All Angels Church and four Grade II Listed Buildings. Grade II Listed Westfield Farmhouse, Chedzoy, stands approximately 800m east of the existing 132kV overhead line. Grade II Listed „The Beeches“ is on Westonzoyland Road, approximately 130m west of the existing 132kV Bridgwater to Avonmouth Route overhead line. These receptors are all of high sensitivity, with the exception of the church at Bawdrip, which is of very high sensitivity.
- 7.94 Horsey Deserted Medieval Village (DMV) Scheduled Monument is designated as lying within a curtilage that extends to approximately 150m to the south of the southern end of the Proposed Route. The site is recorded on the Somerset Historic Environment Record (HER) as extending beyond the Scheduled area; across fields further east and north, including the fields on the Proposed Route. This receptor is of very high sensitivity.
- 7.95 A further 14 Scheduled Monuments within 10km (concentrated between Shapwick and Meare) have settings whose visual envelopes encompass part of the Proposed Route. There are 12 Scheduled sections of timber trackways to the east, at: Moor Drove (approximately 4.5km south-east), „SSE of Parchey Bridge“ (approximately

- 4km south-east), two at Chilton Farm (approximately 4km east), Chatcotte Burtle Farm (approximately 6.5km east), two at Honeygar Farm (approximately 7km east), four sections of the Sweet Track and Post Track (approximately 7.5-8km east), and Northbrooke Farm (approximately 9.5km east). Two Scheduled „lake villages“ are just under 10km to the east at Oxenpill. These receptors are of very high sensitivity.
- 7.96 No Conservation Areas or Registered Parks and Gardens have a setting that includes the Proposed Route.
- 7.97 The Registered Battlefield of Sedgemoor is approximately 3.5km south of the Proposed Route, north of the village of Westonzoyland. This receptor is of high sensitivity.
- 7.98 Baseline data relating to known non-designated heritage receptors has been collected for a study area extending to 100m around the Proposed Route. This study area contains 25 known non-designated heritage receptors. These comprise : 2 World War II sites, 2 Iron Age sites, 2 windmill sites, 2 cropmark sites, 2 Bronze Age sites, 3 medieval sites, 2 Roman roads, 2 Roman sites, 1 railway (disused), 2 sheep pens, 1 quarry, 2 turnpike roads with milestones, 1 C19th manor house, and 1 duck decoy pond. These receptors are of moderate, low or negligible sensitivity.
- 7.99 The historic landscape of the southern half of the Proposed Route is characterised as a zone of post-C17th enclosure. The central part of the Proposed Route is within a zone characterised as landscape parkland. The northern part of the Proposed Route is within a zone of pre-C17th enclosure. These zones are of low sensitivity. Any hedgerows associated with Horsey or Crook DMVs, Knowle Park designed landscape, the Puriton - Ilchester Roman road, the East Brent - Thurloxton and Nether Stowey - Ashcott turnpike roads, parish boundaries, or archaeological sites described in the HER would all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects

Effects equal for both Options

- 7.100 For both the steel lattice and T-pylon overhead line options the potential effects on a number of historic environment receptors would be the same and would therefore not help to differentiate between the options. There is potential at two pylon locations and their access tracks for negative effects on buried archaeological remains associated with Horsey DMV Scheduled Monument. Any such remains

would be subject to the same policy considerations as the Scheduled Monument. The negative magnitude of effect would be low, on a receptor of very high sensitivity.

- 7.101 There is potential at one pylon location and its access track for negative effects on buried archaeological remains associated with Crandon Bridge possible Roman port. This non-designated archaeological site may be of equivalent sensitivity to a Scheduled Monument; its remains are within 180m east of the proposed pylon location. Any Roman remains at the pylon base would be subject to the same policy considerations as a Scheduled Monument. If any such remains were present, the negative magnitude of effect would be low, on a receptor of very high sensitivity.
- 7.102 There is potential for negative effects on buried archaeological remains at other pylon locations and at ancillary work locations (including access tracks). The negative magnitude of effect would be high - low on receptors of moderate to negligible sensitivity.
- 7.103 Both options would negatively affect the setting of the Horsey DMV Scheduled Monument. For both options, the negative effect would be reduced by the presence of the existing 275kV VQ Route overhead line, which runs between the Scheduled Monument and the Proposed Route. The negative effect would also be reduced because the sensitivity of the receptor is derived principally from its value for future research, and because the setting (i.e. a modern field) is not directly associated with the Scheduled Monument, and thus has a high capacity to absorb change. For the T-pylon, the negative effect would be increased because the T-pylon represents a new modern element in the receptors' settings; however, the T-pylon would benefit more from screening provided by trees between the Proposed Route and the receptor. For both options, the negative magnitude of effect would be low, on a receptor of very high sensitivity.
- 7.104 Both options would have positive effects on the settings of four Grade II Listed Buildings due to the removal of the existing 132kV overhead line. These are West End Farmhouse and Manor Farmhouse in Chedzoy, Manor Farmhouse in Knowle, and The Beeches on Westonzoyland Road. West End Farmhouse and Manor Farmhouse in Chedzoy are approximately 2km from the Proposed Route; this distance of separation as well as the presence in the view of screening from vegetation and ribbon development on the A39 Bath Road would reduce the magnitude of effect on these receptors. The settings of Manor Farmhouse in

Knowle and The Beeches would not be altered by the presence of the proposed new infrastructure. All four receptors would experience improvement in the quality of their settings due to removal of the existing 132kV Bridgwater to Avonmouth Route overhead line, which passes close to them; although the magnitude of this effect is decreased due to the presence of existing vegetation screening in each case. The positive magnitude of effect would be negligible on receptors of moderate sensitivity.

- 7.105 Both options would have no effect on the settings of the 14 Scheduled timber trackways and „lake villages“ concentrated between Shapwick and Meare. Although these receptors have open views across flat land to the Proposed Route, at a distance of approximately 4.5-10km there would be no perceptible alteration to their setting, either by decommissioning of the existing 132kV overhead line or construction of larger infrastructure.
- 7.106 Both options would have no effect on the setting of Sedgemoor Registered Battlefield. The setting of this C17th battlefield is a broad, flat, pastoral environment with numerous drains and ditches. An overhead line may be visible in limited views from some northern parts of the Battlefield; however, at a distance of 3.5km there would be no perceptible alteration to the receptor's setting.
- 7.107 For both options, improvements to the road network necessary for construction activities could negatively affect „important“ hedgerows and historic lanes. These effects could be both direct effects on archaeological remains and the elements that comprise the historic landscape, as well as indirect effects caused by alteration to the setting of historic buildings, the landscape, and archaeological remains. The negative magnitude of effect would be low on receptors of low sensitivity.

Effects that differ between Options

- 7.108 Both options would negatively affect the setting of Grade II Listed Horsey Manor Farm, but the magnitude of effect would be greater in the case of the steel lattice pylon. The negative effect is reduced by the distance of separation and by the presence of the existing Hinkley to Bridgwater overhead line (which runs between the Listed Building and the Proposed Route). Due to the reduced height of the T- pylon, the negative effect would be lower due to the greater degree of screening from existing vegetation and buildings. The negative magnitude of effect resulting from the steel lattice pylon would be low or negligible for the T-pylon, on a receptor of high sensitivity.

- 7.109 Both options would affect the setting of Grade II Listed Bradney House. For the steel lattice pylon the overall effect would be neutral, whereas for the T-pylon the overall effect would be positive due to screening. For both options, there would be a positive effect due to removal of the existing 132kV Bridgwater to Avonmouth Route overhead line, approximately 400m away. New, larger infrastructure would be constructed approximately 1.2km away. For the steel lattice pylon, the magnitude of this negative effect would be reduced by the distance of separation and by partial screening from existing vegetation (both within the Listed Building's curtilage and hedgerows further away) and ribbon development along the A39 Bath Road. For the T-pylon, existing screening would completely obscure the new infrastructure. The overall effect resulting from the steel lattice pylon would be neutral, whereas the T-pylon would result in a positive effect of negligible magnitude, on a receptor of high sensitivity.
- 7.110 Both options would negatively affect the setting of archaeological remains associated with Horsey DMV Scheduled Monument, however, the magnitude of effect would be less in the case of the steel lattice pylon. For both options, the negative effect would be reduced by the presence of the existing 275kV VQ Route overhead line, which runs across this receptor. For the T-pylon, the negative effect would be increased because the T-pylon represents a new modern element in this receptor's setting. The negative effect would also be reduced because the sensitivity of the receptor is derived principally from its value for future research and because its setting has a high capacity to absorb change. This high capacity to absorb change to setting results from the lack of perceptible remains such as the earthworks through which its historical value can be perceived, and because the setting (i.e. a modern field) is not directly associated with the receptor. For the steel lattice pylon, the negative magnitude of effect would be negligible, while for the T-pylon the negative magnitude of effect would be low, on a receptor of very high sensitivity.
- 7.111 Both options would have a negative effect on the extent to which the historic character of the landscape can be understood and appreciated, but the magnitude of effect would be less in the case of the steel lattice pylon. Removal of the 132kV Bridgwater to Avonmouth Route overhead line and replacement with a 400kV overhead line would change the historic landscape character of the area surrounding the Proposed Route, and would cause the further fragmentation of historic landscape components, in terms of their comprehensibility and

appreciability. For the steel lattice pylon, this change would be an increase in scale of an existing group of elements in the historic landscape. The magnitude of effect would be slightly greater for the T-ylon than for the steel lattice pylon because T-pylons would present a new form of modern element into the landscape rather than an increase in the presence of the existing steel lattice pylons. The T-ylon would also comprise the introduction of a new and visible group of modern elements in the historic landscape. The magnitude of effect would be reduced where the landscape is experienced at greater distance and with greater screening by topography, buildings and vegetation. For the T-ylon, the magnitude of effect would not reduce at increasing distance as rapidly as for the steel lattice pylons, due to its solid central column and cross beam as opposed to the more open steel lattice design. However, due to their reduced height, the total area where any effect would be experienced would be less for the T-pylons. The negative magnitude of effect on the historic landscape that would result from the steel lattice pylons would be low, and for the T-pylons would be moderate, on receptors of low sensitivity.

Potential for Mitigation

- 7.112 Scope to mitigate effects on the settings of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 7.113 For both options, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place. It is assumed that an effective programme of archaeological mitigation can be implemented as part of the project.
- 7.114 For both options, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting.

Summary

- 7.115 The overall effect on the historic environment would be largely similar for steel lattice and T-ylon options although the T-ylon would have a slightly greater negative effect on the extent to which the historic character of the landscape can be

understood and appreciated and the setting of archaeological remains associated with a Scheduled Monument. As a result the steel lattice pylon is preferred in this Section.

- 7.116 The steel lattice pylon option would have a greater negative effect on Listed Buildings than the T-pylon option. The T-pylon option would have a negligible negative magnitude of effect on five Grade II Listed Buildings; the steel lattice pylon would have the same effect on these receptors with one exception, which it would have a low negative magnitude of effect on. The T-pylon would also have a negligible positive magnitude of effect on a sixth Grade II Listed Building, which the steel lattice pylon option would not affect. The overall scale of effect would be minor negative for both the steel lattice pylon and T-pylon, although the negative effect of the steel lattice pylon would be of greater magnitude.
- 7.117 The T-pylon option would have a greater indirect negative effect on the setting of one non-designated archaeological receptor of equivalent sensitivity to a Scheduled Monument. The overall negative scale of effect for the T-pylon would be major, whereas the overall negative scale of effect for the steel lattice pylon option would be moderate.
- 7.118 Both options would have an equal direct, physical effect on one non-designated archaeological receptor of equivalent sensitivity to a Scheduled Monument, and the potential to affect a second non-designated archaeological receptor of equivalent sensitivity to a Scheduled Monument. The overall negative scale of effect would be moderate.
- 7.119 The steel lattice pylon and T-pylon options would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon numbers. The overall scale of effect would be minor negative. The potential for as-yet undiscovered archaeological remains to be present along the Proposed Route is high.
- 7.120 Both options would have an overall minor negative scale of effect on the historic landscape, although the negative effect of the T-pylon option would be of greater magnitude. For both options, replacement of the existing 132kV Bridgwater to Avonmouth Route overhead line with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character

zones. Both options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal.

- 7.121 Mitigation of the indirect visual effects of the overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation *in situ* is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline Conditions

- 7.122 There are no international or national wildlife site designations within or adjacent to Section A.
- 7.123 There are two wildlife sites within 1km of the Proposed Route within Section A. These sites are both Local Wildlife Sites (LWS), which are valued at the County level:
- South Hills Wood LWS (approximately 280m west) is a mix of ancient woodland and species-rich grassland and lies west of the route along the north bank of the King Sedgemoor Drain; and
 - New Ground Covert LWS (approximately 250m west) is an ancient woodland block west of the route adjacent to the A39.
- 7.124 Section A can be divided into three broad areas. South of King's Sedgemoor Drain the land is dominated by arable, improved and semi-improved fields bordered by heavily managed hedgerows and ditches. North of the Drain the land rises up to Puriton Ridge and contains a mix of semi-improved pasture scattered with trees, small woodland blocks and areas of scrub. North of the ridge the land levels out and is similar to the southern part of the Section although without arable land and with few drains.
- 7.125 There are three small semi-natural woodland blocks (Chisland Covert, The Dems and Knowle Hill) and one small plantation block (Eleven Acres Covert) within Section A. Plantation woodland is also present along the verges of the A39. Although there are currently no records of bats or dormouse within Section A these woodlands are likely to provide potential foraging or roosting or nesting opportunities for these species as well as for a range of woodland bird species. These small areas of woodland could range in value from local to district depending on composition and associations with other species.
- 7.126 The majority of hedgerows are species-poor although there are a few species-rich examples in the far south and along Bitham Lane which runs along the top of Puriton Ridge. Many of the hedges are associated with ditches and those along the ridge are connected to woodland habitats. The hedges are likely to have a connective function and could potentially support a range of species including birds,

bats and dormice. However, there are no desktop records for dormice in the vicinity of Section A and none were recorded during the 2012 dormouse survey.

- 7.127 The network of hedgerows is valued at the district level, but the value of individual hedgerows will vary depending on composition and association with other species.
- 7.128 There are records of water vole in the vicinity of Section A and, along with otter; this species may potentially use the King's Sedgemoor Drain, the smaller field drains and pond network. Although some sections of King's Sedgemoor Drain are important for birds, this is not the case for the short length within and adjacent to the Proposed Route. TEP bird surveys undertaken between 2009 and 2013, including 87 hours of vantage point survey undertaken at this section of the King's Sedgemoor Drain only found low levels of usage by birds. Collectively the aquatic habitats in Section A are valued at the local level.
- 7.129 Habitat within Section A is dominated by improved and semi-improved grassland with some arable land. The intrinsic value of these habitats is low but could be increased by association with valued faunal species. However there are currently no notable species records for the study area and the breeding bird and wintering bird surveys did not highlight this as an area of particular ornithological importance. These grassland habitats are valued at the local level.

Assessment of Effects

- 7.130 No impacts on designated wildlife sites or woodland habitats are predicted from either the steel lattice pylon or T-ylon.
- 7.131 Grassland habitats and their associated flora and fauna are likely to experience a low, negative temporary magnitude of effect during construction from ground disturbance and disturbance from human activities. A larger number of components would be required for the assembly of the steel lattice pylons, resulting in a longer construction period in comparison to the T-ylon. There would therefore be greater levels of construction-related disturbance associated with the steel lattice pylons due to the increased vehicle movements and as a result of operatives being on site for a longer period of time.
- 7.132 Considering the low intrinsic value of the grassland habitats within Section A, the ecological impact upon grasslands (and their associated flora and fauna) would

remain as a low negative magnitude of effect for both the steel lattice pylon and T-
pylon options prior to mitigation.

- 7.133 Hedgerow losses would be limited to requirements for construction access with both options, the permanent loss of hedgerow trees cannot be ruled out in order to achieve electrical safety clearances. If permanent hedgerow tree losses are required, the extent of this would be greater with the T-pylon due to their larger width. Such impacts are likely to result in a low negative, medium-term magnitude of effect across all overhead line options.
- 7.134 With both pylon options, impacts on ponds and watercourses would not help to differentiate between the two options.

Potential for Mitigation

- 7.135 Where possible, for both of the pylon options, existing field access points and watercourse crossings would be used and standard environmental protection measures implemented; including the timing of works activities onto retained habitats and the implementation of pollution control methods.
- 7.136 Where appropriate, prior to habitat clearance works, temporary exclusion methods would be adopted, under the appropriate mitigation licence, in order to prevent death or injury to protected species such as bats or great crested newts, should they be present.
- 7.137 Where tree loss is required to achieve electrical safety clearances, pollarding or coppicing could be used to avoid total loss of habitat. Alternatively, where complete tree removal is required, replacement tree planting could be undertaken outside the overhead line easement subject to landowner agreement. However, due to the uncertainty of securing landowner agreement for works outside the easement this form of mitigation has not been taken into account in the assessment of effects.
- 7.138 Irrespective of the pylon design option, bird deflectors could be adopted if necessary to mitigate bird strike. However, the results of overwintering bird surveys undertaken in Section A indicate that bird strike would not be a significant issue.

Summary

- 7.139 Both of the potential overhead line pylon options would avoid substantial ecological impacts in Section A, with impacts largely restricted to hedgerow tree loss and temporary effects to arable and pasture fields during construction. Although, loss of individual mature trees can only be compensated rather than mitigated, losses would be minimal. Mitigation including wildlife-friendly working methods and use of existing field access points for construction traffic would in the long-term reduce impacts on ecology from either overhead line pylon option in Section A to neutral.
- 7.140 Overall, on balance, the scale of residual ecological impact would not differ between the pylon options. The construction of the individual steel lattice pylons may result in longer disturbance period, although the T-pylon may require a greater extent of hedgerow tree removal due to the greater width of the pylon.

Section A: Summary of Preferred Pylon Option

- 7.141 From a **landscape** perspective the steel lattice pylon (utilising low height steel lattice pylons near the top of Puriton Ridge) is preferred largely because it would benefit to a greater extent from backgrounding and would also result in the introduction of structures of a similar appearance to those already present in the landscape.
- 7.142 When considering potential effects on **visual** receptors the steel lattice pylon is preferred throughout Section A with the exception of Puriton Ridge where the low-height steel lattice pylon is preferred. This overall preference is based on the presence of existing steel lattice overhead lines, the greater prominence of the T- pylon in near views and the reduced effects of backgrounding when compared with the steel lattice pylon design. The T- pylon would be a new landscape feature and would have a greater effect where the existing steel lattice pylons are visible.
- 7.143 From an **historic environment** perspective, whilst the steel lattice pylon would result in a slightly greater effect on listed buildings its lattice steel design would reduce the impacts on non-designated archaeological remains associated with the nationally designated receptor of Horsey Medieval settlement and would result in less effect on the historic landscape. As a result the steel lattice pylon would be preferred in this Section.
- 7.144 Whilst there are slight differences between the steel lattice and T-pylons from an **ecological** perspective these do not help to differentiate between the options in this Section.
- 7.145 Within Section A, the environmental appraisals have identified that the steel lattice pylon would be preferable overall in terms of effects on the landscape, visual and the historic environment. From a visual perspective the T- pylon would result in the greatest negative effects from close receptors and introduce new structures alongside existing steel lattice pylons but would benefit views from more distant receptors. Whilst there are advantages and disadvantages of both pylon designs the use of steel lattice pylons would minimise those effects of the greatest magnitude.
- 7.146 Based on the findings of the appraisals it is therefore recommended that steel lattice pylons, using low height steel lattice pylons on the top of Puriton Ridge to minimise landscape and visual effects, are taken forward to consultation for Section A.

8 APPRAISAL SECTION B – SOMERSET LEVELS AND MOORS SOUTH

Section Boundaries

- 8.1 Section B extends from Woolavington Road in the south to Webbington Road in the north, which forms the southern boundary of the Mendip Hills AONB. The 400kV Hinkley to Melksham overhead line (“400kV ZG route”) passes west-east through the southern part of the Section, north of the former Royal Ordnance factory at Puriton. The 132kV Bridgwater to Avonmouth overhead line runs south-north through the Section passing to the east of East Huntspill and west of the settlements of Mark, Rooks Bridge / Tarnock and Biddisham. This overhead line would be removed as part of the proposal. A 33kV overhead line supported on steel lattice pylons also travels through this Section between Puriton and East Brent.

Definition of Proposed Route Options

- 8.2 The options for Section B are shown on Figure 4.2. The steel lattice and T-pylons follow the same Proposed Route through the vast majority of this Section (as the previous draft route identified within the COR) with just minor deviations north and south of the village of Mark.
- 8.3 Within the southern part of Section B, the Proposed Route for a new 400kV overhead line runs obliquely across the Levels and Moors to join the 400kV ZG Route overhead line north of Woolavington and east of the point where the existing 132kV Bridgwater to Avonmouth Route overhead line crosses. The existing 400kV overhead line would be dismantled between the point of connection and a point approximately 0.7km to the west.
- 8.4 North of the 400kV ZG Route, both steel lattice and T-pylon routes would run in a north easterly direction crossing the Huntspill River just east of Woolavington Bridge. From here the Proposed Route crosses the River Brue between Merry Farm and Cripps Farm and continues north. There is a minor variation between the T-pylon and steel lattice pylon routes at Southwick Road to allow the use of a T-pylon flying angle. A larger variation in alignment occurs just north of this point although both options cross Mark Causeway at the same location between Court Farm and Wainbridge Farm. This is in a different location to the existing 132kV Bridgwater to Avonmouth Route overhead line. Having passed through the gap, the route turns north east and continues to the east of Knoll View Farm at Vole.

North of this point the Proposed Route follows a straighter route more closely aligned with that of the existing 132kV Bridgwater to Avonmouth overhead line towards Rooks Bridge on the A38 Bristol Road. The Proposed Route passes to the east of Rooks Bridge and then terminates at the proposed CSE compound adjacent to the M5 motorway to the south of the Hams Lane road bridge. The Proposed Route will then consist of underground cables from the CSE through the Mendip Hills AONB. It has been assumed, for the purpose of the appraisal that the connection into the CSE compound would be made via a Double Diamond T-pylon or a standard lattice terminal pylon.

- 8.5 The total length of the Proposed Route in Section B would be 14.2km. Low height steel lattice pylons have not been considered in this Section for the reasons stated in Chapter 5.

Landscape

Baseline Conditions

- 8.6 Section B extends for approximately 15km from Puriton Ridge (Polden Hills) in the south across the Somerset Levels and Moors where it abuts the southern boundary of the Mendip Hills AONB in the north.

Mendip Hills Area of Outstanding Natural Beauty

- 8.7 The Mendip Hills AONB is of national importance and was designated under the 1949 National Parks and Access to the Countryside Act, the primary purpose of which is to conserve and enhance the natural beauty of the landscape.
- 8.8 The Mendip Hills comprise a range of limestone hills which stretch eastwards from the Bristol Channel rising dramatically above the flat Somerset Levels and Moors.
- 8.9 The Mendip Hills ridge is broken into individual hills in the west including Bleadon Hill, Crook Peak and Wavering Down. Further east the Mendip Hills rise to an open limestone plateau with much of the area in pasture. The slopes and valleys surrounding the plateau support a range of woodland and limestone grassland. The majority of the Mendip Hills comprises land under improved pasture with some horticulture in the south-west. Hedgerows define field boundaries on the slopes and in the valleys. Villages are concentrated at the foot of the plateau slopes and scattered farmsteads are found on the plateau and western slopes. The M5 motorway and A38 run through the Mendip Hills.

National Landscape Character Assessment

- 8.10 Section B comprises the Somerset Levels and Moors and Mid Somerset Hills National Landscape Character Areas (NLCA 142 and 143), described by the former Countryside Agency (now Natural England) in 2005.
- 8.11 The Somerset Levels and Moors Character Area (NLCA 142) is described as a broad area of low-lying farmland and wetland surrounded and divided by low hills and ridges which form the Mid Somerset Hills (NLCA 143). There is a close visual association between these character areas with the hills and ridges forming a distinct and varied backdrop and skyline to the lower lying Levels and Moors with expansive views from the higher ground across the Levels and Moors.

- 8.12 The Somerset Levels and Moors are described as a flat open landscape of wet grassland, arable and wetland divided up by wet ditches or deep, wide, wet „rhynes” which have a strong unity and distinctive character. The Levels are closer to the coast and comprise a belt of clay that restricts the drainage of the Moors which are further inland. The Levels are a more irregular and older landscape with a slightly denser population, whereas the Moors comprise a rectilinear planned landscape with a long history of management comprising enclosures, historic trackways, and peat workings. The Moors are more sparsely populated.
- 8.13 The Levels and Moors are described as a highly managed yet wild and tranquil landscape. The National Character Area profile (produced by Natural England) for the Somerset Levels and Moors (NCA142) refers to the 2007 Intrusion Map produced by CPRE and states that there is very little undisturbed land in the west of the NCA around Bridgwater (in Section A) and Burnham.
- 8.14 Woodland is described as being relatively sparse within this landscape although pollarded willows are widespread along the „rhynes” and there are occasional shelterbelts around farmsteads. The majority of the land is pasture supporting dairy cattle. There are few properties on the lower lying land with nucleated settlements on the higher ridges and islands.

Local Landscape Character Assessment

- 8.15 Sedgemoor District Council’s “Sedgemoor Landscape Assessment and Countryside Design Summary” Revised Edition, 2003, characterises the landscape within the southern part of Section B as the Clay Moors and Levels, and the north as predominantly Levels.
- 8.16 The Levels are a largely flat landscape around 6mAOD. Field patterns are irregular and defined by sinuous drainage ditches or „rhynes”. „Islands” of slightly higher drier ground (characterised by Sedgemoor Landscape Character Assessment as Levels - Islands) include Burtle east of the southern part of Section B. A longer history of settlement is noted in the higher Levels and the assessment notes that widespread hedgerow cover gives rise to a more inhabited and civilised character than the adjacent Moors.
- 8.17 The Clay Moors comprise very low-lying farmland (predominantly pasture) generally between 3m and 5mAOD and characterised by a strong rectilinear pattern of ditches, „rhynes” and canalised rivers or cuts, and straight drove roads. The Moors

landscape is described as being generally open and remote with few trees except for occasional pollarded willows and waterside trees and hedgerows that shorten or enclose some views.

- 8.18 Puriton Ridge, part of the Polden Hills (a sub character area of the Lowland Hills), forms a strong landscape feature south of Section B and is visually prominent from the lowland area.
- 8.19 Further north the Clay Moors rise to form the Isle of Wedmore (Lowland Hills) in the east. The Isle of Wedmore rises to approximately 70mAOD and includes the settlement of Wedmore and other smaller or linear developments. The area is described as being predominantly pasture with unmanaged hedgerows and small woodlands.
- 8.20 Brent Knoll and Pawlett Hill are characterised as Isolated Hills. The Isolated Hills rise out of the Levels and Moors landscape character area. Brent Knoll in particular provides a reference point in the landscape. These hills were a natural location for early settlement and an earthwork survives on the summit of Brent Knoll.
- 8.21 There is a strong visual and historical association between the Lowland Hills and Isolated Hills and the low wetland landscape. The hills have been settled since prehistoric times, forming dry land for settlement with easy access to rich fishing, hunting and later agricultural land on the adjacent wetland. Hedgerows and small woodlands are a feature of the higher ground.
- 8.22 The North Somerset Landscape Character Assessment (2005) characterises the most northern part of Section B west of the M5 as the Bleadon Moor Landscape Character Area (LCA A5) within the Moors landscape character type. Bleadon Moor is a small area of land south of Weston-super-Mare and the Mendip Hills, comprising flat lowland pastoral and arable farmland. The field pattern is regular with larger geometric fields to the east and around the margins of the Moor. Drainage channels, ditches and „rhynes“ are not visually dominant due to gappy hedgerows along smaller channels.

Section B Landscape Character

- 8.23 Many of the landscape characteristics discussed above and described in published landscape character assessments are present in Section B. Section B comprises a significant part of the wider Somerset Levels and Moors including Woolavington

Level, Hunstpill Moor and Mark Moor within the southern part of Section B. Flat low-lying farmland throughout Section B is divided by numerous field drains and „rhynes“, for example Stoningpound Rhyne and Pyde Rhyne across Woolavington Level, Southwick Rhyne and Northwick Rhyne south and north of Mark Causeway, and Blind Pill Rhyne and Plash Rhyne between Knoll View Farm and Rooksbridge. There are also mature hedgerows and hedgerow trees along field boundaries and drains, overgrown and or gappy in places and well maintained in others.

- 8.24 Field patterns and sizes vary throughout Section B. For example there are rectilinear fields of varying sizes across Woolavington Level and across farmland adjacent Mark Causeway and Northwick Road, and the field pattern is generally irregular and larger across Hunstpill Moor, Mark Moor, and across farmland south and north of Rooks Bridge.
- 8.25 Other features in the landscape include the Huntspill River running in a northwest direction across the southern part of Section B, and the River Brue running northwest across the landscape north of Huntspill Moor and East Huntspill. The Old River Axe and Mark Yeo generally meander across farmland in the northern part of Section B.
- 8.26 Settlement in Section B includes the northern part of Woolavington and Puriton; East Huntspill; Mark; residential properties on Southwick Road and Northwick Road; residential properties at and near Vole; Rooks Bridge; Tarnock; Biddisham; and Edingworth, as well as individual farms and groups of residential properties throughout Section B. Development in Section B perceptible in the landscape includes the Royal Ordnance Factory on Woolavington Level in the south, a factory at East Huntspill and the M5 motorway.

Landscape Sensitivity

- 8.27 There are no National level landscape designations within Section B, although this Section abuts the southern boundary of the Mendip Hills AONB to the north. Section B comprises the Somerset Levels and Moors which are valued locally and are of regional importance.
- 8.28 The predominantly agricultural landscape of the Somerset Levels and Moors in Section B is managed and is generally in good condition, although hedgerows are fragmented and gappy in places, for example to the east of Brent Knoll.

- 8.29 The Somerset Levels and Moors are a large scale flat landscape with a lower susceptibility to change to a new 400kV overhead line compared to Puriton Ridge in the south and the Mendip Hills in the north.
- 8.30 The existing 400kV ZG Route overhead line within the southern part of Section B and the 132kV Bridgwater to Avonmouth Route and Bridgwater to Weston-super-Mare 33kV (built on steel lattice pylons) overhead lines running north south through this landscape reduces the sensitivity (susceptibility to change) of this landscape to a new 400kV overhead line.
- 8.31 The landscape sensitivity of Section B in relation to a new 400kV overhead line is moderate.

Assessment of Effects

Effects of a new overhead line

- 8.32 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used.
- 8.33 A new 400kV overhead line within Section B would have a direct negative effect on the Somerset Levels and Moors and indirect effects on the Mendip Hills AONB in the north, Puriton Ridge in the south, the Isle of Wedmore in the east and Brent Knoll in the west. This negative effect would result from the increase in the size and scale of the 400kV pylons compared to the existing 132kV pylons, and the introduction of a linear development (comprising conductors suspended from arms on supports at regular distances) into a different part of the Somerset Levels and Moors where it deviates from the route of the existing 132kV overhead line.
- 8.34 The higher ground, including Puriton Ridge, Isle of Wedmore, Brent Knoll, and the Mendip Hills would provide backgrounding to a new 400kV overhead line crossing the flat Levels and Moors. A new 400kV overhead line is considered to protrude above the backdrop of these hills in places, particularly where the hills are lower or more distant. These hills would provide greater backgrounding to the smaller existing 132kV pylons compared to a new 400kV overhead line. The extent and benefit of backgrounding of a new 400kV overhead line, and the considered effects of the line may differ if different support types are used.
- 8.35 A new 400kV overhead line would have a negative effect on trees and hedges along rivers, ditches or „rhynes“, field boundaries and roads within Section B where

these would be lost to allow construction access and because of removal or lopping to achieve the electricity safety clearances required. Trees and hedgerows are components of the landscape character of Section B.

Comparison between the steel lattice pylon and the T-pylon

- 8.36 This part of the appraisal considers effects that would arise from a new 400kV overhead line using steel lattice pylons compared to a new 400kV overhead line using the T-pylon.
- 8.37 In Section B both the steel lattice and T-pylon overhead line routes generally follow the same route except for some minor variations at changes in direction and pylon locations at Southwick Road, Yardwall Road and between Northwick Road and Vole Road. Whilst the same number of pylons would be required, tension pylons, rather than suspension pylons, would be required to negotiate more gradual changes in direction. However, proposed T-pylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.
- 8.38 A new 400kV overhead line using the T-pylon is proposed on the same route as the proposed steel lattice pylon overhead line between Woolavington Road and the existing 400kV ZG Route overhead line in Section B.
- 8.39 North of the existing 400kV overhead line a new T-pylon overhead line would require two angle pylons compared to one on the steel lattice pylon route at Southwick Road and Butt Lake Road south of Mark Causeway, and where it runs between Northwick Road and Vole Road. The T-pylon line would run along the same Proposed Route as the steel lattice pylons from a point south-east of Vole north towards the CSE compound site proposed near a bridge (and planted embankment) over the M5 motorway. A double diamond T-pylon would be required to provide the connection between the new overhead line using the T-pylon and the proposed CSE compound adjacent the bridge over the M5 motorway.
- 8.40 The existing overhead lines operating at 400kV, 132kV and 33kV in Section B are suspended from steel lattice steel pylons. The presence of existing overhead lines with steel lattice pylons reduces the sensitivity (susceptibility to change and scale of

- change) of the landscape in Section B to a new overhead line using steel lattice pylons, compared to if there was no existing infrastructure.
- 8.41 A new 400kV overhead line in Section B supported by T-pylons would introduce a new and different pylon structure close to the existing 400kV ZG Route overhead line, which would result in a greater change than introducing a series of similar structures and may produce an incoherent appearance. However, a new overhead line using T-pylons in Section B would not be totally uncharacteristic compared to existing overhead lines using steel lattice pylons. The existing overhead line and the T-pylon would share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.
- 8.42 The steel lattice pylons would give rise to less effect on landscape character where the new line is backgrounded by surrounding higher ground including Puriton Ridge, Isle of Wedmore, Brent Knoll and the Mendip Hills. This is because the solid central column and cross beam of the T-pylon is more prominent compared to the lattice pylons thin steel members in an open structure that make background features visible beyond. However due to its reduced height visibility of a new 400kV overhead line using the T-pylon would reduce quicker with distance compared to the steel lattice pylon.
- 8.43 The T-pylon would give rise to less effect on landscape character where the new line would run across the Somerset Levels and Moors because its lower height means a lesser extent would be visible above tree and hedge screening combined with the effect of distance.
- 8.44 A new 400kV overhead line using steel lattice pylons on the Proposed Route in Section B would have a moderate negative magnitude of effect (scale of change) on the Levels and Moors landscape. This scale of change would be greater (although remaining moderate negative) where it takes an alternative alignment to the 132kV Bridgwater to Avonmouth Route overhead line and where it crosses Mark Causeway on a different alignment to that of the existing 132kV Bridgwater to Avonmouth Route overhead line.
- 8.45 The T-pylon is considered to be appear more prominent in the local landscape compared to the steel lattice pylons due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of insulators and conductors and because

the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon.

- 8.46 The T-pylon would be less visible in the wider Levels and Moors landscape due to filtering and screening by intervening hedgerow and trees. Due to its lower height the visibility of the T-pylon would be less at distance and would be less likely to protrude above surrounding higher ground. Overall a new 400kV overhead line using the T-pylon would have similar negative effects (scales of change) on the Somerset Levels and Moors landscape compared to the steel lattice pylons.
- 8.47 From elevated landform such as the Mendip Hills, a new overhead line using the T-pylon would tend to appear more prominent (in particular the double diamond T-pylon adjacent the proposed CSE compound south of the Mendip Hills) on the Somerset Levels and Moors compared to the steel lattice pylon, due to the T-pylon having a solid central column and cross beam, (the double diamond T-pylon having two separate solid columns of considerable width), and the steel lattice pylon benefitting more from backgrounding. However it is considered that the T-pylon would tend to be visible for a shorter distance than the steel lattice pylon due to its lower height combined with screening by intervening hedgerow and trees.
- 8.48 A new 400kV overhead line using steel lattice pylons on the Proposed Route in the northern part of Section B would have a moderate negative magnitude of effect (scale of change) on the setting of the Mendip Hills AONB reducing with distance to minor negative and neutral within the southern part of Section B. A new T-pylon overhead line on the Proposed Route in Section B would result in a similar negative effect on the setting of the Mendip Hills AONB also reducing with distance.

Potential for Mitigation

- 8.49 It is not possible to avoid direct negative effects on the landscape of the Somerset Levels and Moors or indirect negative effects on Puriton Ridge, the Isle of Wedmore, Brent Knoll and the Mendip Hills with a new steel lattice pylon or T-pylon overhead line.
- 8.50 Pylons have been sited to maximise backgrounding by higher ground and avoid or minimise sharp changes in direction to assist in reducing potential negative effects. The Proposed Route for the new 400kV overhead line using steel lattice pylons or the T-pylon does however include changes in direction to avoid proximity to properties and other environmental constraints. Additional mitigation by reinstating

gaps in hedges and replanting old hedges on the Levels and Moors with new hedgerow tree planting in the vicinity of a new overhead line, depending on land owners' consent being granted, would be in keeping with the existing landscape character and could also assist in reducing potential effects.

Summary

- 8.51 In Section B both the steel lattice pylon and T-ylon overhead line routes generally follow the same Proposed Route except for some minor variations at changes in direction and pylon locations at Southwick Road, Yardwall Road and between Northwick Road and Vole Road. Whilst the same number of pylons would be required, a greater number of tension pylons would be needed for the T-ylon to negotiate more gradual changes in direction on the Proposed Route compared to the number of tension pylons (changes in direction) required on the proposed steel lattice pylon overhead line.
- 8.52 The steel lattice overhead line would have a moderate negative residual effect on the setting of the Mendip Hills AONB reducing with distance to negligible within the southern part of Section B. The T-ylon overhead line would result in a similar negative residual effect on setting of the Mendip Hills; however the prominence of the T-ylon would reduce quicker with distance compared to the steel lattice pylon.
- 8.53 The steel lattice pylon overhead line would generally have a moderate negative residual effect on the Somerset Levels and Moors landscape which is valued locally and has regional importance, is in good condition and has a moderate sensitivity to the new 400kV overhead line. The overhead line would have a greater residual effect (although remaining moderate negative) on the local landscape in Section B where the Proposed Route takes an alternative alignment to the 132kV Bridgwater to Avonmouth Route overhead line and where it crosses Mark Causeway on a different alignment to that of the existing 132kV Bridgwater to Avonmouth Route overhead line.
- 8.54 Overall a new 400kV overhead line using the T-ylon would have similar negative residual effects on the Somerset Levels and Moors in Section B to the steel lattice pylons. However the T-ylon would be less visible in the wider Levels and Moors landscape due to filtering and screening by intervening hedgerow and trees, and the lower height reducing its visibility at distances and making it less likely to protrude above surrounding higher ground.

- 8.55 With regard to effects on the landscape, the steel lattice pylon on the Proposed Route in the southern part of Section B up to the point of connection with the ZG Route is preferred. Using standard steel lattice pylons, would avoid a concentration of different pylon types between Puriton Ridge (where the steel lattice pylon is preferred from a landscape and visual amenity perspective), and the existing ZG Route. Using T-pylons would result in a greater change than introducing a series of similar structures. The T-pylon is preferred north of the 400kV ZG Route overhead line up to the CSE compound proposed in the north of Section B because its lower height means a lesser extent would be visible above tree and hedge screening combined with the effect of distance across the Somerset Levels and Moors.

Visual Amenity

Baseline Conditions

- 8.56 Section B comprises the expansive flat landscape of the Somerset Levels and Moors between the Mendip Hills to the north and the Polden Hills to the south. There are open views across the Levels with varying degrees of filtering by ditch and hedgerow vegetation. The Polden Hills provide backgrounding in views south and the Mendip Hills provide backgrounding in views north. Within the flat Levels and Moors landscape the „islands“ of Brent Knoll, the Isle of Wedmore and Pawlett Hill are characteristic features in views. In places Glastonbury Tor is visible in the distance approximately 19 kilometres to the southeast.
- 8.57 The existing 132kV Bridgwater to Avonmouth Route overhead line runs in a north-south direction for approximately 15km through Section B between Puriton Ridge and the Mendip Hills. Intervening field trees, hedgerows and vegetation obscure or filter views to the lower elevations of the pylons, however the tops are often visible above trees. To the west the smaller field patterns with greater tree and hedgerow cover means views are more filtered and obscured. In contrast the larger field patterns and lesser tree cover to the east allow more expansive open views.
- 8.58 In the south of Section B the existing 400kV ZG Route overhead line runs in an east-west direction crossing the 132kV Bridgwater to Avonmouth Route overhead line approximately 1.5km from the foot of Puriton Ridge. This overhead line is more visible in views in the southern half of Section B. The existing Bridgwater to Western-super-Mare 33kV overhead line (built on steel lattice pylons) is visible to receptors in the west between Puriton and Brent Knoll. The existing overhead lines are generally visible above trees and hedges.
- 8.59 The main public views of existing overhead lines are experienced by visual receptors using public footpaths, cycle routes, recreation facilities and caravan parks in the area.
- 8.60 There are several PRoW running along droves through the Levels and Moors some of which pass directly beneath the existing 132kV Bridgwater to Avonmouth Route overhead line. National Cycle Route 33 the Stop Line Way runs along the minor road network between Burnham-on-Sea and Cossington, passing under the existing 132kV overhead line on Burtle Road near East Huntspill. In this location particularly long views along the line are available to the north. The cycle route also passes

- under the existing 400kV ZG Route overhead line to the south of the Huntspill River and under the existing 33kV overhead line (built on steel lattice pylons) to the west of East Huntspill.
- 8.61 There are outdoor recreation facilities and caravan parks at Middlemoor Water Park, Merry Farm Caravan Park, Cripp's Farm Caravan Park Holiday Cottages and Fishing Lake, and Coombes Cider Mill Caravan Park. There are views of the existing 132kV overhead line from these facilities, although intervening boundary hedgerows and trees reduce visibility in places. The existing 132kV overhead line crosses directly over Coombes Cider Farm Caravan Park on Mark Causeway to the west of the settlement of Mark. The existing 400kV ZG Route overhead line is also visible close to Middlemoor Water Park and in distant views from Cripp's Farm.
- 8.62 There are views from individual properties in Section B, particularly where they are along the minor road network beneath the existing 132kV overhead line. These roads include the B3139 Causeway, Burtle Road, Merry Lane, Southwick Road, Yardwall Road, Harp Road, Northwick Road and Vole Road. The existing 132kV Bridgwater to Avonmouth Route overhead line is often visible with long views along or towards the line however views are frequently obscured in places by intervening trees and hedgerows.
- 8.63 The main settlements in Section B from where there are views are Woolavington and Puriton to the south (on the boundary of Sections A and B); East Huntspill, Watchfield and Rooks Bridge to the west; Loxton and Webbington to the north (in Section C); and Biddisham and Mark to the east. The settlements of Rooks Bridge and Mark also include linear settlement along the B3139 and the A38 respectively.
- 8.64 Woolavington is on the northern slopes of the Polden Hills allowing views north across the Levels and Moors the existing 132kV Bridgwater to Avonmouth Route and 400kV ZG Route overhead lines.
- 8.65 Properties in the settlements of East Huntspill, Watchfield and Rooks Bridge to the west have a mix of open and filtered views of the existing 132kV Bridgwater to Avonmouth Route overhead line. In Watchfield views include the existing 33kV overhead line in the foreground.
- 8.66 Properties within the elevated linear settlement of Webbington, on the edge of Crook Peak in the Mendip Hills (within Section C), have long distance views south, with long sections of the existing 132kV Bridgwater to Avonmouth Route overhead

line visible as it crosses the Levels and Moors. There are also filtered and open views from some properties in Loxton.

- 8.67 The existing 132kV Bridgwater to Avonmouth Route overhead line crosses the linear settlement of Mark Causeway and Rooks Bridge. Some receptors have long views north and south along the existing overhead line although there is filtering of some views by roadside trees, hedges and garden vegetation.
- 8.68 Receptors on the hills of Brent Knoll and the Isle of Wedmore experience long distance panoramic views down towards and along the existing 132kV overhead line. Similar long distance panoramic views north are experienced by receptors on the Polden Hills (in Section A) and south from receptors in the Mendip Hills (in Section C). These receptors have particularly long distance views along the existing 132kV overhead line as it crosses the Levels and Moors however the overhead line forms a small part of these expansive views.
- 8.69 Views within Section B are locally important with the combination of the flat Levels landscape and views to Puriton Ridge locally distinctive but not of greater distinction or value, with views towards the Mendip Hills of greater than local value and importance due to its designation as an AONB.

Assessment of Effects

Effects of a new overhead line

- 8.70 The proposed 400kV overhead line north of the existing 400kV ZG Route overhead line on steel lattice pylons, changes direction four times to avoid properties, (including where the route crosses Mark Causeway in a different location to the existing 132kV Bridgwater to Avonmouth Route overhead line). A fifth change in direction is proposed north of Northwick Road, and there is a sixth change in direction to the south-east of Vole. North of Rooks Bridge, the Proposed Route changes direction (for the seventh time) and runs on a direct route towards the proposed CSE compound site near a bridge (and planted embankment) over the M5 motorway.
- 8.71 A new 400kV overhead line in Section B would have a negative effect on public and private visual receptors. The greatest effects on views would be experienced by sensitive visual receptors close to the new overhead line, with some directly adjacent, and would include users of cycle routes, PRoW, outdoor recreation and tourist facilities and residential properties. The effects on views would be reduced

with distance and also by intervening trees and hedges. Other overhead lines on steel lattice pylons also feature in views beyond the immediate locality of the Proposed Route. For the majority of visual receptors the existing 132kV Bridgwater to Avonmouth Route overhead line is already present in views above trees. In general views the existing 132kV overhead line would be replaced with a 400kV overhead line, which would be more visible above trees and hedgerows due to the increased height of the pylons.

- 8.72 Long distance views that extend beyond a few kilometres from the elevated landforms of Brent Knoll, the Isle of Wedmore, Polden Hills to the south, and the Mendip Hills to the north would experience negative effects where a 400kV overhead line would be more visible above trees than the existing 132kV Bridgwater to Avonmouth Route overhead line for a greater distance across Section B due to its greater height.
- 8.73 At the northern extent of Section B the CSE compound and new 400kV overhead line would introduce localised negative visual effects for public and private receptors to the south of the Mendip Hills and within Webbington, Biddisham and Rooks Bridge where the flat generally open Levels landscape allows expansive open views with limited screening.
- 8.74 A new 400kV overhead line on the Proposed Route in Section B would have the greatest negative magnitude of effect on public views from four PRoW where the Proposed Route deviates from that of the existing 132kV Bridgwater to Avonmouth Route bringing a new 400kV overhead line closer in views. This would occur at Middlemoor Drove (in the vicinity of the existing 400kV ZG Route overhead line close to the Huntspill River) where the new overhead line route crosses over the footpath at the western end where the existing 132kV Bridgwater to Avonmouth Route overhead line is further west. It would occur to the south of Mark between Southwick Road and Yardwall Road where the new overhead line would cross over a public right of way close to the footpath. The new overhead line would be in near distance views and adjacent to the right of way for 200m before deviating 200m to the east where the existing 132kV overhead line is presently in middle distance views between 300m and 1km away to the west and visible above trees. The new overhead line would cross over Butt Lake Road 100m from the western end of the public right of way to the south of Mark along Green Drove. Receptors would have near distance views north as the line would cross Mark Causeway and some views south west along the new line; the existing 132kV Bridgwater to Avonmouth Route

is in middle distant views 500m further west and is just visible above trees and houses. North of Mark Causeway on Back Lane Track the new overhead line would pass over the footpath whereas the existing 132kV Bridgwater to Avonmouth Route passes over Harp Road at the western end of the route. Footpath users would have a 400kV overhead line introduced in foreground near distance views, where the existing overhead lines are presently between 100m and 1km further away with views partially screened.

- 8.75 The greatest negative magnitude of effect (scale of change) on private views would be from nineteen properties where the new overhead line is on a different route to the existing 132kV Bridgwater to Avonmouth Route overhead line. These include seven properties on Mark Causeway near Court Farm and six properties on Yardwall Road. To the south of Mark Southwick Farm, Laurel Dene Cottages, Knowle View Farm and a farm adjacent on Southwick Road in Southwick would have views of the new line. To the north of Mark, in Northwick, two adjacent properties named Sunnydene and Victory House on Northwick Road would also have views. The new 400kV overhead line would be near properties and receptors would experience direct open near distance views; the existing 132kV Bridgwater to Avonmouth Route overhead line is presently further to the west in middle distance views and visible above trees.
- 8.76 A new overhead line would also have a negative effect on views from two properties and caravan parks at Merry Farm Caravan Park and Cripp's Farm Caravan Park and Fishing Lakes on Merry Lane east of East Huntspill. Here a 400kV overhead line would be introduced near to receptors in near distance views within 150m, visible above and through boundary trees and vegetation and with limited backgrounding; the existing 132kV overhead line is 600m to the west in middle distance views.
- 8.77 Approximately twenty one properties and one business which have views along the existing 132kV overhead line are near to the Proposed Route and would have near distance and middle distance views within 300m along the new overhead line, partially screened by field trees, hedges and garden vegetation. These include receptors in five properties on Burtle Road at Cote Corner, five properties in Vole on Vole Road and Sunnyside on Gills Lane south of Rooks Bridge. In Rooks Bridge five properties on Chapel Road and five properties and one business on the A38 Bristol Road would have near distance views within 250m along a new overhead line with the new CSE compound adjacent to the M5 motorway also visible. Due to

the proximity of these views and the extent of overhead line visible these receptors would experience a negative magnitude of effect (scale of change) on views.

- 8.78 A number of settlements have views towards the Proposed Route. A new 400kV overhead line would be visible in views east from over fifty properties in East Huntspill and around eighteen properties in Watchfield. The new overhead line would be 500m further to the east than the existing 132kV Bridgwater to Avonmouth Route overhead line and would be visible above trees in distant views, 1.2km away from receptors in East Huntspill and 1.6km away from Watchfield. Intervening garden and field trees would provide some filtering of views from properties in Watchfield which have the existing Bridgwater to Weston-super-Mare 33kV overhead line (built on steel lattice pylons) in near distance views 200m away and above trees. Receptors in properties would experience a moderate negative magnitude of effect (scale of change) in views with the change from an existing 132kV to a new 400kV overhead line.
- 8.79 The settlement of Woolavington on the lower northern slopes of Puriton Ridge is on the boundary of Sections A and B. Over sixty properties have long distance views north across the Levels with the existing 132kV Bridgwater to Avonmouth Route and 400kV ZG Route overhead lines on steel lattice pylons visible. Receptors have views along the existing 132kV overhead line for a long distance as it runs down the ridge and across the Levels including seven properties on Woolavington Road, over twenty properties on the northern edge on Lower Road, Crockers Hill and Higher Road, over thirty properties on the western edge of Crancombe Lane and properties within Woolavington where the landform rises allowing views north and west over rooftops. Receptors in properties would experience a moderate negative magnitude of effect (scale of change) in views with the change from an existing 132kV to a new 400kV overhead line.
- 8.80 Around sixty receptors in a number of settlements and groups of properties have open and filtered views across the flat Levels landscape towards the existing 132kV Bridgwater to Avonmouth Route overhead line visible above field trees and hedges. These receptors would have a new 400kV overhead line visible above field trees and hedges in middle distance views between 600m to 800m away and include five properties in Vole, thirteen properties on Kingsway between Mark and Rooks Bridge, seven properties on Rooksbridge Road north of Rooks Bridge near the M5 motorway, and thirty five properties in the linear settlement of Biddisham. Seven properties on Gills Lane and Old Mead's Lane in Rooks Bridge would have similar

views, however a new 400kV overhead line would be closer in views. Three properties in Biddisham with middle distance views (600m) and two properties on Rooksbridge Road near the M5 motorway with distant views (1.5km) would also have a new CSE compound within views and visible above trees and hedges adjacent to the M5 motorway. Receptors would experience a negative magnitude of effect (scale of change) due to the length of new overhead line visible and the CSE compound within some views.

8.81 The settlement of Webbington on the lower slopes to the south of Crook Peak in the Mendip Hills is on the boundary of Sections B and C. Around twenty two properties on Webbington Road and Kennel Lane have long distance views south across the Levels from elevated ground with views along the existing 132kV overhead line visible above trees. Receptors would have views along a new 400kV overhead line, visible above trees, with a greater length visible due to increased height. The closest section of the existing 132kV line would be removed with the 400kV connection being placed underground with views including a new CSE compound, visible above trees and hedges adjacent to the M5 motorway. Receptors would experience a negative magnitude of effect (scale of change) in views. Around five properties in the elevated settlement of Loxton on the west side of the M5 motorway in the Mendip Hills in Section C would experience similar views but most properties have views largely screened or heavily filtered by built form and trees.

8.82 The existing 132kV overhead line would be removed from its present position in foreground near distance views from PRoW , properties and a caravan park. A positive magnitude of effect (scale of change) on views would be experienced from these receptors which would have a 132kV overhead line removed from close proximity near distance views and replaced with a 400kV overhead line further away in middle distance views. The new line may not be visible in some views due to vegetation and built form. These receptors include:

- Homestead Farm bungalow to the south of the Huntspill River at Quaking Bridge which the 132kV overhead line oversails and a new overhead line would be 100m away to the west;
- a public right of way that the 132kV line crosses over and around seven properties on Burtle Road at Court Farm and Cote Farm in Cote where the existing overhead line is between 50m and 200m away and a new overhead line would be 500m to the east beyond trees and hedges;

- Moor Row farm on Merry Lane near East Huntspill where the existing 132kV overhead line is 50m away and a new overhead line would be 600m away and largely screened;
 - three properties in Southwick on Southwick Road where the existing 132kV line is 50m to 200m away with views along the line and a new overhead line would be 400m further east in oblique views above trees;
 - Coombes Cider Mill Caravan Park which the existing 132kV overhead line oversails on Mark Causeway and around ten properties close to the existing 132kV overhead line on Mark Causeway and Harp Road which would have a 400kV overhead line 400m away to the east, which may not be visible in some views due to vegetation and built form; and
 - three properties near Vole House on Vole Road north of Mark where the existing 132kV line is 50m to 150m away and a new overhead line would be 200m further east.
- 8.83 A 400kV overhead line in Section B would generally have a moderate negative adverse effect on views in the long term. The 400kV overhead line would be introduced into views of some sensitive receptors where no overhead line is presently visible or where overhead lines are presently visible further away in views.

Comparison between the steel lattice pylon and the T-pylon

- 8.84 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon compared to a new 400kV overhead line using the T-pylon.
- 8.85 In Section B both the steel lattice and T-pylon overhead line routes generally follow the same alignment except for some minor variations at changes in direction and pylon locations at Southwick Road, Yardwall Road and between Northwick Road and Vole Road. Here the T-pylon would require tension pylons, rather than suspension pylons, to negotiate more gradual changes in direction compared to the steel lattice pylon route. T-pylon tension pylons do not differ significantly in appearance from T-pylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base (the extent of which depends on the angle of deviation) and constructed from thicker gauge steel.

- 8.86 The Proposed Route using the T-pylon is the same route as that for the steel lattice pylon overhead line option between Woolavington Road and the existing 400kV ZG Route steel lattice pylon overhead line .
- 8.87 North of the existing 400kV ZG Route overhead line a new T-pylon overhead line would require two angle pylons compared to one on the steel lattice pylon route where it runs over Southwick Road and Butt Lake Road south of Mark Causeway, and where it runs between Northwick Road and Vole Road. The T-pylon line would run along the same Proposed Route as that of the steel lattice pylons from a point south-east of Vole north towards the CSE compound site proposed near a bridge (and planted embankment) over the M5 motorway. A double diamond T-pylon would be required to provide the connection between the new overhead line using the T-pylon and the proposed CSE compound adjacent to the bridge over the M5 motorway.
- 8.88 For the majority of visual receptors across the flat Levels landscape the existing 132kV overhead line is already present in views above trees and hedges. A new 400kV overhead line in Section B would replace views of the existing 132kV overhead line and would be visible in most views above trees and hedges. Visibility of the T-pylon would be less and for a shorter extent compared to the steel lattice pylon, due to their lower heights (12m lower than the steel lattice pylon but between 8m and 10m higher than the existing 132kV pylons) combined with screening by intervening trees and hedges. Where views are towards the side elevation of a new overhead line the effects of a T-pylon would be reduced further due to it being less dominant than the steel lattice pylon as the width is 5m narrower. Where there is screening by trees and built form the T-pylon would be more readily screened entirely than the taller steel lattice pylon where the same amount of cover would only partially screen the steel lattice pylon.
- 8.89 In views to a new overhead line, where pylons are visible in near distance within 250m of receptors, the T-pylon is considered to be more prominent in views than the steel lattice pylon. This is due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of insulators and conductors and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylons.
- 8.90 In long distance views looking down from the elevated landforms of Brent Knoll, the Isle of Wedmore, Polden Hills to the south (in Section A), and the Mendip Hills to

the north (in Section C) views extend to the horizon and views of pylons diminish over a few kilometres. A new overhead line using a T-pylon would tend to appear more prominent than a steel lattice pylon in the near distance due to it having a solid central column and cross beam as compared to steel lattice design that would benefit more from backgrounding. However, further away and across a great extent of the view the T-pylon would tend to be less visible than the steel lattice pylon due to its lower height and the effect of intervening hedge and tree screening, meaning a shorter length of overhead line would be visible. However views from the Polden Hills to the south in Section A would include the existing 400kV ZG Route on steel lattice pylons meaning a new overhead line using steel lattice pylons would have a reduced change on these receptor views.

- 8.91 The four PRoW that pass under the new overhead line at Middlemoor Drove, and between Southwick Road and Yardwall Road, along Green Drove and on Back Lane Track off Harp Road near Mark would have several pylons in views along the line with the T-pylon considered to be more prominent than the steel lattice pylon where the PRoW pass under and would be in near distance views. This is due to the solid central column and cross beam, the prominent „diamond“ configuration of insulators and conductors and because the conductors are closer together and form a larger element in the view. However the T-pylon would tend to be visible for a shorter distance than the steel lattice pylon due to it being lower in height and the effects of screening by intervening hedges and trees in the distance.
- 8.92 Private receptor views from nineteen properties would experience the greatest negative magnitude of effect (scale of change) from a new overhead line introduced in near distance views within 200m where several pylons are visible in open views. These include a property near the Huntspill River and Merry Farm and properties in Southwick, Mark, Vole and Rooks Bridge. The steel lattice pylon is considered to be less prominent than the T-pylon in these views. This is due to proximity of views along the line and limited screening and backgrounding where the steel lattice design would be less visible against the sky than the solid central column and cross beam of the T-pylon. However the T-pylon is considered to be visible for a shorter distance than the steel lattice pylon due to it being 12m lower combined with screening by intervening trees and hedges.
- 8.93 Approximately one hundred and fifty private receptors from individual properties and settlements within 1.5km of the new overhead line would have middle distance and distant views of the overhead line across the flat Levels landscape with pylons

visible above trees. Within this large scale flat landscape the T-pylon would tend to be visible for a shorter distance than the steel lattice pylon due to it being 12m lower combined with screening by intervening trees and hedges and the effect of distance, compared to the steel lattice pylon that would have a greater extent of support visible above trees.

- 8.94 From the settlements of Woolavington on the lower slopes to the north of Puriton Ridge (on the boundary of Sections A and B) and Webbington on the lower slopes to the south of Crook Peak in the Mendip Hills (on the boundary of Sections B and C) a lower adverse effect would be experienced from receptors in over eighty properties from the T-pylon compared to the steel lattice pylon. Receptors have long distance views over 10km and the T-pylon would tend to be less visible in the distance than the steel lattice pylon due to their lower height and the effect of intervening hedge and tree screening, meaning a shorter extent of overhead line would be visible. However views from Woolavington in Section A include the existing 400kV ZG Route on steel lattice pylons that would result in a new overhead line on steel lattice pylons having a reduced scale of change on these receptor views when compared to the T-pylon that is a new structure although not totally uncharacteristic compared to existing overhead lines.

Potential for Mitigation

- 8.95 It would be possible to minimise negative effects on views through careful planning of access to avoid the need for road upgrades or improvements to the local lane network, by utilising existing gaps in hedgerows and by reinstating roads to their original condition once construction is complete. Some short term negative visual effects would be unavoidable until re-establishment. It is considered that no material change to access requirements would be needed for the steel lattice pylon or T-pylon design.
- 8.96 Mitigation by way of additional hedgerow and tree belt planting in the vicinity of a new overhead line, subject to landowner agreement, would be in keeping with the existing landscape character and could assist in reducing potential effects on views. Over the long term, for example after 15 years and beyond, adverse effects on views arising from use of the T-pylon would be reduced more than those from using a steel lattice design because maturing trees would be more effective in screening due to the T-pylon's lower height.

Summary

- 8.97 In Section B both the steel lattice pylon and T-ylon overhead line routes generally follow the same alignment except for some minor variations at changes in direction and pylon locations at Southwick Road, Yardwall Road and between Northwick Road and Vole Road. In these locations the T-ylon overhead line would require additional tension pylons to negotiate more gradual changes in direction compared to the steel lattice pylon route. However, proposed T-ylon tension pylons do not differ significantly in appearance from T-ylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base (the extent of which depends on the angle of deviation) and constructed from thicker gauge steel.
- 8.98 For both pylon options there would largely be moderate negative effects on views as the existing 132kV overhead line is already present in views above trees and would be replaced with a new 400kV overhead line, which would be more visible above trees and hedgerows due to the increased height of the pylons. In some views the presence of existing overhead lines on steel lattice pylons and filtering by vegetation in the foreground also affect the view. It is considered that the T-ylon would tend to be less visible and for a shorter distance than the steel lattice pylon due to the T-ylon being 12m lower meaning less of the pylon support would be visible above tree and hedge screening.
- 8.99 The greatest negative effect would be experienced by a small number of sensitive receptors where a new 400kV overhead line would be introduced into near distance views towards the line and along the line in places. These receptors include four PRoW that the new overhead line passes over or within 100m of and nineteen properties where the new overhead line would be within 200m. In these receptor views the T-ylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open lattice steel design, which benefits more from backgrounding. In addition the „diamond“ configuration of the T-ylon conductors means they would tend to be more prominent and visible over a greater distance than is the case for the steel lattice pylon conductors where there is limited screening by trees, hedges and built form. However the T-ylon is considered to be visible for a shorter distance than the steel lattice pylon due to it being 12m lower combined with screening by intervening trees.

- 8.100 For approximately one hundred and fifty receptors in properties and settlements within 1.5km with middle distance and distant views of the new overhead line the T-pylon is considered to be visible over a shorter distance than the steel lattice pylon. This is due to the large scale flat Levels landscape and the T-pylon being 12m lower than the steel lattice pylon combined with screening by intervening trees and hedges, compared to the steel lattice pylon that would have a greater extent visible above trees.
- 8.101 Long distance views along the new overhead line are available for approximately 10km from over eighty receptors in the elevated settlements of Woolavington on Puriton Ridge and Webbington on Crook Peak. In these receptor views looking down towards the new overhead line the T-pylon would tend to be less visible in the distance than the steel lattice pylon due to their lower height and the effect of intervening hedge and tree screening, meaning a shorter length of overhead line would be visible with the T-pylon. However from Woolavington on Puriton Ridge (on the boundary of Section A and B) the existing 400kV ZG Route overhead line on steel lattice pylons would be visible meaning a new overhead line using steel lattice pylons would have a reduced scale of change compared to a T-pylon, but with a greater extent of pylon visible above trees due to the greater height.
- 8.102 In the southern part of Section B (up to the ZG Route) steel lattice pylons are preferred from a visual amenity perspective as views from Woolavington in Section A include the existing 400kV ZG Route that is also on steel lattice pylons. Therefore, a new overhead line on steel lattice pylons would have a reduced scale of change on these receptor views when compared to the T-pylon.
- 8.103 The T-pylon on the Proposed Route is preferred in Section B between the 400kV ZG route and the CSE compound south of the Mendip Hills AONB as the existing 132kV overhead line is already present in most views above trees and would be replaced with a new 400kV overhead line. The T-pylon would tend to be less visible and for a shorter distance than the steel lattice pylon because it is 12m lower meaning a lesser extent would be visible above tree and hedge screening combined with the effect of distance. This would be evident in over two hundred and thirty receptor views with middle distance views between 250m and 1km and distant views beyond 1km compared to approximately twenty three receptors with near distance views within 200m of the new overhead line where the T-pylon would be more prominent than the steel lattice pylon due to the solid central column and cross beam and the conductor configuration.

Historic Environment

Baseline Conditions

- 8.104 There are no Listed Buildings within 100m of the Proposed Route.
- 8.105 There are no Grade II* Listed Buildings/structures within 500m of the Proposed Route but two within 10km have a setting that would include it. These are the Church of St. John the Baptist and its churchyard cross (two designations) in Biddisham, which are 750m east of the Proposed Route. Their settings include views west across post-medieval agricultural land, and incorporates the existing 132kV overhead line approximately 700m away. These receptors are of very high sensitivity.
- 8.106 There are six Grade II Listed Buildings within 500m of the Proposed Route. Two of these (Wainbridge Farmhouse and Orchard Cottage) are on The Causeway, Mark Wainbridge Farmhouse is approximately 200m from the Proposed Route, and Orchard Cottage is approximately 360m away; their setting comprises ribbon development of dwellings along the historic routeway, and the surrounding fields, with some deciduous trees and hedges, and the existing 132kV overhead line. Both receptors are partly screened by vegetation, and Orchard Cottage is within 100m of the existing 132kV Bridgwater to Avonmouth Route overhead line. In Vole, Vole House is approximately 200m from the Proposed Route, in a setting that comprises ancillary farm buildings and gardens, with mature trees and hedges partly screening the existing 132kV overhead line, which passes approximately 30m east. In Southwick, Southwick House is approximately 300m from the Proposed Route; its setting includes the lane on which the farm is located, with adjacent farms and fields, as well as the existing 132kV overhead line, approximately 100m to the west. In Tarnock, Beaconsfield House is approximately 315m from the Proposed Route, between two tree-lined roads with several later buildings between it and the 132kV existing overhead line, approximately 300m away. Also in Tarnock, a milepost on Bristol Road, approximately 200m from the Proposed Route, stands in a setting dominated by the road with housing on either side and lines of mature trees. As a result the existing 132kV overhead line is obscured during summer despite being approximately 150m away. These receptors are all of high sensitivity.

- 8.107 A further 13 Grade II Listed Buildings within 10km of the Proposed Route have settings that would include it. Of these, four are on The Causeway in Mark, with similar settings to that described above: „Wayside and Willow Dene“ is approximately 625m from the Proposed Route, the Methodist Chapel is approximately 720m away, Portland House is approximately 740m away, and Glenrosa is approximately 850m away. Two further Listed Buildings are on Bristol Road, Tarnock: Bachelors Hall is approximately 575m from the Proposed Route, and Yew Tree Farmhouse is approximately 775m away. Their settings are similar to those described above for this location; other buildings obscure the view west from Yew Tree Farmhouse. Approximately 750m from the Proposed Route at the Church of St. John the Baptist in Biddisham (see above), the church gates and other furniture are Grade II Listed, and nearby The Old School and Manor Farmhouse are both Grade II Listed. On Southwick Road, approximately 1.2km from the Proposed Route, Upper Southwick Farmhouse is set within a tree-lined farm complex and has partial views of the existing 132kV overhead line. In East Huntspill, approximately 1.2km from the Proposed Route, the Church of All Saints has partial views of the Proposed Route, obscured by hedges and a farm in the view foreground. In Mark, Laurel Farmhouse is approximately 450m from the existing 132kV Bridgwater to Avonmouth Route overhead line (proposed to be removed), and approximately 1km from the Proposed Route. A second Listed Building named Laurel Farmhouse on Vole Road (a farm building complex surrounded by open fields) is approximately 1.9km from the Proposed Route and within 25m of the Bridgwater to Weston-super-Mare 33kV overhead line supported on steel lattice pylons. These Listed Buildings are all receptors of high sensitivity.
- 8.108 Three Scheduled Monuments within 10km have settings whose visual envelopes encompass part of the Proposed Route. A Scheduled duck decoy is approximately 2km east of the Proposed Route, near Gold Corner Bridge. Brent Knoll Scheduled Monument is on high ground, approximately 3km from the Proposed Route, on the opposite side of the M5 motorway. Brent Knoll is an Iron Age hillfort; its defences consist of a bank, strengthened by scarping, a berm and a second scarp. There is an entrance on the east side. Medieval strip lynchets, field banks and gullies extend around the entire hill and plateau. The visual appearance, noise and movement of the motorway are important elements of the Monument's setting; the existing 132kV and 33kV overhead lines also form part of its setting. A third Scheduled Monument that may be affected by the proposals is a group of Roman briquetage (salt-making) mounds on Burtle Moor, approximately 3.5km from the Proposed Route. Three

mounds are within the curtilage of this Scheduled Monument, although other mounds in adjacent fields are of equivalent sensitivity and are considered as part of this receptor for the purposes of this appraisal. Their setting is broad, flat agricultural land adjacent to a river, which runs to the Proposed Route and is likely to be historically associated with the Roman activity. These three receptors are of very high sensitivity.

- 8.109 Two Conservation Areas are within 10km of the Proposed Route. Stone Allerton Conservation Area is approximately 2.5km east and Loxton Conservation Area (in Section C) is approximately 950m north of the overhead line element of the Proposed Route. The existing 132kV overhead line and the M5 motorway pass within 100m of Loxton Conservation Area receptor and are visible from several points including from Christon Road to the north, around St Andrew's Church, and from Sevier Road to the south. There is very limited intervisibility between the Proposed Route and this receptor; however, from Sevier Road at the southern boundary of the Conservation Area there are views south that encompass the Proposed Route. These two receptors are of moderate sensitivity.
- 8.110 The Proposed Route would not affect any Registered Parks and Gardens or Registered Battlefields, or their settings.
- 8.111 The buffer zone also contains 49 known non-designated heritage receptors. These are: 3 Roman salt-making sites, 1 Roman findspot (not in situ), 1 Saxon or „Celtic“ settlement, 1 DMV, 2 extensive areas of medieval field system, 1 medieval canal, 2 post-medieval shrunken settlements, 1 medieval/post-medieval findspot, 2 deserted farm sites, 1 stoning pound, 1 canal, 2 turnpike roads, 1 former farm site, 1 sheepwash, 1 post-medieval farm and 1 associated farmhouse, 1 ordnance factory, 1 Baptist church, 1 railway, 1 railway station, 1 creamery, 1 modern smithy, 3 pillboxes, 6 palaeochannels, 5 floodbanks, 1 linear earthwork, 2 undated enclosures, 3 undated cropmarks, and 1 alleged burial site. These receptors are of high - negligible sensitivity.
- 8.112 The historic landscape of a large part of the south of the Proposed Route is characterised as a modern industrial zone. There is a small zone of pre-C17th enclosed land in the northern third of the Proposed Route, near Brent. Otherwise, the entire Proposed Route in Section B is characterised as „anciently enclosed land modified in the C17–19th“. These historic landscape character zones are receptors of low or negligible sensitivity. Hedgerows associated with the former turnpike roads

through East Brent/Rooks Bridge and Mark, parish boundaries or archaeological sites described in the Somerset Historic Environment Record, may all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects

Effects equal for both Options

- 8.113 For both the steel lattice and T-pylon overhead line options, the potential effects on a number of historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 8.114 Both options would result in negative effects of negligible magnitude on the building group at Biddisham, which comprises two Grade II* and three Grade II buildings. The existing overhead line 700m away would be removed and the Proposed Route constructed 750m away. The magnitude of effect would be reduced by the distance of separation. The negligible magnitude negative effect would result from the greater height of the steel lattice option, or the increased mass of the T-pylon, compared with the existing infrastructure.
- 8.115 Both options would result in a low magnitude negative effect on one Grade II Listed Building as a result of changes to its setting. For Wainbridge Farmhouse, Mark, the existing 132kV overhead line, which is approximately 200m to the west and partly screened by vegetation and buildings, would be removed. The Proposed Route would pass approximately 200m to the east; the magnitude of effect would be reduced by partial vegetation screening. The steel lattice pylon option would present a larger element of the setting than the T-pylon option, but the latter option would be more visible due to its solid central column and cross beam, as opposed to the more open steel lattice design.
- 8.116 Both options would result in negligible magnitude negative effects on two Grade II Listed Buildings at Tarnock due to changes to their settings. For Yew Tree Farmhouse, the Proposed Route would replace the existing 132kV overhead line on a similar alignment, which is more than 600m away from the receptor and screened by other buildings. The magnitude of effect would be reduced due to the distance of separation, removal of the existing infrastructure, and the presence of intervening vegetation screening. The steel lattice pylon option would have a negative effect due to its larger size than the overhead line it would replace; the T-pylon would be

slightly larger and also more visible than the existing infrastructure. The same effects would take place for Bachelors Hall, which is approximately 575m away and partly screened from the existing overhead line.

- 8.117 Both options would have a negative effect on the Grade II Listed Vole House due to changes to its setting; however, the overall magnitude of effect would be neutral due to replacement of the existing 132kV overhead line (adjacent to the receptor) with new infrastructure which would be approximately 200m further away, and screened by intervening vegetation.
- 8.118 Both options would have negative effects on six Grade II Listed Buildings due to changes to their settings, but the distance of separation, the presence of intervening vegetation, and removal of the existing 132kV overhead line result in a neutral magnitude of effect on these receptors. For Wayside and Willow Dene, the Methodist Chapel, Portland House and Glenrosa, the Proposed Route would be more than 400m further away than the existing 132kV overhead line it would replace, and would benefit from a greater amount of screening by vegetation and extant buildings. Similarly, for the Church of All Saints, East Huntspill, the existing 132kV overhead line (700m away), would be replaced by either larger or more visible infrastructure approximately 1.2km away. For Upper Southwick Farmhouse, the negative impact of larger or more visible infrastructure, which would be constructed approximately 300m away, would be no greater than the benefit of removing the existing 132kV overhead line, 50m away.
- 8.119 Both options would result in a low magnitude positive effect on one Grade II Listed Building as a result of changes to its setting. For Laurel Farmhouse in Mark, the existing 132kV overhead line approximately 450m away would be removed, which would improve its setting. For the overhead line routes, this effect would not be diminished by provision of new larger infrastructure, as it would be approximately 1km away and screened by trees.
- 8.120 Both options would have no effect on the setting of the Scheduled duck decoy near Gold Corner Bridge. This receptor has open views across flat land to the Proposed Route, and views of the skyline are a key attribute of the receptor's setting; however, that setting is already affected by the presence of an existing 400kV overhead line approximately 240m away, and the magnitude of effect of the proposals is reduced by the approximately 2km distance of separation.

- 8.121 Overall, both options would have negative effects of similar magnitude on the comprehensibility and appreciability of the historic landscape. Removal of the 132kV overhead line and replacement with a 400kV overhead line would alter the historic landscape character of the area surrounding the Proposed Route, and would cause the further fragmentation of historic landscape components, in terms of their comprehensibility and appreciability. For the steel lattice pylon, this change would be an increase in scale of an existing group of elements in the historic landscape. The magnitude of effect would be greater for the T-pylon than for the steel lattice pylon because T-pylons would present an additional modern element into the landscape rather than an increase in the presence of the existing steel lattice pylons. The T-pylon would also comprise the introduction of a new and visible group of modern elements in the historic landscape. The magnitude of effect would be reduced where the landscape is experienced at greater distance and with greater screening by topography, buildings and vegetation. For the T-pylon, the magnitude of effect would not reduce at increasing distance as rapidly as for the steel lattice pylons, due to its solid central column and cross beam as opposed to the more open steel lattice design. However, due to their reduced height the total area where any effect would be experienced would be less for the T-pylons. In general, and for both options, the magnitude of effect would reduce with increasing distance between the Proposed Route and the point from which the historic landscape is experienced. For both options, the overall negative magnitude of effect on the historic landscape would be low, on receptors of low sensitivity.
- 8.122 While the overall magnitude of effect of both options on the historic landscape is equal, variations in how the two options relate to several factors (including topography, screening and backgrounding) mean that one option would have less magnitude of effect in certain localised areas. In flat areas, the effect on historic landscape character of the T-pylon option would be less widespread than that of the steel lattice pylon option due to the T-pylon's lower height. Where overhead lines are already present in the landscape (i.e. close to the existing 400kV ZG Route), the T-pylon would result in a negative effect of greater magnitude as it would introduce a new and different landscape element, which would result in a greater change than increasing the number of steel lattice pylons already present. The effect on historic landscape character is reduced where the Proposed Route is backgrounded by surrounding higher ground (e.g. Puriton Ridge, Brent Knoll and the Mendip Hills); this reduction in the magnitude of effect is more marked for the

steel lattice pylon option because it lacks the solid central columns and cross beams of the T-pylon option.

- 8.123 For both options, there is potential for negative effects on buried archaeological remains at ancillary work locations (including access tracks) and at pylon locations. The magnitude of effect would be high - low on receptors of moderate - negligible sensitivity.
- 8.124 For both options, improvements to the road network necessary for construction activities could cause negative effects to historic landscape elements such as historic hedgerows, lanes and field systems. The magnitude of these effects would be low on receptors of low sensitivity.

Effects that differ between Options

- 8.125 Both options would negatively affect Grade II Listed Southwick House, but the magnitude of effect would be greater in the case of the steel lattice pylon. The existing 132kV overhead line approximately 120m away would be removed and new, larger infrastructure would be constructed approximately 300m away; screening vegetation is present between the receptor and both the existing and proposed lines. The T-pylon option would be more effectively screened by vegetation than the steel lattice pylon option, due to its lower height. In addition, the closest pylon would be viewed at approximately 90°; as a result the magnitude of effect of the T-pylon option would be reduced relative to the steel lattice pylon option because it would be less visible. The steel lattice pylon would result in a low negative magnitude of effect, but the T-pylon option would result in a negligible magnitude of effect.
- 8.126 Both options would negatively affect the Grade II Listed Orchard Cottage, but the magnitude of effect would be greater in the case of the steel lattice pylon. The existing 132kV overhead line 100m away would be removed and new, larger infrastructure would be constructed approximately 360m away. There is abundant screening vegetation around this receptor. In the case of the steel lattice pylon, this would result in a low negative magnitude of effect, but the shorter height of the T-pylon would increase the effectiveness of existing screening, resulting in a neutral effect.
- 8.127 The steel lattice pylon option would result in negligible magnitude negative effects on two Grade II Listed Buildings that would experience no effect as a result of the T-

pylon option. For Beaconsfield House and a milepost on the A38 in Rooks Bridge, the steel lattice pylon option would be partially visible above the surrounding vegetation and buildings screening these receptors, whereas the smaller T-pylon option (and the 132kV overhead line) would not be visible.

- 8.128 The steel lattice pylon option would result in a negligible magnitude negative effect on one Scheduled Monument due to changes to its setting, whereas this receptor would experience a neutral effect as a result of the T-pylon option. For Brent Knoll, the existing overhead line, approximately 3km from the Scheduled Monument, would be removed and replaced on a similar alignment. The magnitude of effect would be reduced by the distance of separation and the presence within the view from Brent Knoll of the M5 and existing distribution overhead lines, between this receptor and the Proposed Route.
- 8.129 The steel lattice pylon option would result in a negligible magnitude negative effect on one Scheduled Monument due to changes to its setting, whereas this receptor would experience a neutral effect as a result of the T-pylon option. For the Roman briquetage (salt-making) mounds on Burtle Moor, the existing 132kV overhead line, approximately 4km away, would be replaced by new infrastructure, approximately 3.5km away and directly downstream. The effect on the setting would be reduced by the distance of separation, but increased by the historical association of the Roman salt production with the waterway connecting the receptor with the Proposed Route. The magnitude of effect would be greater in the case of the steel lattice option due to its greater height than the existing overhead line.
- 8.130 The steel lattice pylon option would result in a negligible magnitude negative effect on Stone Allerton Conservation Area due to changes to its setting, whereas this receptor would experience a neutral effect as a result of the T-pylon option. The steel lattice pylon option would form a new, but minor element of views along roads leading west and north from the Conservation Area, due to its greater height than the existing 132kV overhead line it would replace. The pylons would be partly screened by vegetation, but would break the skyline at a distance of approximately 2.5km from the receptor. The T-pylon option is unlikely to form an element of this receptor's setting.
- 8.131 The T-pylon option would result in a neutral effect on Loxton Conservation Area due to changes to its setting, whereas this receptor would experience a negligible magnitude negative effect as a result of the steel lattice pylon option. The existing

132kV overhead line would be removed; however, for most areas effects would be reduced by the continuing presence in the foreground of the view of the M5. New infrastructure would be constructed 950m to the south, and would be screened by landform, buildings and vegetation from most of the receptor. Both options would form a new minor element of the setting in the vicinity of Sevier Road, although the steel lattice pylon would form a larger element due to its greater height than the T- pylon, which is unlikely to be visible from most points. This receptor is of moderate sensitivity.

Potential for Mitigation

- 8.132 Scope to mitigate effects on the settings of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 8.133 For both options, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place. It is assumed that an effective programme of archaeological mitigation can be implemented as part of the project.
- 8.134 For both options, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting.

Summary

- 8.135 From a Historic Environment perspective the T- pylon on the Proposed Route is preferred in Section B. Both options would have an overall minor negative scale of effect on the historic environment. The negative effects on Listed Buildings of the steel lattice pylon option are slightly more widespread and of slightly greater magnitude in two cases. Steel lattice pylons would also have a minor negative effect on Scheduled Monuments compared to a neutral effect for the T- pylon option.
- 8.136 Both options would have an overall minor negative scale of effect on Listed Buildings. Both options would affect two Grade II* Listed Buildings, but the steel lattice pylon option would have a minor negative scale of effect on eleven Grade II Listed Buildings, compared to nine for the T- pylon option. The steel lattice pylon

option would also have a greater magnitude of effect on two of the nine buildings that both options affect, although the overall scale of effect would be the same. Both would also have an overall neutral scale of effect on a further seven Grade II Listed Buildings and a minor positive effect on one Grade II Listed Building.

- 8.137 The steel lattice pylon option would have an overall minor negative scale of effect on Scheduled Monuments, whereas the T-pylon option would have an overall neutral effect. The steel lattice pylon option would have this negative effect on one Scheduled Monument and a neutral effect on two others. The T-pylon option would have an overall neutral effect on three Scheduled Monuments.
- 8.138 Both options would have an overall minor negative scale of effect on the historic landscape. For both options, replacement of the existing 132kV overhead line with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character zones. Both options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal, etc.
- 8.139 The steel lattice pylon and T-pylon options would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon numbers. The overall scale of effect would be minor negative. The potential for as-yet undiscovered archaeological remains to be present along the Proposed Route is high.
- 8.140 Mitigation of the indirect visual effects of the overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation *in situ* is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline Conditions

8.141 There are no international wildlife site designations which would be crossed or oversailed by the Proposed Route in Section B. There is a single designated site which is valued at the national level:

- The Huntspill River National Nature Reserve (NNR) is part of the Bridgwater Bay NNR. However, the Huntspill River NNR is a sub-site that is not included within the SSSI designation that covers most of the Bridgwater Bay NNR. Otter use the Huntspill River.

8.142 There are two Local Wildlife Sites (LWS) which would be oversailed by the Proposed Route and these designations are valued at the County Level:

- Stoning Pound Field South and Stoning Pound Rhynes LWS which contains species-rich plant communities associated with the „rhynes“ and is used by otter; and
- River Brue LWS supports otter and an otter holt has been identified within the designation.

8.143 In addition to the designations within Section B which would be oversailed by the Proposed Route, there are a number of wildlife sites within 1km of the Proposed Route in Section B:

- Burrow Pit, Puriton LWS (approximately 110m west) is a lake with reed beds, notable plant species and a breeding site for notable bird species;
- Woolavington Road and Fields North LWS approximately 570m west includes semi-improved grassland, rush pasture and reed bed habitats.
- Puriton Cowslip Field LWS approximately 760m west contains unimproved calcareous grassland with „rhynes“;
- Puriton Rhynes and Ponds LWS (approximately 30m south) supports notable plant species, dragonfly species and is regularly used by otter;
- River Axe (Henley to Normal Tidal Level) LWS (approximately 600m north) supports otter and an otter holt has been identified within the designation; and
- The Lox Yeo River SNCI designation (approximately 600m north) includes the river, its marginal vegetation and a range of fish species.

- 8.144 Within Section B the River Axe LWS is crossed by the proposed underground cable route and the Lox Yeo is adjacent to it. Impacts from the underground cable works are not considered in this document.
- 8.145 Although not within 1km, the Proposed Route runs between the Somerset Levels and Moors Special Protection Area (SPA)/Ramsar site (also Tealham and Tadham Moors SSSI) and the Severn Estuary SPA/Ramsar site (also Bridgwater Bay SSSI and NNR). At its closest point in the Section, the Somerset Levels and Moors is over 2km east of the Proposed Route and the Severn Estuary site is over 4km west. The Severn Estuary is designated for a range of factors including coastal habitats, marine fish, invertebrates and internationally important populations of Annex 1 bird species, migratory bird species and waterfowl assemblages. The Somerset Levels and Moors comprises floodplain grazing marsh and ditch systems with high water levels for much of the year. It is designated for its diverse aquatic and marginal plant communities and invertebrate communities (including lesser silver water beetle). The site supports regionally important populations of breeding waders and internationally important populations of Annex 1 bird species, migratory bird species and waterfowl assemblages. Otter have also been recorded within the site. Both sites are valued at the international level.
- 8.146 Outside (north) of Section B is Crook Peak to Shute Shelve Hill SSSI which is a component site of the Mendip Limestone Grasslands Special Area of Conservation (SAC). It is considered in Section B due to the presence of Greater Horseshoe Bats which are likely to also use habitats within Section B. This site is valued at the international level.
- 8.147 Section B extends for approximately 15km across the Somerset Levels and Moors and is dominated by improved and semi-improved pasture fields although a group of arable fields are present south of Rooks Bridge. The field boundaries in the area are overwhelmingly created by ditches and species-poor hedgerows. In addition to the extensive network of ditches a number of rivers cross the study area. With the exception of the minor watercourse the Old Lox Yeo River in the far north of the Section, these are all covered by LWS or SNCI designations (Huntspill River, River Brue, River Axe and Lox Yeo River) and are valued accordingly.
- 8.148 Woodland habitats are rare in Section B, limited to a few small areas of plantation valued at the local level.

- 8.149 With a few exceptions, hedgerows in this area are species-poor. However, their value is increased due to their association with the ditch network and their likely role as wildlife corridors in an otherwise open landscape. Species that have been recorded within the area which may use the hedgerows include bats (including lesser and greater horseshoe bats), reptiles and farmland bird species. There are no records for dormouse in this area and the landscape is generally less suitable for this species but a few areas with low potential have been identified in the south of the Section at Woolavington, between Vole and Rooks Bridge and near Loxton at the northern boundary of the Section. No dormice were recorded at these locations during the 2012 dormouse survey undertaken by TEP. The network of hedgerows is valued at the district level, but the value of individual hedgerows will vary depending on associations with other species.
- 8.150 There are records of otter, water vole, great crested newt and a range of wetland bird species within Section B. These species are likely to use the network of ditches. The network of ditches is valued at the district level, but the value of individual ditches will vary depending on associations with other species. Rivers within this Section are valued according to their LWS designations.
- 8.151 The intrinsic value of the improved and semi-improved grassland habitats is low but could be increased by association with valued faunal species. The bird surveys have highlighted a number of areas with particular ornithological interest these include the land around Woolavington (wetland passerine species), land between the Huntspill and Brue Rivers and land around Vole (farmland bird species). These areas are valued at district level while the remaining grassland habitats are valued at the local level.

Assessment of Effects

- 8.152 No impacts on designated wildlife sites or woodland habitats are predicted from either the steel lattice pylon or T-ylon options.
- 8.153 All pylon options would avoid direct impacts on wildlife sites. Although the Proposed Routes cross a number of LWSs (Stoning Pound Field South and Stoning Pond Rhynes, Huntspill River [also Bridgwater Bay NNR] and River Brue), the overhead lines oversail these features, with pylons for each option outside the designations. There is however potential for impacts to occur on these wildlife sites and on Borrow Pit Puriton LWS and Puriton Rhynes and Ponds LWS (which are hydrologically linked) during the construction period through habitat loss (from

- temporary crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species supported by the designation including otter and birds (from human activities). Such impacts are likely to result in a medium-term, moderate negative magnitude of effect across both the steel lattice and T-pylon options.
- 8.154 The proposed T-pylon and steel lattice pylon routes pass between the Somerset Levels and Moors and the Severn Estuary SPA/Ramsar sites. There is a suggestion in the site citations that birds move between these designations either on daily foraging flights or during seasonal movements, raising the risk of bird mortality from collision with overhead lines. However, TEP bird surveys undertaken between 2009 and 2013 as part of the Hinkley Point C Connection project have not found any evidence of such bird movements in this area.
- 8.155 Impacts on ditches would largely be avoided as the proposed pylon locations for both pylon options avoid these features. However, during the construction period habitat loss (from temporary crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species using the ditches (from human activities) may occur. Such impacts are likely to result in a low negative, medium-term magnitude of effect across all of the pylon options.
- 8.156 Grassland habitats and their associated flora and fauna are likely to experience a temporary, low negative magnitude of effect during construction from ground disturbance and disturbance from human activities. A larger number of components would be required for the assembly of the steel lattice pylons, resulting in a longer construction period in comparison to the T-pylon. There would therefore be greater levels of construction-related disturbance associated with the steel lattice pylons due to the increased vehicle movements and as a result of operatives being on site for a longer period of time.
- 8.157 The Proposed Route for the steel lattice pylon and T-pylons deviate slightly at three locations within Section B. However, where this occurs both routes would traverse through arable and pastoral land. Considering the low intrinsic value of the grassland habitats within Section B, the ecological impact upon grasslands (and their associated flora and fauna) would remain as a low negative magnitude of effect for both the steel lattice pylon and T-pylon options prior to mitigation.

- 8.158 Hedgerow losses would be limited to requirements for construction access with both options, the permanent loss of hedgerow trees cannot be ruled out in order to achieve electrical safety clearances. If permanent hedgerow tree losses are required, the extent of this would be greater with the T-pylon due to their larger width. Such impacts are likely to result in a low negative, medium-term magnitude of effect across all overhead line options.
- 8.159 No losses of woodland habitat would be likely with either of the pylon options. Impacts on ponds would also be avoided with both the T-pylon and steel lattice pylon options.
- 8.160 In combination the low to moderate magnitude of effects on receptors of local to county value would lead to an overall moderate negative effect on ecology as a result of the proposed steel lattice and T-pylon routes prior to mitigation.

Potential for Mitigation

- 8.161 For both of the pylon options, existing field access points and watercourse crossings would be used for works traffic wherever possible and standard environmental protection measures implemented; including the timing of works activities onto retained habitats and the implementation of pollution control methods.
- 8.162 Where appropriate, prior to habitat clearance works, temporary exclusion methods would be adopted, under the appropriate mitigation licence, in order to prevent death or injury to protected species such as bats or great crested newt, should they be present.
- 8.163 Where tree loss is required to achieve electrical safety clearances, pollarding or coppicing could be used to avoid total loss of habitat. Alternatively, where complete tree removal is required, replacement tree planting could be undertaken outside the overhead line easement subject to landowner agreement. However, due to the uncertainty of securing landowner agreement for works outside the easement this form of mitigation has not been taken into account in the appraisal of effects.

Summary

- 8.164 Each of the potential pylon options would avoid substantial ecological impacts in Section B. Impacts would largely be restricted to hedgerow tree loss and temporary effects on arable and pasture fields during construction (for all pylon options).

Although, loss of individual mature trees can only be compensated rather than mitigated, losses would be minimal. Mitigation including wildlife-friendly working methods and use of existing field access points for construction traffic would, in the long-term, reduce impacts on ecology from either overhead line option in Section B to neutral.

- 8.165 Overall, on balance, the scale of residual ecological impact would not differ between the pylon options. The construction of the individual steel lattice pylons may result in longer disturbance period, although the T-pylon may require a greater extent of hedgerow tree removal due to its greater width.

Section B: Summary of Preferred Pylon Option

- 8.166 Whilst the T-pylon would be more prominent in the local **landscape** because of its solid central column, cross beam and the configuration of the insulators and conductors, it would be less visible in the wider Somerset Levels and Moors landscape and the setting of the Mendip Hills AONB due to its lower height and visibility diminishing with distance. In the most southern part of Section B the T-pylon would result in a greater change in the local landscape than introducing a series of similar structures connecting to the existing ZG Route, which uses standard steel lattice pylons. The existing overhead line and the T-pylon would however share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.
- 8.167 From a **visual** perspective, the T-pylon would be more prominent in closer views and would result in the greatest negative effects from nineteen private near distance views within 200m of the overhead line and four PRow. However, it would be visible for a shorter distance from over 150 individual properties with middle distance and distant views between 250m and 1.5km of the Proposed Route due to its shorter height and the effect of screening by intervening trees. The T-pylon would be less visible in private views from the settlements of Woolavington and Webbington, although some views from Woolavington would experience a combination of pylon types, with existing steel lattice pylons on ZG Route, should the T-pylon be used in the southern part of this Section.
- 8.168 From an **historic environment** perspective, the T-pylon option is preferred for Section B. Both pylon designs are considered to have an overall minor negative effect on the historic environment, however, the steel lattice pylon would have greater and more widespread effects on Listed Buildings, and a minor negative effect on Scheduled Monuments. This is compared to a neutral effect for the T-pylon option.
- 8.169 Whilst there are slight differences between the steel lattice and T-pylons from an **ecological** perspective these do not help to differentiate between the options in this Section.
- 8.170 Within Section A the environmental appraisals have identified steel lattice and low height steel lattice pylons as preferable. Changing between pylon types at the foot of Puriton Ridge would result in a number of different structures being present

within the landscape which may create an incoherent appearance, especially as the Proposed Route would connect with the existing 400kV ZG Route on steel lattice pylons approximately 1.5km to the north within Section B. It would also introduce the T-pylon into close views from Woolavington. As a result, it is considered preferable to continue with the steel lattice pylon between the boundary of Section A and the connection with the existing 400kV ZG Route on steel lattice pylons within Section B.

- 8.171 For the remainder of Section B (between the ZG Route and the CSE compound), the environmental appraisals have identified that the T-pylon would be preferable in terms of effects on landscape, views and historical environment primarily because of its reduced height.
- 8.172 Based on the findings of the appraisals, it is recommended that steel lattice pylons are taken forward to consultation for the overhead line between the boundary of Section A and the connection with the existing ZG Route, and that the T-pylon is taken forward to consultation for the remainder of the Section between the ZG Route and the CSE compound south of the Mendip Hills.

9 APPRAISAL SECTION D - SOMERSET LEVELS AND MOORS NORTH

Section Boundaries

- 9.1 Section D extends from the Mendip Hills AONB boundary on the A368 to Clevedon Road (near Stone-Edge Batch). The existing 132kV Bridgwater to Avonmouth Route overhead line runs north from Sandford to the west of Yatton, before turning north east and running along the western edge of the built up area of Nailsea. The 132kV N route overhead line ("132kV N route") connects to this line near Sandford and runs north east to Churchill substation. The Churchill to Portishead 132kV W route overhead line ("132kV W route") travels north through the Section to the east of Claverham and along the western edge of Nailsea and is proposed to be undergrounded from a point south west of Nailsea to Portishead substation as part of the Hinkley Point C Connection project. The 132kV AT Route overhead line ("132kV AT Route") provides a connection from the 132kV Bridgwater to Avonmouth Route near Nye to Weston-super-Mare.
- 9.2 The 132kV Bridgwater to Avonmouth Route between Sandford and Stone-Edge Batch would be removed as part of the proposal. Modifications are likely to be required at the eastern end of the 132kV AT Route and western end of the 132kV N Route, both of which will need to be connected to the proposed 400/132kV substation north of Sandford. These works are separately addressed.
- 9.3 Apart from a minor deviation west of North End (see below) both pylon options follow the previous draft route through this Section and are shown on Figure 4.4.

Definition of Proposed Route Options

- 9.4 In the most southern part of Section D, the new 400kV connection is proposed to be undergrounded for approximately 1.1km between the Mendip Hills AONB (Section C) in the south and the new 400/132kV substation proposed adjacent to Nye Road north of Sandford. Thereafter the remaining 14km is overhead line
- 9.5 From the proposed substation at Sandford, the Proposed Route would travel broadly parallel approximately 100-150m from the existing 132kV Bridgwater to Avonmouth Route overhead line, between the proposed substation adjacent to Nye Road, and Lampley Road in the north.

- 9.6 North of Lampley Road, east of the M5 motorway and Kingston Seymour, the Proposed Route of the new 400kV overhead line changes direction southwest of the existing change in direction on the 132kV overhead line route.
- 9.7 West of the village of North End the T-pylon alignment differs from the steel lattice pylon alignment to allow the „smoothing out“ of the sharp change in direction. Both pylon options then share the same alignment travelling across Kenn Moor and then Nailsea Moor to the north-west of West End and Nailsea.
- 9.8 Partway across Kenn Moor the new 400kV overhead line diverts from the route of the existing 132kV overhead line and continues northeast on a straight route across Nailsea Moor between Nailsea and Tickenham Court. The northern most section of the new 400kV overhead line changes direction (between Tickenham Court in the west and the northwestern corner of Nailsea in the southeast), and runs obliquely up rising ground at the base of Tickenham Ridge towards the B3130 Clevedon Road. The new 400kV overhead line re-joins the route of existing 132kV overhead line near the B3130 at Stone-edge Batch and at the boundary with Section E.
- 9.9 A section of the existing 132kV W Route line is proposed to be undergrounded in the north of Section D, between a pylon south-west of Nailsea and Portishead substation in the north in Section F. The proposed undergrounding of the W Route would be undertaken in connection with the new 400kV line whether it is supported with the steel lattice pylon or the T-pylon.
- 9.10 The Proposed Route length through this Section would be 13.9km. Low height steel lattice pylons have not been considered in this Section for the reasons stated in Chapter 5.

Landscape

Baseline Conditions

Mendip Hills Area of Outstanding Natural Beauty

- 9.11 Section D extends for approximately 13km from the Mendip Hills AONB in the south across the Somerset Levels and Moors towards Tickenham Ridge in the north. Tickenham Ridge is in Section E.
- 9.12 The Mendip Hills AONB is of national importance and was designated under the 1949 National Parks and Access to the Countryside Act, the primary purpose of which is to conserve and enhance the natural beauty of the landscape.
- 9.13 The Mendip Hills are a range of limestone hills which stretch eastwards from the Bristol Channel rising dramatically above the flat Somerset Levels and Moors. The Mendip Hills offer tourism and recreational interest.

National Landscape Character Assessment

- 9.14 Section D comprises the Somerset Levels and Moors (NLCA 142) and Bristol, Avon Valleys and Ridges National Landscape Character Areas (NLCA 118).
- 9.15 Settlements in and adjacent to Section D include Weston-super-Mare to the west of the southern part of Section D; Nailsea in the northern part of this Section; and Clevedon in the west adjacent to the Severn Estuary. Congresbury, Yatton and Claverham are in the east of this Section.
- 9.16 The Bristol Avon Valleys and Ridges Character Area (NLCA 118) is on higher ground to the north and east of the Somerset Levels and Moors and north of the Mendip Hills. Tickenham Ridge is a strong landscape feature in the Bristol, Avon Valleys and Ridges LCA and defines the northern extent of Section D.
- 9.17 There is a close visual association between the Somerset Levels and Moors and the hills and ridges which form a distinct and varied backdrop and skyline to the lower lying Moors. There are expansive views from the higher ground across the Levels and Moors.
- 9.18 The Somerset Levels and Moors are described as a flat open landscape of wet grassland, arable and wetland divided up by wet ditches or deep, wide, wet „rhynes“, which have a strong unity and distinctive character.

- 9.19 The Moors lie in the inland basins formed by the surrounding hills and are a planned landscape reclaimed from wetland. Many parts of the Moors are described as comprising a strong rectilinear pattern of „rhynes“ with a long history of management comprising enclosures, historic trackways, and peat workings. The Moors are largely treeless and are more sparsely populated than the Levels.
- 9.20 The Levels are closer to the coast and comprise a belt of clay that restricts the drainage of the Moors further inland. The Levels are an older and more irregular landscape with a slightly denser pattern of settlement.
- 9.21 The Levels and Moors are described as a highly managed yet wild and tranquil landscape. The National Character Area profile (produced by Natural England) for the Somerset Levels and Moors (NCA142) refers to the 2007 Intrusion Map produced by CPRE and states that there are large areas of undisturbed land in the central area of the north of the NCA.
- 9.22 Woodland is relatively sparse in the Levels and Moors landscape although pollarded willows are widespread along the „rhynes“ and there are occasional shelterbelts around farmsteads. The majority of the Moors is a pasture wetland landscape with views to varied wooded hills. There are few properties on the lower lying land.
- 9.23 The Bristol, Avon Valleys and Ridges character area is described as a landscape of very mixed landform, geology and settlement pattern with low-lying, shallow valleys that contrast with the limestone ridges and scarps. Tickenham Ridge rises steeply from the Somerset Levels and Moors in Section E. The steep wooded scarps of the Failand Hills ridge lie north-east of Section D and overlook the River Severn and the low ground of Kenn Moor.
- 9.24 The Bristol, Avon Valleys and Ridges character area includes wooded scarps and downland ridges which are high and open. The wooded scarps are mostly ancient woodland. The most extensive areas of woodland are between Congresbury and the Avon Gorge and on the Failand Ridge.
- 9.25 This character area is gently undulating and generally enclosed. Agricultural land is a mix of arable and pasture with a variable hedgerow pattern. Settlement comprises frequent large villages, small towns and major conurbations.

- 9.26 High ground in the west and south of the Bristol, Avon Valleys and Ridges character area is noted as being settled at an early date and remaining important through the Iron Age particularly as the area comprises the sites of hillforts, of which Cadbury Hill north of Congresbury is noted as being the best known.

Local Landscape Character Assessment

- 9.27 North Somerset Council's "North Somerset Landscape Character Assessment" produced in 2005, characterises the most southern part of Section D as the River Yeo Rolling Valley Farmland Landscape Character Area (LCA J2).
- 9.28 The River Yeo Rolling Valley Farmland Landscape Character Area (LCA J2) extends west to include Banwell, Locking and Hutton, and east to include Sandford, Churchill, Langford and Lower Langford, and Brinsea and Congresbury further north. This character area is described as an extensive area of gently undulating lowland between 5m and 60mAOD, along the northern edge of the Mendip Limestone Ridges and Combes. In the east undulating lowland forms a valley enclosed by wooded limestone ridges including the Mendip Ridge in the south and Cleeve Ridge in the north. This character area is described as a peaceful pastoral landscape with thick maintained hedgerows and frequent mature hedgerow trees. Willows line the rivers and streams running through this area.
- 9.29 Further west there are cider orchards north of Sandford and grazing land north of Banwell. The rural valley character of the area in the east diminishes in the west, where land use is more diverse and there is settlement along the A368 and A371 at the base of the Mendip Ridge.
- 9.30 North of the River Yeo Rolling Valley Farmland the landscape in Section D is characterised as the Moors Landscape Character Type, which extends north across the majority of Section D towards Tickenham Ridge.
- 9.31 The Moors comprises a broad area of low-lying reclaimed wetland on the west side of North Somerset with areas to the north and south separated by limestone ridges. The Moors are described as a flat pastoral landscape with hedgerows of varying condition, frequent hedgerow trees and an extensive drainage system of ditches and „rhynes“. The area is remote and isolated in places.
- 9.32 The Moors are further characterised into the following local landscape character areas:

- Locking and Banwell Moors landscape character area (LCA A4) in the south;
 - Kingston Seymour and Puxton Moors landscape character area (LCA A1) across the central part of this Section; and
 - Kenn and Tickenham Moors landscape character area (LCA A3) in the north.
- 9.33 The Locking and Banwell Moors (LCA A4) extend as low-lying generally flat and predominantly pastoral land between Congresbury in the east and Weston-super-Mare in the west. The field pattern is generally regular and geometric, defined by hedgerow and reed-filled drainage ditches or „rhynes“ with numerous trees including pollarded willow and some poplar shelterbelts. The majority of the ditches or „rhynes“ are noted as being associated with mixed hedgerows that have grown up over them, whilst larger channels have remained open. The area east of the M5 is more remote and rural in character, particularly as settlement is sparse and the area is occasionally crossed by straight rural roads, only accessible by foot further east.
- 9.34 The Kingston Seymour and Puxton Moors (LCA A1) extend across the central part of this Section and represents the largest character area in the Moors landscape character type. The earlier enclosure, presence of settlement and generally more irregular field pattern (partly defined by older sinuous drainage ditches) distinguishes the Kingston Seymour and Puxton Moors (LCA A1) from other flat low-lying Moor landscapes that are predominantly pastoral and remote in places.
- 9.35 The Kingston Seymour and Puxton Moors (LCA A1) landscape is described as being semi-enclosed with trees and hedgerows framing views to the wooded limestone ridges. Hedgerows are noted as being intermittent, and in places have formed from regenerated scrub growing over ditches and „rhynes“. The M5 runs through the centre of this character area and is noted as having a visual and audible impact on the rural character of adjacent land. Masts and signage associated with the M5 corridor are also noted.
- 9.36 The Kenn and Tickenham Moors (LCA A3) is also a flat, low-lying, predominantly pastoral and remote landscape. This area is however influenced by Nailsea in the east and settlement at the base of Tickenham Ridge in the north. The area also gently rises north-west to Clevedon. There is very little settlement in this character area with the few roads including Nailsea Wall running east west between West End and Clevedon, and Causeway running north south between Nailsea and

- Tickenham. Moving traffic on the M5 motorway in the west is noted as being visible.
- 9.37 Ditches and „rhynes“ are regular and rectilinear in this character area, particularly to the north and east where there are fewer hedgerows. Hedgerows are noted as being fragmented, many originating as scrubbed over ditches, with many hedgerow trees. Isolated remnants of ancient woodland are noted in this character area along with some small plantation woodlands. Tree cover including orchards is evident south of Kenn and north of Claverham Drove.
- 9.38 Higher ground to the east of the lower lying Moors landscape is characterised into the following local landscape character areas:
- Land Yeo and Kenn Rolling Valley Farmland landscape character area (LCA J5);
 - Cleeve Ridge landscape character area (LCA E6); and
 - Nailsea Farmed Coal Measures landscape character area (LCA K1).
- 9.39 These character areas and the interrelationship between the adjacent Moors landscape is described below.
- 9.40 The Land Yeo and Kenn Rolling Valley Farmland (LCA J5) includes two parcels of land separated by the Land Yeo and Kenn Rivers Floodplain character area (LCA B1), which follows the course of the Land Yeo, Kenn River and River Avon further east. One of the parcels of land in the Land Yeo and Kenn Rolling Valley Farmland encompasses the large settlement of Yatton (largely surrounded by the low-lying Moors) in the central part of Section D, and the large village of Claverham linked by winding roads and the A370. This parcel of land extends northeastwards to the south and southeast of Nailsea.
- 9.41 The Land Yeo and Kenn Rolling Valley Farmland character area (LCA J5) comprises a gently undulating rural pastoral landscape divided by an irregular and intact hedgerow pattern. The wide valley is framed by wooded ridges to the north and south. The rural nature of this character area is described as being strongest in the south, where there are thick hedgerows, frequent mature hedgerow trees and the wooded backdrop of the limestone ridges.

- 9.42 The Cleeve Ridge character area (LCA E6) runs eastwards from Yatton and is a limestone ridge which rises from the rolling valley farmland to a flat limestone plateau characterised as the Broadfield Down Settled Limestone Plateau (LCA G1).
- 9.43 Cleeve Ridge comprises distinctive steep escarpment slopes rising above the low-lying Moors and Valleys providing a backdrop to the lower ground. Ancient woodland and large scale mixed and deciduous plantation woodland cover these slopes. This wooded landscape is intimate and enclosed contrasting with occasional wide views out over the surrounding lowland Moors and Valleys and to the distant Bristol Channel. The area is described as being largely inaccessible with only a few rural roads winding through Combes up the ridge. At the summit of the ridge open elevated views contrast with enclosed views on narrow winding combes. Settlement is around the periphery of Cleeve Ridge and pasture land extends across the lower slopes. An Iron Age Hill Fort stands at Cadbury Hill north of Congresbury.
- 9.44 Beyond Cleeve Ridge is the Broadfield Down Settled Limestone Plateau (LCA G1) approximately 4.5km east of the Proposed Route for the new 400kV overhead line. This open, elevated limestone plateau has distant views to lowland and wooded ridges.
- 9.45 In the northern part of Section D is the Nailsea Farmed Coal Measures Landscape Character Area (LCA K1), which extends across land south and southwest of Nailsea including West End. This character area also includes land around the northern periphery of the town. The Nailsea Farmed Coal Measures (LCA K1) is described as a raised plateau or „island“ between 5m and 30mAOD rising from the Moors in the west and the river floodplain in the east. Occasional views are possible from this area over the flat extensive Moors. This predominantly pastoral landscape is described as remote and intimate with irregular and sinuous, small to medium scale fields divided by drystone walls and hedgerows, often overgrown. On lower ground in the west fields are bound by ditches and „rhynes“.
- 9.46 Farms and residential properties in the Nailsea Farmed Coal Measures (LCA K1) are dispersed or in small groups along narrow rural roads. North Somerset Council’s “North Somerset Landscape Character Assessment” produced in 2005, states that this character area comprises a generally remote intimate scale landscape; although notes that the urban edge of Nailsea is highly visible in places.

9.47 The northern boundary of Section D is defined by Tickenham Ridge in the adjacent Section E. This landscape feature extends east west as steeply rising ground above the Somerset Moors.

9.48 Views from Section D extend to the wooded hills including Tickenham Ridge in the north and Cleeve Ridge in the east. High ground partly encloses this landscape.

Forest of Avon Community Forest

9.49 The Forest of Avon Community Forest is east of Section D, beyond Nailsea and Yatton, and extends across the most northern part of this character area and across Tickenham Ridge in Section E. The Forest of Avon is one of twelve Community Forests in England and extends over 57,000 hectares across four local authority areas including North Somerset, Bath and North East Somerset, Bristol and South Gloucestershire.

9.50 The Forest of Avon Plan published in 2002 identifies that woodland covers between 10% and 20% of land in the east and north of Section D. Woodland cover increases to more than 30% across the Lulsgate Plateau including Ball Wood and King's Wood and Brockley Wood east of Yatton.

9.51 As well as setting out objectives for local areas and woodland cover, the Forest Plan identifies two main strategy areas for North Somerset including the „Lulsgate Plateau“ in the east and „Gordano Parkland“ in the north across Section E.

Section D Landscape Character

9.52 Many of the landscape characteristics identified above and described in published landscape character assessments are present in Section D. In the southernmost part of Section D the land falls to a lowland pastoral landscape north of the A368 along the northern boundary of the Mendip Hills AONB (in Section C), and is undulating north of Sandford. The landform is also undulating north of the A371 further west (near the M5 motorway) and includes Woolvers Hill. There are cider orchards north of Sandford associated with the Thatchers Cider factory and shop. Settlement west of Sandford includes Banwell adjacent the A371 and individual farms north of Banwell. The predominantly pastoral landscape in this part of Section D includes well maintained mature hedgerow and frequent mature hedgerow trees. Trees also line Towerhead Brook in the south of this Section.

- 9.53 Beyond Sandford, Banwell and Woolvers Hill, Section D is a low-lying generally flat and predominantly pastoral Moors landscape. Field patterns and hedgerow and tree cover varies across the Moors. There is a regular and geometric field pattern across the southern part of this Section north of Banwell and west of Congresbury and particularly across Kenn Moor and Nailsea Moor in the north. There is a more irregular field pattern partly defined by sinuous „rhynes“ and ditches between Kenn in the north and Puxton in the south.
- 9.54 There are mature hedgerow field boundaries with hedgerow trees throughout Section D, and mature field trees in places. Hedgerows are generally well maintained however some hedgerows are fragmented and some field boundaries comprise scrub that has grown over ditches.
- 9.55 South of Kenn there are orchards, tall mature hedgerow field boundaries with trees and low maintained hedgerow. There is also a mix of low hedgerow and tall mature hedgerows and trees along field boundaries across Kenn Moor with occasional small areas of woodland. Hedgerow and tree cover is more sparse and the landscape more open across Nailsea Moor particularly in the north of this Section. In the northernmost part of Section D between Nailsea and Tickenham Court there are mature trees along field boundaries adjacent to the edge of Nailsea, and mature trees along Parish Brook. North of Parish Brook hedgerow is low and well maintained.
- 9.56 Development is particularly evident in the central part of Section D including Yatton, North End, the M5 motorway and properties along Kenn Road and at Kenn. Section D is more remote in places including across Puxton Moor in the south, and across parts of Nailsea Moor, Clevedon Moor and Tickenham Moor in the north.
- 9.57 In the north of Section D landscape character is influenced by the large settlement of Nailsea and development along the B3130 including Stone-edge Batch, Tickenham and Tickenham Court. The landform also rises northwards to Tickenham Ridge, which defines the northern extent of Section D.

Landscape Sensitivity

- 9.58 There are no national level landscape designations in Section D, although this Section abuts the northern boundary of the Mendip Hills AONB to the south. Section D comprises the Somerset Levels and Moors which is valued locally and is of regional importance.

- 9.59 North Somerset Council's "Landscape Character Assessment" (2005) describes the strength of character of the predominantly pastoral landscape of the Somerset Moors as being moderate in the south (including the River Yeo Rolling Valley Farmland, LCA J2) increasing to strong across Kingston Seymour and Puxton Moors (LCA A1) and Kenn and Tickenham Moors (LCA A3), (and the Nailsea Farmed Coal Measures, LCA K1), although the rural character of the northern part of the Kenn and Tickenham Moors (LCA A3) is described as being weakened by views to development along the B3130 in the north.
- 9.60 North Somerset Council's "Landscape Character Assessment" (2005) identifies the condition of the River Yeo Rolling Valley Farmland character area (LCA J2) in the south of Section D as in generally good condition; however farm orchards are noted as being less intact.
- 9.61 The Moors landscape in Section D is also described as being in generally good condition, where it is not affected by the urban edge of Weston-super-Mare and the M5 in the west, and where field boundaries are less in decline. Grazed pastoral farmland and field boundaries are described as being mainly well maintained, and the historic pattern of roads and settlement across the Kingston Seymour and Puxton Moors are largely intact and farmland well maintained, with an intact network of drainage ditches and „rhynes" and other surviving historic features such as the straight roads, droves (tracks), and hedgerows across Kenn and Tickenham Moors.
- 9.62 The Somerset Moors are a large scale flat landscape with a lower susceptibility to change from the proposed 400kV overhead line compared to the more exposed Tickenham Ridge in the north. The susceptibility to change of the landscape from a new 400kV overhead line would be lower across the Somerset Moors where the landscape is more open due to limited or fragmented hedgerow and tree cover.
- 9.63 The several existing overhead lines present in the area reduce the sensitivity (susceptibility to change) of the landscape to a new overhead line particularly as the 132kV Bridgwater to Avonmouth Route overhead line would be removed.
- 9.64 The landscape sensitivity of Section D in relation to a new 400kV overhead line is moderate.

Assessment of Effects

Effects of a new overhead line

- 9.65 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used.
- 9.66 A new 400kV overhead line in Section D would have a direct negative effect on the Somerset Moors. There would also be indirect effects on the Mendip Hills AONB to the south, the Rolling Valley Farmland and Cleeve Ridge in the east, and Tickenham Ridge to the north. This negative effect would result from the increase in the size and scale of the 400kV pylons compared to the existing 132kV pylons, and the introduction of a linear development (comprising conductors suspended from arms on supports at regular distances) into a different part of the Somerset Moors where it deviates from the existing 132kV Bridgwater to Avonmouth Route overhead line across Nailsea Moor, and part of Kenn Moor. However the proposed deviation of the new 400kV overhead line from the route of the existing 132kV Bridgwater to Avonmouth Route overhead line, and the removal of part of the existing 132kV W Route overhead line, in the northern part of Section D would improve the landscape in and adjacent to Nailsea.
- 9.67 The presence of existing 132kV overhead lines, in particular the 132kV Bridgwater to Avonmouth Route overhead line, reduces the sensitivity (susceptibility to change) of the landscape to a new 400kV overhead line in Section D.
- 9.68 The higher ground of the Mendip Hills, Cleeve Ridge and Tickenham Ridge would provide backgrounding to a new 400kV overhead line crossing the flat low-lying Moors. A new 400kV overhead line is considered to protrude above the backdrop of these hills in places, particularly where the hills are lower or more distant. These hills provide greater backgrounding to the smaller existing 132kV pylons compared to a new 400kV overhead line. The extent and benefit of backgrounding of a new 400kV overhead line, and the considered effects of the line may differ if different support types are used.
- 9.69 Hedgerows and trees across the Somerset Moors provide some filtering and partial screening which would reduce the influence of a new 400kV overhead line on the landscape.
- 9.70 A new 400kV overhead line would have some negative effects on trees and hedgerows along rivers, ditches or „rhynes“, field boundaries and roads in Section D

where these would be lost to allow construction access and because of removal or lopping to achieve the electrical safety clearances required. Ditches or „rhynes“, hedgerows and trees are a component of the landscape character of Section D.

Comparison between the steel lattice pylon and the T-pylon

- 9.71 This part of the appraisal considers effects that would arise from a new 400kV overhead line using steel lattice pylons, compared to a new 400kV overhead line using the T-pylon.
- 9.72 In Section D both the steel lattice pylon and T-pylon designs generally follow the same Proposed Route except for some minor variations at pylon locations and at the change in direction between Lampley Road and Kenn Road. The T-pylon would require two additional tension pylons, rather than suspension pylons, (so no overall increase in number of pylons) to negotiate a more gradual change in direction compared to the steel lattice pylon alignment. However, proposed T-pylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.
- 9.73 The existing overhead lines operating at 132kV (including the AT Route 132kV overhead line) in Section D are suspended from steel lattice pylons. The presence of existing overhead lines with steel lattice pylons (particularly in the southern and most northern parts of Section D), reduces the sensitivity (susceptibility to change) of the landscape in this Section to a new overhead line using steel lattice pylons.
- 9.74 A new 400kV overhead line in Section D supported by T-pylons would introduce a new and different pylon structure in the context of the existing 132kV N Route and the existing 132kV AT Route overhead lines in the south of Section D. A new 400kV overhead line constructed using the T-pylon design in this location would also be in the context of the new 132kV connection proposed between the 400/132kV substation and the AT Route. This would result in a greater change than introducing a series of similar structures and may produce a less coherent appearance. However, a new overhead line using T-pylons in Section D would not be totally uncharacteristic compared to existing overhead lines using lattice pylons. Existing overhead lines and the T-pylon would share similar characteristics of being

- a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.
- 9.75 The lattice steel pylons would give rise to less effect on landscape character where the new line is backgrounded by surrounding higher ground including the Mendip Hills, Cleeve Ridge and Tickenham Ridge. This is because the lattice pylons' thin steel members in an open structure make background features visible beyond them, compared to the solid central column and cross beam of the T-pylon. However with distance, visibility of a new 400kV overhead line using the T-pylon would reduce quicker (with and without backgrounding) compared to the steel lattice pylon.
- 9.76 The T-pylon would give rise to less effect on landscape character where the new line would run across the Somerset Moors because its lower height means a lesser extent would be visible above tree and hedge screening combined with the effect of distance.
- 9.77 A new 400kV overhead line using steel lattice pylons north of the Mendip Hills AONB and in the context of the proposed substation in the south of Section D would have a moderate to minor negative magnitude of effect (scale of change) on the setting of the AONB, reducing with distance to minor negative and negligible.
- 9.78 A new 400kV overhead line using steel lattice pylons would have a moderate negative magnitude of effect (scale of change) on the Moors landscape. This magnitude of effect would be greater (although remaining moderate negative) where the Proposed Route changes direction between Lampley Road and Kenn Road and where it deviates from the existing 132kV Bridgwater to Avonmouth Route overhead line in the north of Section D across Nailsea Moor.
- 9.79 The T-pylon would appear more prominent in the local landscape (in particular the double diamond T-pylon north of the proposed substation at Sandford) particularly where there is limited intervening screening, compared to the steel lattice pylons. This is because of the T-pylon's solid central column and cross beam (the double diamond T-pylon having two separate solid columns of considerable width); the „diamond“ configuration of conductors suspended from the pylon; and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. The steel lattice pylon would also benefit from backgrounding by trees and higher ground such as

Tickenham Ridge, although a larger extent of the steel lattice pylon would tend to be visible above tree and hedgerow screening and above higher ground in places compared to the T-ylon. The T-ylon would also be less visible in the wider Moors landscape due to filtering and screening by intervening hedgerow and trees. Due to its lower height the visibility of the T-ylon would be less at distance and would be less likely to protrude above surrounding higher ground.

- 9.80 Overall a new 400kV overhead line using the T-ylon would have similar negative effects on the Somerset Moors landscape compared to the steel lattice pylons.
- 9.81 From elevated landform such as Tickenham Ridge, a new overhead line using the T-ylon would tend to appear more prominent on the Somerset Moors compared to the steel lattice pylon, due to the T-ylon having a solid central column and cross beam, and the steel lattice pylon benefitting more from backgrounding. However it is considered that the T-ylon would tend to be visible for a shorter distance than the steel lattice pylon due to its lower height combined with screening by intervening hedgerow and trees.

Potential for mitigation

- 9.82 It is not possible to avoid direct negative effects on the landscape of the Somerset Moors or indirect negative effects on the Mendip Hills AONB, Cleeve Ridge and Tickenham Ridge with a new steel lattice pylon or T-ylon overhead line.
- 9.83 Pylons have been sited to maximise backgrounding by higher ground and avoid or minimise sharp changes in direction to assist in reducing potential negative effects. The Proposed Route for the new 400kV overhead line using steel lattice pylons or the T-ylon includes changes in direction to avoid proximity to properties and other environmental constraints. Mitigation by way of additional hedgerow and tree planting in the vicinity of a new overhead line, depending on land owners' consent being granted, would generally be in keeping with the existing landscape character and could also assist in reducing potential effects.
- 9.84 Undergrounding the 132kV W Route overhead line in addition to the removal of the 132kV Bridgwater to Avonmouth Route overhead line would minimise the negative effects on the landscape in and surrounding Nailsea and would help to offset the negative effects of a 400kV overhead line.

Summary

- 9.85 In Section D both the steel lattice pylon and T-ylon overhead line routes generally follow the same alignment except for some minor variations at pylon locations and at the change in direction between Lampley Road and Kenn Road. A new T-ylon line overhead would require two additional tension pylons rather than suspension pylons, (with no overall increase in number of pylons) to negotiate a more gradual change in direction between Lampley Road and Kenn Road compared to the number of tension pylons (changes in direction) required on the proposed steel lattice pylon overhead line.
- 9.86 The 400kV underground cable route proposed as part of the connection would avoid some long term negative effects on landscape within the setting of the Mendip Hills AONB which would otherwise arise from a new 400kV overhead line, and there would be a positive effect on the setting of the Mendip Hills AONB from the removal of the existing 132kV overhead line in this location. There would be some localised negative effects on the landscape in the short term with long term effects only where permanent tree loss cannot be avoided. Replacement hedgerow and shrub planting would assist with reducing negative effects on the landscape over time.
- 9.87 A new 400kV overhead line using steel lattice pylons on the Proposed Route north of the Mendip Hills and in the context of the proposed substation in Section D would have a moderate to minor negative magnitude of effect (scale of change) on the setting of the Mendip Hills AONB, reducing with distance to minor negative and negligible. The T-ylon overhead line would result in a similar negative residual effect on the setting of the Mendip Hills; however it is considered that the prominence of the T-ylon would reduce quicker with distance compared to the steel lattice pylon due to its lower height.
- 9.88 A new 400kV overhead line using steel lattice pylons would generally have a moderate negative residual effect on the Somerset Moors landscape which is valued locally and has regional importance, and has a moderate landscape sensitivity to the proposed 400kV overhead line. A new steel lattice pylon overhead line would have a greater negative residual effect on the local landscape in Section D (although remaining moderate negative) where the Proposed Route changes direction between Lampley Road and Kenn Road and where it deviates from the existing Bridgwater to Avonmouth overhead line across Nailsea Moor. Undergrounding the W Route overhead line as part of both the steel lattice pylon

and T-pylon options would provide some positive effects on the landscape in and adjacent to Nailsea.

- 9.89 The T-pylon would generally tend to appear more prominent in the local landscape compared to the steel lattice pylon particularly where there is limited intervening screening, for example within the eastern part of Nailsea Moor in the northern part of Section D at the foot of Tickenham Ridge, and where the steel lattice pylon would benefit more from backgrounding by higher ground such as Tickenham Ridge. However the T-pylon would tend to be less visible above intervening hedgerow and tree screening due to its lower height and less visible in the wider Moors landscape due to filtering and screening by intervening hedgerow and trees, and the lower height reducing its visibility at distances and making it less likely to protrude above surrounding higher ground.
- 9.90 A new 400kV overhead line using the T-pylon would have similar negative residual effects on the Somerset Moors in Section D compared to the steel lattice pylons. Overall, the T-pylon on the Proposed Route in Section D is preferred to the steel lattice pylon due to its lower height which reduces its visibility above intervening hedgerows and trees as well as reducing its visibility across the wider Moors landscape in Section D.

Visual Amenity

Baseline Conditions

- 9.91 Section D comprises the expansive flat landscape of the Levels and Moors between the Mendip Hills in the south and Tickenham Ridge in the north. There are open views across the Levels with varying degrees of filtering provided by ditch and hedgerow trees and vegetation. The Mendip Hills provide backgrounding in some views south and Tickenham Ridge provides backgrounding in some views north. Cleeve Ridge backgrounds most views east and extends from the Mendip Hills to Tickenham Ridge. Within the flat Levels and Moors landscape the elevated settlement of Clevedon and the distinctive square tower of Tickenham Church are features in views north to Tickenham Ridge, with the gap between Banwell Hill and Sandford Hill in the Mendip Hills visible in views south.
- 9.92 The existing 132kV Bridgwater to Avonmouth Route overhead line runs for approximately 15km through Section D between the Mendip Hills and Tickenham Ridge. Generally intervening field trees, hedgerows and vegetation obscure or filter views to the lower elevations of the pylons, however the tops are often visible above trees. There are more expansive views of the existing overhead line in the northeast of the area across the eastern part of Nailsea Moor (near Nailsea and Tickenham Church) where there is limited tree and vegetation cover. To the west the smaller field sizes and more numerous hedgerows provide more filtering in views east.
- 9.93 To the southeast of Section D the existing 132kV N Route overhead line runs in a northeast southwest direction from Banwell Hill to Stock connecting with the existing 132kV Bridgwater to Avonmouth Route overhead line approximately 500m north of the gap between Banwell Hill and Sandford Hill. This overhead line is present in views in the southern part of the area, particularly in the east.
- 9.94 The existing 132kV AT Route overhead line (constructed on 275kV steel lattice pylons) runs in an east west direction from Weston-super-Mare to Puxton connecting to the existing 132kV Bridgwater to Avonmouth Route overhead line immediately east of Puxton Moor, approximately 3km north of the 132kV N Route. The AT Route is mainly present in views in the southern part of Section D with longer views of the line above trees due to the height of pylons. The existing overhead lines become less visible or screened in more distant views where filtering has increasing effects.

- 9.95 The existing 132kV W Route overhead line runs through Section D in a north-south direction between Stone-edge Batch and Stock. In the south the overhead line is visible in some views from Congresbury and Claverham. In the north the overhead line runs parallel to the existing 132kV Bridgwater to Avonmouth Route overhead line beyond property boundaries on the edge of Nailsea, oversailing some property gardens at Rhyne View, Brunel Road, Causeway View and Godwin Drive.

Public Views

- 9.96 The main public views of a new 400kV overhead line and existing overhead lines would be experienced by visual receptors using long distance routes, public footpaths and cycle routes in Section D.
- 9.97 The Strawberry Line long distance route is a 10 mile long recreational trail along the former Cheddar Valley Railway from Yatton to Cheddar. The route runs through Section D from Sandford in the south to Yatton in the north, running to the east and broadly parallel with the existing 132kV Bridgwater to Avonmouth Route overhead line. Trees and vegetation along the former railway embankments generally obscure views out from this route with occasional glimpsed or filtered views of the existing 132kV Bridgwater to Avonmouth Route overhead line available in places above trees. The trees and embankments of this route also filter views west towards the existing 132kV Bridgwater to Avonmouth Route overhead line from visual receptors to the east in Sandford, Churchill, Congresbury and Yatton.
- 9.98 There are several PRow and a permissive route running along the River Yeo, Parish Brook and droves through the Levels and Moors, some of which pass directly beneath the existing 132kV Bridgwater to Avonmouth Route overhead line. Some of these routes form part of The Nailsea Round which is a published 9 mile circular waymarked walk in the countryside around Nailsea. There are an additional six shorter circular walks including a history walk around the town's Conservation Area.
- 9.99 The Nailsea Round starts and ends in the car park at Backwell Lake to the south of Nailsea and takes an anticlockwise circular route around Nailsea including the lower elevations of Tickenham Ridge and Nailsea Moor. From Stone-edge Batch it runs in a south west direction across Nailsea Moor along Parish Brook and to the north of West End close to the existing 132kV Bridgwater to Avonmouth Route overhead line, crossing beneath it in several places. There are long views along the existing 132kV Bridgwater to Avonmouth Route overhead line and the 132kV W Route

overhead line from close proximity. The route includes a number of viewpoints that the published booklet details as having „good views over Nailsea to Backwell Hill and to Tickenham Church and beyond“ (Nailsea and District Footpath Group: The Nailsea Round: 2010). These views are available from higher ground at Ham Lane west of Wraxall and from the B3128 Tickenham Hill at Stone-edge Batch. The existing 132kV overhead lines are visible in these views.

- 9.100 The Nailsea Round includes six shorter circular walks. Loop Walk 3 Tower House Wood and Moor End Spout is a circular walk including Tickenham Ridge and an area of Nailsea Moor south of Stone-edge Batch to Tickenham Church and the area to the north of Nailsea. The walk passes beneath the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines where they run closely parallel.
- 9.101 Loop Walk 4 Cadbury Camp is a circular walk from Nailsea to Cadbury Camp, a Scheduled Monument on Tickenham Ridge in Section E. This route also runs beneath the existing overhead lines to the south of Stone-edge Batch and again further north in Section E. From the elevated Cadbury Camp on Tickenham Ridge the walk has „fabulous views across the Bristol Channel to Wales, Steepholm, Crook Peak [in Section C] and Backwell Hill“ (Nailsea and District Footpath Group: The Nailsea Round: 2010). These distant expansive views are available on the southern edge of Cadbury Camp and look down to Nailsea Moor with the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines backgrounded and just perceptible in places above trees. Within Cadbury Camp the majority of views are screened by landform and trees to the edges of the Scheduled Monument. On the eastern edge there are occasional views down towards Tickenham Ridge and the existing 132kV overhead lines as they pass through the valley and up the ridge.
- 9.102 Loop Walk 6 Parish Brook and North Drove is a circular walk to the west of Nailsea across Nailsea Moor. The route runs along Parish Brook and returns along North Drove. The existing Bridgwater to Avonmouth 132kV overhead line runs approximately parallel along Parish Brook and the footpath in this area for 2km, passing over the footpath several times and within 20m of the footpath with long views along the line.
- 9.103 National Cycle Network Route 26 runs from Portishead to Portland Bill on the Dorset coast. In Section D the route runs north along the Strawberry Line from Sandford to Yatton before following the minor road network north to Clevedon,

passing under the existing overhead line on Kennmoor Road near Kenn. At this point there are long views northeast and southwest along the existing Bridgwater to Avonmouth 132kV overhead line as it crosses Nailsea Moor. On the Strawberry Line, embankment trees and vegetation generally obscure views with occasional glimpsed or filtered views of the existing overhead line available in places above intervening trees. South of Congresbury views towards the Mendip Hills and the existing 132kV overhead line, visible above trees, are available more regularly due to more frequent gaps in trees and vegetation.

- 9.104 Regional Cycle Route 10, the Avon Cycleway, is an 85 mile circular route around the City of Bristol. The route runs through Section D along the minor road network east to west between Clevedon and Bristol Airport, passing beneath the existing 132kV Bridgwater to Avonmouth Route overhead line along Nailsea Wall. In this location particularly long views are available east along the existing overhead line as it crosses Nailsea Moor. The cycle route also crosses under the existing 132kV W Route overhead line in the east near the village of West End, with long distance views north towards Nailsea Moor available from elevated land.
- 9.105 There are several outdoor recreation facilities and tourist attractions in Section D. These include Mendip Spring Golf and Country Club, Puxton Park Visitor Attraction (Adventure Park, farm animals, falconry and restaurant), Cadbury Hill, Acorn Carp Fishery, Clevedon Craft Centre and the Hand Stadium and Arena (Equestrian Centre, Clevedon Town FC Football Stadium, football pitches, and restaurant and music venue). The existing overhead line is visible 200m east from Acorn Carp Fishery and in distant views from Cadbury Hill 2km away. The existing 132kV AT Route overhead line is visible above trees 150m south of Puxton Park Visitor Attraction and just visible in distant views above trees 4km south from Acorn Carp Fishery.
- 9.106 There are also tourist attractions in Section E on the southern slopes of Tickenham Ridge including at Clevedon Court (approximately 3km), Tickenham Golf Club (500m), Cadbury Camp (1km) and Tyntesfield National Trust site (4km). Views of the existing 132kV Bridgwater to Avonmouth Route overhead line from these attractions are distant and largely screened by intervening trees and hedgerows. From Section E Cadbury Camp includes long distance views to Crook Peak in the Mendip Hills in Section C.

Private Views

- 9.107 There are views from individual properties along the minor road network near to or beneath the existing Bridgwater to Avonmouth 132kV overhead line. In the south of Section D these roads include Drove Way north of Sandford, the A370 Weston Road to the east of Hewish, Wemberham Lane west of Yatton and Lampley Road east of North End.
- 9.108 In the north of Section D the B3133 Kenn Road and Kenn Street at Kenn; Kennmoor Road and Nailsea Wall east of Kenn; West End Lane west of Nailsea; and Causeway and Church Lane near Tickenham Court run beneath the existing 132kV overhead line. There are also views south from the B3130 Clevedon Road in Section E where it runs through Tickenham and Stone-edge Batch. The existing 132kV Bridgwater to Avonmouth Route overhead line is often visible near to properties on these roads with long views along or towards the line, particularly near the River Yeo and across Nailsea Moor. However intervening trees and hedgerows filter and obscure views in places.
- 9.109 The main settlements in Section D from where there are views towards the new overhead line are Banwell and Churchill Green to the south; East Rolstone, Puxton, Hewish and Kingston Seymour to the west; Brinsea, Congresbury, Yatton, North End and Claverham to the east; and Kenn, Clevedon, West End and Nailsea to the north. Views south are also available from the settlements of Tickenham and Stone-edge Batch at the bottom of Tickenham Ridge in Section E.
- 9.110 Banwell is on the northern slopes of the Mendip Hills (Section C) allowing some distant views northeast across the Levels and Moors towards the existing 132kV Bridgwater to Avonmouth Route overhead line visible above trees 1.5km away. These views include the AT Route (3.5km) and N Route (1.5km) 132kV overhead lines visible above trees.
- 9.111 In the southeast of Section D properties on the northern edge of Churchill Green have distant views of the existing 132kV Bridgwater to Avonmouth Route overhead line 2km away with the 132kV N Route overhead line visible 500m away with parts of the 132kV AT Route overhead line in the distance 2.5km away.
- 9.112 To the west in the settlements of East Rolstone (1.5km), Puxton (1km) and Hewish (1km) properties have a mix of open, filtered and obscured views. The existing 132kV Bridgwater to Avonmouth Route overhead line is visible above trees in

places with the 132kV AT Route overhead line also visible closer and generally within 1km.

- 9.113 Some properties in Kingston Seymour have open and filtered views across the M5 motorway to the Proposed Route of the new 400kV overhead line with the existing 132kV overhead line visible above trees 800m away.
- 9.114 To the east properties on the settlement edge of Brinsea (2.5km), Congresbury (1.8km), Yatton (0.5-1km), North End (within 500m) and Claverham (2km) have a mix of open, filtered and obscured views of the existing 132kV Bridgwater to Avonmouth Route overhead line visible above trees. The 132kV AT Route overhead line is visible above trees from properties in Brinsea and Congresbury.
- 9.115 To the north in Kenn (1km), West End (100-500m) and on the western edge of Nailsea (50-150m) properties have views across Nailsea Moor with the existing 132kV Bridgwater to Avonmouth Route overhead line clearly in views. Properties on the edge of Nailsea (50-250m) and in West End (100-500m) also have the existing 132kV W Route overhead line visible in foreground views. In the settlement of Clevedon properties on elevated ground (3km away) have expansive distant views however the existing 132kV overhead line is not visible due to distance and backgrounding.
- 9.116 Properties in the elevated linear settlement of Tickenham (1.5-2.5km), on the edge of Tickenham Ridge (in Section E), have distant views south with the existing 132kV overhead lines visible as they cross Nailsea Moor.
- 9.117 In Stone-edge Batch properties along the B3130 Clevedon Road have both the existing F Route and W Route 132kV overhead lines passing within 50m of properties and 10m of a public house. The overhead lines are on elevated ground and receptors have distant views southwest, with pylons in foreground views and long sections of the existing 132kV overhead lines visible as they cross Nailsea Moor. Both lines are also visible in views northeast (in Section E) as they cross Tickenham Ridge.

Distant Views

- 9.118 There are distant panoramic views from the elevated landforms of Cadbury Hill (2km) near Yatton and Dial Hill and Strawberry Hill in Clevedon (3.5km). There are also distant panoramic views from the Mendip Hills (in Section C to the south),

Cleeve Ridge (to the east) and Tickenham Ridge (to the north in Section E). These receptors have particularly distant views with the existing 132kV Bridgwater to Avonmouth Route overhead line visible in some views above trees; however this forms a small part of these expansive views.

- 9.119 In the south of Section D there are distant views of the existing 132kV overhead line as it passes over elevated ground between Banwell Hill and Sandford Hill in the Mendip Hills in Section C. In the north of Section D receptors as far west as Kingston Seymour experience distant views to the top of Tickenham Ridge with some existing 132kV pylons on the F Route and W Route overhead lines just visible above trees at the top of the ridge.
- 9.120 Views in Section D are locally important with the combination of the flat Levels landscape and views to Tickenham Ridge and the Mendip Hills AONB locally distinctive but not of greater distinction or value.

Assessment of Effects

Effects of a new overhead line

- 9.121 The proposed 400kV line would be undergrounded for approximately 1km in Section D between the Mendip Hills AONB (Section C) and the proposed 400kV substation adjacent to Nye Road north of Sandford. Removal of 700m of the existing 132kV N Route overhead line is proposed between the existing 132kV Bridgwater to Avonmouth Route overhead line and Nye Road, where the N Route connects to the substation. 1.4km of the 132kV AT Route overhead line (on 275kV pylons) would also be removed between the existing 132kV Bridgwater to Avonmouth Route overhead line and East Rolstone. This would be replaced with a new section of 132kV overhead line, on a new southeast alignment between East Rolstone and the proposed substation adjacent to Nye Road.
- 9.122 A new 400kV overhead line in Section D would have a negative effect on public and private visual receptors. The greatest effects on views would be experienced by sensitive visual receptors nearest to the new overhead line, with some directly adjacent, and would include users of PRoW and residential properties. The effect on views beyond the immediate locality would be reduced due to the presence of other existing overhead lines in views, the distance of the viewer and the effects of intervening trees and hedgerows. For the majority of visual receptors the existing 132kV Bridgwater to Avonmouth Route overhead line is already present in views

above trees, with the existing AT Route, W Route and N Route 132kV overhead lines also visible above trees in some views. In general views the existing 132kV Bridgwater to Avonmouth Route overhead line would be replaced with a 400kV overhead line, which would be more visible above trees and hedgerows due to the greater height of the pylons.

- 9.123 Long distance views are available from the elevated landforms of the Mendip Hills to the south (Section C), Cadbury Hill and Cleeve Ridge to the east and Tickenham Ridge (Section E) to the north across the Levels and Moors of Section D. Receptors on these elevated landforms would experience negative effects where a 400kV overhead line would be more visible above trees than the existing 132kV line for a greater distance across Section D due to its greater height.
- 9.124 Similarly a 400kV overhead line would be more visible than the existing 132kV overhead line in distant views from the Levels and Moors of Section D towards the top of Tickenham Ridge (Section E), particularly where it crosses elevated ground with limited backgrounding.
- 9.125 At the southern extent of Section D the proposed 400kV substation would be located in an area of low ground adjacent to the disused railway at Drove Way Bridge that includes some screening from the bridge (to the east), associated embankments and trees. A new 400kV substation and a new 400kV overhead line would introduce localised negative visual effects for public and private receptors to the north of the Mendip Hills on Banwell Hill and Sandford Hill; receptors in the settlements of Sandford, Towerhead and Banwell; individual properties in Nye on Drove Way and along Riverside to the west; and users of the Strawberry Line long distance route where it passes close to the substation site. Many of these public and private receptors would also experience localised negative visual effects from the new 132kV overhead line connection between the substation and the AT Route, in particular receptors in East Rolstone, along Riverside and on Drove Way near Nut Tree Farm, Nye Farm and Rookery Farm.
- 9.126 A new 400kV overhead line in Section D, would have the greatest negative magnitude of effect on near distance views from seven PRow where the new overhead line deviates from the existing 132kV alignment bringing a new 400kV overhead line closer in views than the existing 132kV overhead line at:

- two PRoW at Pilhay Bridge and Gang Wall north of the River Yeo where the new overhead line would pass over 50m west of the existing overhead line where it presently only passes over Gang Wall footpath;
 - three PRoW along North Drove across Nailsea Moor (part of The Nailsea Round Loop Walk 6) where the new overhead line would pass over two footpaths 150m and 300m further north than where the existing 132kV overhead line presently passes over and one footpath where it passes over where the existing overhead line is 400m to the south; and
 - at two PRoW at Causeway Bridge and Parish Brook south of Tickenham Church (part of The Nailsea Round Loop Walk 3). Footpath users would have a 400kV overhead line passing over the footpath at Causeway Bridge and introduced in views 100m away and parallel along Parish Brook. The existing 132kV overhead line is presently 100m south beyond mature trees along Parish Brook and crosses over it further east.
- 9.127 The greatest negative magnitude of effect (scale of change) on private views would be from seven properties where the new overhead line is on a different alignment to the existing 132kV overhead line. These include six properties on Church Lane near Tickenham Church where a new 400kV overhead line would be 250m away in near distance views, whereas the existing 132kV overhead line is approximately 100m further south in middle distance views and partially obscured by mature trees along Parish Brook. Causeway House on Causeway, north of Nailsea, would have a new 400kV overhead line in near distance and middle distance views 300m to the west and 200m to the north across Nailsea Moor, whereas the existing 132kV overhead line is presently to the south and obscured by trees.
- 9.128 Approximately seventy four properties in Section D have near and middle distance views of the existing 132kV Bridgwater to Avonmouth Route overhead line and would have views of a new 400kV overhead line on a similar alignment. In the south of Section D receptors include:
- two farmhouses on Drove Way at Nye Farm, where the existing overhead line is in near distance views 100m east, and Nut Tree Farm, where the existing overhead line is in middle distance views 350m east, and a new overhead line would be 150m further east;

- three properties on Dolemoor Lane where the new overhead line would be in near and middle distance views between 200m and 600m away on the same alignment as the existing overhead line;
 - two properties on the A370 Weston Road east of Hewish where the existing overhead line is in near distance views approximately 30m and 50m from receptors and the new overhead line is 50m further west from properties; approximately forty five properties in Moorland Park off the A370 Weston Road east of Hewish where the existing overhead line is 200m east and a new overhead line would be 50m closer in near distance views; and
 - one property on Wemberham Lane where the existing overhead line is 250m away and the new overhead line would be 100m closer in near distance views.
- 9.129 To the north of Section D there are six properties on Lampley Road west of North End where the existing overhead line is 300m away and the new overhead line would be 50m closer in near distance views; two properties and one business on the B3133 Kenn Road south of Kenn where both the existing and a new overhead line would be between 100m to 200m away in near distance views; three properties including Manor Farm and Barberry Farm on Kenmoor Road southeast of Kenn where the existing and new overhead line are on the same alignment between 100m and 250m away in near distance views; and over ten properties in Stone-edge Batch (in Section E) in near and middle distance views between 50m and 500m from the new overhead line that would replace the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines. The existing overhead line is part of receptor views and due to the distance of these views and the extent of new overhead line visible these receptors would experience the greatest negative magnitude of effect (scale of change) on views.
- 9.130 A new 400kV overhead line would replace the existing 132kV overhead line in middle distance and some distant views from over three hundred receptors in properties and on PRow near settlements. These include:
- approximately twenty properties and five PRow in East Rolstone with distant views (1.5km);
 - approximately twenty five properties and seven PRow in Puxton with middle distance views (1km);

- over thirty properties and six PRow in Hewish with middle distance views (1km);
 - over twenty properties and three PRow in Kingston Seymour with middle distance views (600m);
 - on the northwest edge of Yatton (700m) approximately seventeen properties with middle distance views;
 - in North End (700m) approximately twenty five properties and two PRow with middle distance views;
 - in Kenn (1km) approximately thirty five properties and two PRow with middle distance views;
 - approximately eighty properties and seven PRow in Tickenham with middle distance views (1km in Section D and E); and
 - over twenty properties and three PRow in Stone-edge Batch with near and middle distance views (within 500m in Section D and E).
- 9.131 Receptors in East Rolstone would also have a new AT Route 132kV overhead line connection introduced in near and middle distance views between 150m and 1km from receptors. Intervening trees would obscure the lower part of pylons in some views however a greater extent of the new 400kV overhead line would be visible due to the increased height of the pylons. From Tickenham views are across Nailsea Moor and a greater extent of the new overhead line would be visible in distant views beyond 1km to the east near Nailsea due to fewer trees and hedge screening. These receptors would experience a moderate negative magnitude of effect (scale of change) with the change from 132kV to 400kV.
- 9.132 From a number of elevated settlements a large number of receptors would experience distant views towards a new 400kV overhead line visible above trees in places. This includes properties along 1km of high ground in Banwell (2km away), properties along 1km of the west edge of Congresbury (1.5km away), properties along 1.5km of the west edge of Yatton (1km away) and, properties along 1km of the north edge of Claverham (2km away). Properties along 2km of the west edge of Nailsea would be closer and experience middle distance views (between 350m and 1km away).
- 9.133 The existing 132kV overhead line and other existing 132kV overhead lines would be removed from their present position in foreground near distance views within 250m

from four PRoW and approximately one hundred and eighty four properties. A positive magnitude of effect (scale of change) on views would be experienced from these receptors which would have 132kV overhead lines removed from close proximity and replaced with a 400kV overhead line further away in middle distance views approximately 350m away. These include twenty four properties and three PRoW (including the Strawberry Line) in the south of Section D at Towerhead on the A368 and near Mead Farm on Mead Lane where the existing 132kV Bridgwater to Avonmouth Route and N Route overhead lines would be removed from 50m to 500m away and a new 400kV line undergrounded from Section C in the Mendip Hills to the proposed substation north of Sandford.

- 9.134 In the north of Section D receptors include a public right of way along Parish Brook between Nailsea Wall and Nailsea (part of The Nailsea Round). The existing overhead line is adjacent and parallel and passes over this receptor and a new overhead line would be between 150m and 350m north in near distance and middle distance views; approximately ten properties on West End Lane where the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines are in near distance and middle distance views 150m and 300m away and a new overhead line would be 300m further north in middle distance views; and over one hundred and fifty properties on the northwest edge of Nailsea (and more properties in the settlement on rising ground) where the existing 132kV Bridgwater to Avonmouth Route overhead line is 100m away and the existing W Route 132kV overhead line runs parallel and oversails property rear gardens in near distance views. In particular, views from properties on Rhyne View and Brunel Road where both existing overhead lines pass over would benefit from removal of the 132kV lines. These receptors would have both the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines removed in near distance views where they pass over and replaced with a 400kV overhead line in middle distance views 350m north across Nailsea Moor, with filtering by intervening vegetation including mature trees along Parish Brook.
- 9.135 A 400kV overhead line in Section D would generally have a moderate negative adverse effect on views in the long term. The greatest negative effect on visual receptors would be experienced the 400kV overhead line would be introduced into close views of sensitive receptors where overhead lines are presently further away. These receptors are mainly near the settlement of Kenn across Nailsea Moor near

Tickenham Church and Stone-edge Batch (in Section E) where the new overhead line is to the north of the existing 132kV overhead line.

- 9.136 There would be a low to moderate positive effect on views from a number of receptors where the existing overhead line and other existing 132kV overhead lines would be removed and replaced with a 400kV overhead line further away.

Comparison between the steel lattice pylon and the T-pylon

- 9.137 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon compared to a new 400kV overhead line using the T-pylon.
- 9.138 In Section D both the steel lattice pylon overhead line and T-pylon overhead line routes generally follow the same alignment except for a minor variation at changes in direction and pylon locations at Lampley Road near North End. Here the T-pylon would require two additional tension pylons, rather than suspension pylons, (so no overall increase in number of pylons), to negotiate more gradual changes in direction compared to the steel lattice pylon alignment. However, proposed T-pylon tension pylons do not differ significantly in appearance from T-pylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.
- 9.139 For the majority of visual receptors across the flat Levels landscape the existing 132kV overhead line is already present in views above trees and hedges. A new 400kV overhead line in Section D would replace views of the existing 132kV overhead line and would be visible in most views above trees and hedges. Visibility of the T-pylon would be less and for a shorter extent compared to the steel lattice pylon, due to their lower heights (12m lower than the steel lattice pylon but between 8m and 10m higher than the existing 132kV pylons) combined with screening by intervening trees and hedges. This would be less evident in the northeast of Section D across the eastern part of Nailsea Moor, near Tickenham Church and Nailsea, where receptor views are generally open with fewer trees or hedge screening. Where views are towards the side elevation of a new overhead line the effects of a T-pylon would be reduced further due to it being less dominant than the steel lattice pylon as the width is 5m narrower. Where there is screening by trees and built form the T-pylon would be more readily screened entirely than the taller

steel lattice pylon where the same amount of cover would only partially screen the steel lattice pylon.

- 9.140 In near distance views within 250m of a new overhead line, where several pylons are visible in views along the line, the T-ylon is considered to be more prominent than the steel lattice pylon. This is due to the T-ylon's solid central column and cross beam, the „diamond“ configuration of the insulators and conductors suspended from the pylon and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon.
- 9.141 In long distance views looking down from the elevated landforms of the Mendip Hills to the south (in Section C), Cadbury Hill and Cleeve Ridge to the east, and Tickenham Ridge to the north (in Section E) views extend to the horizon and views of pylons diminish over a few kilometres. In the distance from the Mendip Hills, Cadbury Hill and Cleeve Ridge a new overhead line using a T-ylon would tend to be less visible than the steel lattice pylon due to its lower height and the effect of intervening hedge and tree screening, meaning a shorter length of overhead line would be visible if the T-ylon was used. From Tickenham Ridge it is considered the T-ylon would be more visible in the distance than the steel lattice pylon due to less tree and hedge screening across the eastern part of Nailsea Moor with the solid central column and cross beam of the T-ylon more prominent but of a reduced height.
- 9.142 In views from the Levels and Moors in Section D up towards Tickenham Ridge in Section E it is considered that the T-ylon would be less visible above the ridge background due to their lower height when compared to the standard steel lattice pylon. However the standard steel lattice pylon would benefit more from backgrounding to the lower elevations due to the open lattice steel design. At the top of Tickenham Ridge, the low height steel lattice pylon and the T-ylon would tend to be less visible than the standard steel lattice pylon due to their lower height.
- 9.143 There are seven PRow where the new overhead line deviates from the existing 132kV alignment bringing a new 400kV overhead line closer in views than the existing 132kV overhead line at Pilhay Bridge and Gang Wall, North Drove, Causeway Bridge and Parish Brook. Users of these footpaths would have several pylons in near distance views along the line and within 250m with the T-ylon considered to be more prominent than the steel lattice pylon where the paths would

pass beneath or be near to the new line. This is due to the solid central column and cross beam, the prominent „diamond" configuration of insulators and conductors suspended from the pylons and because the conductors are closer together and form a larger element in the view. However it is considered the T-pylon would tend to be less visible above backgrounding of Tickenham Ridge and Cleeve Ridge due to it being lower in height than the steel lattice pylon.

- 9.144 Private views from seven properties would experience the greatest negative magnitude of effect (scale of change) from a new overhead line introduced on a different alignment to the existing 132kV overhead line and within 200m to 300m of those properties in near distance and middle distance views. These receptors are on Church Lane and Causeway near Nailsea and Tickenham Church and the T-pylon is considered to be visible for a shorter extent above screening than the standard steel lattice pylon due to its lower height. However the standard steel lattice pylon is considered to be less prominent than the T-pylon in these near distance and middle distance views across the moor. This is due to the proximity of views along the line and the effects of backgrounding from Tickenham Ridge and mature trees along Parish Brook where the steel lattice pylon would be less visible than the solid central column and cross beam of the T-pylon.
- 9.145 Approximately seventy properties in Section D have near distance and middle distance views 30m to 300m from the existing 132kV Bridgwater to Avonmouth Route overhead line and would experience the greatest negative magnitude of effect (scale of change) on views. Receptors would have near distance views along a new 400kV overhead line on a similar alignment 30m to 300m away. These include properties on Drove Way, Dolemoor Lane, A370 Weston Road east of Hewish including Moorland Park, Wemberham Lane, Lampley Road, B3133 Kenn Road, Kenmoor Road, and in Stone-edge Batch. The T-pylon is considered to be more prominent than the steel lattice pylon in these views due to receptors being close with views along the line and the solid central column and cross beam and the configuration of conductors being more prominent than the steel lattice pylon. However the T-pylon is considered to be visible for a shorter distance than the steel lattice pylon in views along the line due to it being 12m lower combined with screening by intervening trees and hedges, although the steel lattice design of the steel lattice pylon would be less visible against the sky than the solid central column and cross beam of the T-pylon.

- 9.146 Receptors from settlements within 1.5km of the new overhead line would have views of the overhead line across the flat Levels landscape with pylons generally visible above trees except for receptors in Tickenham and Stone-edge Batch (in Section D and E) where there is less tree screening across the eastern part of Nailsea Moor. Within this large scale flat landscape the T-pylon would tend to be visible for a shorter distance than the steel lattice pylon due to the T-pylon being 12m lower combined with screening by intervening trees and hedge and the effect of distance, compared to the steel lattice pylon that would have a greater extent of support visible above trees. From Tickenham and Stone-edge Batch, on the lower slopes of the ridge, receptors have distant open views and it is considered that the steel lattice pylon would be less visible in receptor views due to fewer trees and hedge screening across the eastern part of Nailsea Moor and the increased effects of backgrounding on the steel lattice design.
- 9.147 For over one hundred and fifty properties on the northwest edge of Nailsea (and more properties in the settlement on rising ground) it is considered that the T-pylon would be visible for a shorter extent above trees than the steel lattice pylon due to the T-pylon being 12m lower combined with the new overhead line being 350m further north in middle distance views beyond mature tree screening along Parish Brook.

Potential for Mitigation

- 9.148 At Nailsea and Stone-edge Batch undergrounding of the existing W Route overhead line would bring benefits. This would assist in offsetting the negative effects of a new 400kV overhead line as it would remove a 132kV overhead line from foreground views from a large number of receptors on the north western edge of Nailsea and where it passes close to receptors in Stone-edge Batch on the B3130 Clevedon Road and Tickenham Hill (in Section E). This would be the case particularly where the W Route oversails properties at Rhyne View and Brunel Road, Nailsea where it is adjacent to garden boundaries and the new overhead line would be introduced approximately 350m further north. The proposed undergrounding of the W Route would be undertaken in connection with the new 400kV line whether it is supported with the steel lattice pylon or the T-pylon.
- 9.149 It would be possible to minimise negative effects on views through careful planning of access to avoid the need for road improvements to the local lane network, by utilising existing gaps in hedgerows and by reinstating roads to their original

condition once construction is complete. Some short term negative visual effects would be unavoidable until re-establishment.

- 9.150 Mitigation by way of additional hedgerow and tree belt planting in the vicinity of a new overhead line, subject to landowner agreement, would be in keeping with the existing landscape character and could assist in reducing potential effects on views. Over the long term, for example after 15 years and beyond, adverse effects on views arising from use of the T-pylon would be reduced more than those from using a steel lattice pylon design because maturing trees would be more effective in screening due to the T-pylon's lower height.
- 9.151 The existing 132kV W Route, AT Route and N Route overhead lines would continue to feature in many views in Section D. In the north the existing W Route overhead line would be undergrounded and would reduce negative effects on views for receptors in this location. The presence of existing overhead lines with steel lattice pylons generally would reduce the magnitude of effect (scale of change) on the local landscape resulting from a new overhead line using steel lattice pylons as lattice pylons are existing structures within the landscape. Where these existing overhead lines are within a view the steel lattice pylon tends to have a lower effect than the T-pylon. The T-pylon would be a new landscape feature; however the T-pylon is not totally uncharacteristic compared to existing overhead lines.

Summary

- 9.152 In Section D a new 400kV overhead line using the steel lattice pylon or the T-pylon generally would follow the same alignment except for some minor variations at changes in direction and pylon locations at Lampley Road. In this location the T-pylon overhead line would require four tension pylons to negotiate a more gradual change in direction compared to two tension pylons (changes in direction) proposed on the steel lattice pylon alignment. However, proposed T-pylon tension pylons do not differ significantly in appearance from T-pylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.
- 9.153 For both pylon options there would largely be moderate negative effects on views. This is due to the presence of the existing 132kV overhead line, and other existing overhead lines, already present in views above trees which would be replaced with a new 400kV overhead line, which would be more visible above trees and hedgerows due to the increased height of the pylons. In most of Section D it is

considered that the T-pylon would tend to be less visible and for a shorter distance than the steel lattice pylon due to it being 12m lower meaning a lesser extent of pylon support would be visible above tree and hedge screening. Across the eastern part of Nailsea Moor near Tickenham Church, a shorter extent of T-pylon is considered to be visible above backgrounding than the standard steel lattice pylon due to its lower height. However, in some receptor views it is considered that the steel lattice pylon would be less prominent than the T-pylon due to less tree and hedge screening. This is due to the effects of backgrounding from Tickenham Ridge and mature trees along Parish Brook where the lower elevation of the steel lattice pylon would be less visible than the solid central column and cross beam of the T-pylon.

- 9.154 The greatest negative effect would be experienced by a small number of sensitive receptors where a new 400kV overhead line deviates from the existing 132kV overhead line and would be introduced closer in direct near distance and middle distance views towards the line and along the line in places where it crosses the open landscape of Nailsea Moor. These receptors include seven PRow that the new overhead line passes over or runs parallel to within 100m and seven properties where the new overhead line would be within 200m to 300m. In these views a shorter extent of T-pylon is considered to be visible above backgrounding than the steel lattice pylon due to it being 12m lower. However, the T-pylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam and more clustered arrangement of conductors (wires) as opposed to the more open lattice steel pylon, which benefits more from backgrounding.
- 9.155 Approximately seventy properties in Section D are between 30m and 300m from the existing 132kV Bridgwater to Avonmouth Route overhead line and would experience the greatest negative magnitude of effect (scale of change) on views with near distance and middle distance views along a new 400kV overhead line on a similar alignment to the existing 132kV overhead line. The T-pylon is considered to be more prominent than the steel lattice pylon in these views due to receptors being near distance and middle distance with views along the line. The solid central column and cross beam and the configuration of insulators and conductors would also be more prominent than the steel lattice pylon. However the T-pylon is considered to be visible for a shorter distance than the steel lattice pylon in views along the line due to it being 12m lower combined with screening by intervening

- trees and hedges, although due to its design steel lattice pylon would be less visible against the sky than the solid central column and cross beam of the T-ylon.
- 9.156 For around two hundred receptors in settlements within 1.5km of the new overhead line the T-ylon is considered to be visible over a shorter distance than the steel lattice pylon. This is due to the large scale flat Levels landscape and the T-ylon being 12m lower than the steel lattice pylon which would result in a greater extent of screening by intervening trees and hedges.
- 9.157 Across the eastern part of Nailsea Moor mature trees along Parish Brook would screen a greater extent of a T-ylon from over 150 receptors to the south in Nailsea, with a lesser extent visible in middle distance views above ridge backgrounding compared to a steel lattice pylon due to it being 12m lower. However in views from over one hundred receptors in West End (south), Tickenham (north) and Stone-edge Batch (northeast) the steel lattice pylon is considered to be less prominent than the T-ylon in views due to the effects of backgrounding from Tickenham Ridge and mature trees along Parish Brook where the more open steel lattice pylon design would be less visible than the solid central column and cross beam of the T-ylon but with a greater extent of support visible above backgrounding.
- 9.158 A large number of receptors along 6.5km of settlement edge in Banwell, Congresbury, Yatton, Claverham and Nailsea would experience views towards a new 400kV overhead line visible above trees in middle distance and distant views from 350m to 2km. The T-ylon is considered to be visible in views over a shorter distance above trees than the steel lattice pylon, or not at all in places where the existing overhead line is completely screened by trees. This is due to the large scale flat Levels landscape and the T-ylon being 12m lower than the steel lattice pylon which would result in a greater extent of screening by intervening trees and hedges.
- 9.159 Long distance views along the new overhead line are available from receptors in the elevated settlements of Banwell and the settlement of Sandford at the foot of the Mendip Hills AONB (in Sections C and D); Clevedon on Tickenham Ridge on the boundary of Sections D and E; and Cleeve and Brockley 3.5km away on Cleeve Ridge. In these receptor views looking down towards the new overhead line the T-ylon would tend to be less visible in the distance than the steel lattice pylon due to

their lower height and the effect of intervening hedge and tree screening, meaning a shorter length of overhead line would be visible with the T-pylon.

- 9.160 Where the existing steel lattice overhead lines are within a view the steel lattice pylon would tend to have a lower effect than the T-pylon as lattice pylons are existing structures within the landscape. The T-pylon would be a new landscape feature; however the T-pylon is not totally uncharacteristic compared to existing overhead lines.
- 9.161 Overall from a visual amenity perspective the T-pylon is preferred in Section D as the existing 132kV overhead line is already present in most views above trees and would be replaced with a new 400kV overhead line. The T-pylon would tend to be less visible and for a shorter distance than the steel lattice pylon because it is 12m lower meaning a lesser extent would be visible above tree and hedge screening combined with the effect of distance, although other steel lattice pylons would still be visible in the landscape. Reduced visual effects of a T-pylon would be evident in over two hundred receptor views and over 6.5km of settlement edge with middle distance and distant views beyond 300m away. This is compared to approximately fourteen receptors and seventy properties where the T-pylon would be more prominent than the steel lattice pylon due to the solid central column and cross beam and the conductor configuration in near distance views within 250m.

Historic Environment

Baseline Conditions

- 9.162 One Grade I Listed Building within 500m of the Proposed Route has a setting that would be affected by it. The Church of St. Quiricus and St. Julietta in Tickenham is set within a small nucleated medieval settlement at the base of a hill. It is part of a group of receptors including a Grade II* Listed Building, and four Grade II Listed structures. The church has views east across post-medieval regular enclosures to a line of trees and hedges alongside Parish Brook, beyond which is the existing 132kV overhead line, approximately 550m away. The line of vegetation along the Brook provides partial screening from the 132kV overhead line, although the upper sections of the pylons are visible above it. The overhead line passes in front of the screening towards the north, in the periphery of the view from the church. This is a very high sensitivity receptor.
- 9.163 One further Grade I Listed Building within 10km of the Proposed Route has a setting that would be affected by it. St. Saviour's Church, Puxton, has views across flat land to the existing 132kV overhead line, approximately 1.1km away. This is a very high sensitivity receptor.
- 9.164 One Grade II* Listed Building within 500m of the Proposed Route has a setting that would be affected by it. Tickenham Court (C AD1400) stands west of the Church of St. Quiricus and St. Julietta, which forms a principal element of its setting and also screens it from the existing 132kV overhead line, approximately 540m away. This is a very high sensitivity receptor.
- 9.165 One further Grade II* Listed Building within 10km of the Proposed Route has a setting that would be affected by it. The Church of St. John the Evangelist in Kenn has views across irregular fields, some with mature hedgerows, to the existing 132kV overhead line approximately 1km away. This is a very high sensitivity receptor.
- 9.166 Three Grade II Listed Buildings within 100m of the Proposed Route have settings that would be affected by it. Hope Farmhouse, North End, is set in a small group of farm buildings within a zone of irregular fields, with the existing 132kV overhead line approximately 100m away and the M5 approximately 700m to the west. The setting of Manor Farmhouse, Kenmoor Rd., comprises a roadside group of farm buildings surrounded by regular, late post-medieval enclosure fields. The existing 132kV

overhead line passes approximately 110m to the south of this receptor, although land associated with this receptor reaches within approximately 30m. Stone-edge Farmhouse is adjacent to Clevedon Road, which dips before rising onto Tickenham Ridge; the existing 132kV overhead line passes along the dip, within 50m of this receptor, and the setting includes telegraph lines and modern housing. These receptors are all of high sensitivity.

- 9.167 A further eight Grade II Listed Buildings within 500m of the Proposed Route have settings that would be affected by it. The Listed churchyard entrance steps and three Listed monuments are set within the curtilage of the Grade I Listed Church of St. Quiricus and St. Julietta at Tickenham, and share its setting (see above). Wellhouse Farmhouse and its Listed range in Stone-edge Batch are set on a hill; the existing 132kV overhead line is approximately 175m away, but this receptor is screened to the west by buildings and trees, and partly screened to the southwest by buildings in the foreground of the view. Lampley Farmhouse, North End, is on a lane within a landscape of post-medieval fields; its setting also incorporates adjacent later buildings, the existing 132kV overhead line and other low voltage overhead lines. The Grange, North End, is approximately 500m from the existing 132kV overhead line and partly screened by other buildings and vegetation. These receptors are all of high sensitivity.
- 9.168 A further nine Grade II Listed Buildings within 10km of the Proposed Route have settings that would be affected by it. Yew Tree House, West End, has a setting that includes ancillary buildings, gardens divided by hedges and a large pond, surrounded by irregular post-medieval fields, with the existing 132kV overhead line approximately 200m away. Tower House Farm, West End, is set among ancillary buildings and tree-lined fences, with the existing 132kV overhead line approximately 200m away. A Grade II Listed and Scheduled cross in St John the Evangelist's churchyard shares the same setting as the church (described above), as does Kenn Court Farmhouse, nearby. Jacklands Farm and a nearby Listed milestone are set on a lane running north from Nailsea, and have views west across post-medieval fields with hedges including the existing 132kV overhead line, approximately 600m away. Batch Farmhouse, West End, is set within a modern farm, and has views west including the existing overhead line, approximately 460m away. Little Manor, West End, is slightly closer but benefits from slightly more vegetation screening than Batch Farmhouse, being surrounded by light industrial buildings and mature

- trees, approximately 450m from the existing 132kV overhead line. These receptors are all of high sensitivity.
- 9.169 One further Scheduled Monument within 500m of the Proposed Route has a setting that would be affected by it. The setting of Nye Farm medieval moated site includes modern buildings and trees, which effectively screen it from the existing 132kV overhead line, approximately 200m away. This receptor is of very high sensitivity.
- 9.170 A further five Scheduled Monuments within 10km of the Proposed Route have settings that would be affected by it. Wemberham Roman villa is north of Hewish Farm, East Hewish, within a post-medieval enclosed landscape, beside the River Yeo, over 1km from the existing 132kV overhead line. A former medieval farmstead near Gout House Farm, south of East Rolstone, comprises an area of raised ground surrounded by a ditch, and has yielded Roman as well as medieval remains. Its setting is a part of the North Somerset Levels and Moors divided into irregular pastures, bounded by rhynes and hedgerows; the existing 132kV overhead line is 1.2km east. A wooded hillfort at Yatton, Cadbury Hillfort, is elevated approximately 75m above the Proposed Route and has views west across agricultural land to the existing 132kV overhead line, approximately 2km away. The churchyard cross at St John the Evangelist's Church, Kenn, is a Scheduled Monument as well as being Grade II Listed (see above). Cadbury Camp Scheduled Monument, Tickenham, which has views including the Proposed Route in Section D, is described in the chapter for Section E. These are very high sensitivity receptors.
- 9.171 One Conservation Area within 10km of the Proposed Route has a setting that would be affected by it. Banwell Conservation Area is largely within a dip between hills, but extends onto the Somerset Levels (north) approximately 1.5km from the existing 132kV overhead line. Congresbury Conservation Area, 1.6km east of the Proposed Route, is screened by an adjacent line of trees along the Cheddar Valley Railway Walk. Other Conservation Areas within 10km (e.g. Yatton, Nailsea) are within wider urbanised zones, so have no setting relationship with the existing overhead line or the Proposed Route.
- 9.172 No Registered Park and Gardens or Registered Battlefields would be affected by the proposed development.
- 9.173 The buffer zone contains 103 other known non-designated heritage receptors. These are: 1 Neolithic findspot, 1 group of four possible barrows, 2 Roman

settlements, 5 Roman findspots, 3 medieval drove roads, 2 DMVs, 1 medieval churchyard cross, 1 medieval tenement, 1 possible medieval building, 1 medieval findspot, 4 post-medieval core settlements, 1 post-medieval mine site, 1 duck decoy, 1 windmill site, 1 undated limekiln site, 1 engine house site, 11 post-medieval/modern farmhouses, 12 post-medieval/modern farmhouse/building sites, 2 post-medieval farm buildings, 3 post-medieval bridges, 1 post-medieval shrunken settlement, 1 post-medieval causeway, 1 fishpond, 7 C19th house sites, 1 blacksmithy, 1 mill leat, 5 boundary/marker stones, 1 smithy site, 2 railways, 1 duck decoy, 1 possible trackway, 1 tannery, 1 gasworks site, 1 railway, 2 railway borrow pits, 2 railway bridges, 2 brickyards, 1 former sewage works, 2 Second World War sites, 3 palaeochannels, 2 undated mounds, 3 undated ditches, 1 undated field system, 3 undated enclosures, and 2 undated earthworks sites. These receptors are of moderate, low and negligible sensitivity.

- 9.174 The southern two thirds of the study area lie predominately within a zone defined by the North Somerset Historic Landscape Characterisation as being of „post-medieval (C15-17th) organised enclosure of anciently reclaimed inland moors“. There are patches of other historic landscapes, including a small part at the southern end that is within a zone of „late medieval enclosed open fields“, with some „post-medieval fields created from enclosure of medieval parkland“. The southern two thirds also contain small areas within zones of „post-medieval (C15-17th) irregular enclosure of anciently reclaimed inland moors“ and „post-medieval (C18-19th) parliamentary enclosure“, but in the northern third of the study area these two forms of enclosure dominate. Two smaller zones in the north are Nailsea, which is „C20th (new or modern)“, and the northern extreme of the study area, which extends into „late medieval enclosed fields created by local arrangement and exchange“. The late medieval enclosed fields to the south and the late medieval field system to the north are of moderate sensitivity. The modern zone of Nailsea is of negligible sensitivity. All other historic landscape zones within this study area are of low sensitivity.
- 9.175 Hedgerows associated with former settlement at Brinsea, Kenn, Stone-edge Batch or Tickenham, the Roman landscape on Kenn Moor, a possible Deer Park at Kenn, a causeway on Tickenham Moor, parish boundaries, or any historic buildings and archaeological sites described in the North Somerset Historic Environment Record, may all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects

Effects equal for both Options

- 9.176 For both the steel lattice and T-pylon overhead line options the potential effects on a number of historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 9.177 Both the T-pylon and steel lattice pylon options would result in an overall negative effect of moderate magnitude on a group of receptors at Tickenham due to changes to their setting. Alternatively, use of low height steel lattice pylons would also result in an overall moderate negative magnitude of effect but would be slightly lower in magnitude than either steel lattice pylon or T-pylon options. This group of receptors comprises the Grade I Listed Church of St. Quiricus and St. Julietta, Grade II* Listed Tickenham Court (discussed above), and four Grade II Listed structures in the churchyard. Two existing 132kV overhead lines would be removed: these are the F Route (approximately 550m from the receptors) and W Route (approximately 500m from the receptors). These lines are backgrounded by (W Route) or partially screened by (F Route) a line of trees along Parish Brook. New, larger infrastructure would be constructed 350m from the receptors. For all three options, the magnitude of effect would be increased due to the open view across a post-medieval rural landscape, but reduced by the distance of separation. The visibility of the steel lattice pylon option would be greater than that of the T-pylon or low height steel lattice pylon options due to its greater height (approximately 47m, compared with approximately 35m). A much larger section of the steel lattice pylons than the T-pylons or low height steel lattice pylons would break the skyline, increasing the magnitude of effect. However, the magnitude of effect for either steel lattice pylon options would be reduced due to backgrounding of the lower sections of pylons against vegetation along Parish Brook. In addition, the magnitude of effect of the T-pylon option would be reduced relative to the steel lattice pylon option as the closest pylon would be viewed at approximately 90°, at which angle the T-pylon appears to be of lesser mass.
- 9.178 Both options would have an equal effect on Grade II* Listed Tickenham Court, when it is considered as an individual receptor, rather than part of the group of receptors at Tickenham (for which, see below). This receptor is screened from the Proposed Route by the adjacent church but it is an important element of the Tickenham group as a whole, and of the setting of other receptors and vice versa.

When it is considered individually, both options would result in a negligible magnitude negative effect on this receptor.

- 9.179 Both options would result in negligible positive effects on two Grade II Listed Buildings as a result of changes to their settings. For Yew Tree House and neighbouring Tower House Farm the existing 132kV overhead line, approximately 250m away, would be replaced by larger infrastructure approximately 525m away. The existing 132kV W Route overhead line, approximately 500m and 410m away respectively, would also be removed.
- 9.180 Both options would result in neutral effects on two Grade II Listed Buildings as a result of changes to their settings. For Batch Farmhouse, the existing 132kV overhead line approximately 500m away would be replaced with larger infrastructure approximately 650m away. For Little Manor, the existing 132kV overhead line approximately 450m away would be replaced with larger infrastructure approximately 630m away. The magnitude of effect would be reduced by the distance of separation and vegetation screening.
- 9.181 Both options would result in a negligible negative effect on Grade II Listed Manor Farmhouse as a result of changes to its setting. The existing 132kV overhead line approximately 110m away would be replaced by larger infrastructure on a similar alignment. The magnitude of effect would be reduced somewhat by the distance of separation and by screening from adjacent buildings.
- 9.182 Both options would result in a negligible magnitude effect on three Scheduled Monuments as a result of changes to their settings. For Cadbury Hillfort, near Yatton, the existing 132kV overhead line, approximately 2km from the Scheduled Monument, would be removed and replaced on a similar alignment. For Wemberham Roman villa, the existing overhead line approximately 1km away would be replaced approximately 900m away. For Gout House Farm medieval farmstead, the existing overhead line approximately 1.2km away would be replaced approximately 1.4km away. For all three receptors, the magnitude of effect would be reduced by the distance of separation, but increased by the larger size of the new infrastructure. The magnitude of effect would also be reduced by the presence of screening or dominant elements in the foreground of the view (Yatton and Congresbury between Cadbury Hillfort and the Proposed Route, and vegetation screening on the Levels between Wemberham and Gout House Farm and the Proposed Route). When comparing the two options, for all three receptors the

magnitude of effect of the steel lattice pylon would be increased relative to that of the T-ylon due to the its greater height. However, for all three receptors the magnitude of effect of the T-ylon option would be increased relative to that of the steel lattice pylon option due to the greater prominence of the T-ylon's solid central column and cross beam. For Wemberham and Gout House Farm, the magnitude of effect of the steel lattice pylon option would be greater than the T-ylon due to the extent to which the former breaks the skyline, despite partial backgrounding from hills on the horizon. For Cadbury Hillfort the magnitude of effect of the steel lattice pylon option would be less than the T-ylon option as it would benefit more from backgrounding (since neither option would break the skyline from the viewpoint of the receptor).

- 9.183 Both options would result in a negligible magnitude negative effect on one Conservation Area due to changes to its setting. At Banwell, the infrastructure that would replace the existing 132kV overhead line on a similar alignment would result in a greater change to the receptors setting due to its larger size; however, it would still not be visible throughout almost all of the Conservation Area. The Proposed Route would be visible in enclosed views from within the streetscape in the upper parts of the Conservation Area. For both options, the magnitude of effect would be reduced by the distance of separation. The steel lattice pylon option would be more visible, and visible from more areas within the Conservation Area, than the T-ylon option due to the pylons greater height. However, as the Proposed Route would be seen from an elevated position the magnitude of effect would be reduced due to backgrounding. This factor would be more marked for the steel lattice pylon option than the T-ylon option.
- 9.184 While the overall magnitude of effect of both options on the historic landscape is equal, variations in how the two options relate to several factors (including topography, screening and backgrounding) mean that one or the other option would have less magnitude of effect in certain localised areas. In flat areas, the effect on historic landscape character of the T-ylon option would be less widespread than that of the steel lattice pylon option due to the T-ylon's lower height. Where overhead lines are already present in the landscape (i.e. the connection with the existing 132kV AT Route south of Puxton), the T-ylon would result in a negative effect of greater magnitude as it would introduce a new and different landscape element, which would result in a greater change than increasing the number of lattice pylons already present. The effect on historic landscape character is

reduced where the Proposed Route is backgrounded by surrounding higher ground (e.g. looking south towards the Mendip Hills, west towards Yatton, or north towards Tickenham Ridge); this reduction in the magnitude of effect is more marked for the steel lattice pylon option because it lacks the solid central columns and cross beams of the T-pylon. For both options, the magnitude of effect is reduced where the landscape is experienced at greater distance and with greater screening by topography, buildings and vegetation. The negative magnitude of effect would be low, on historic landscape zones of moderate, low or negligible sensitivity.

- 9.185 For both options, there is potential for negative effects on buried archaeological remains at ancillary work locations (including access tracks) and at pylon locations. The magnitude of effect would be high - low on receptors of moderate - negligible sensitivity.
- 9.186 For both options, improvements to the road network necessary for construction activities could cause negative effects to historic landscape elements such as „important“ hedgerows and historic lanes. The magnitude of these effects would be low on receptors of low sensitivity.

Effects that differ between Options

- 9.187 Both options would result in a negligible magnitude negative effect on the Grade I Listed St. Saviour's Church, Puxton, due to changes to its setting, although the steel lattice pylon option would be slightly more prominent in views than the T-pylon option. The existing 132kV overhead line would be replaced on a similar alignment with larger infrastructure; the magnitude of effect would be reduced by the distance of separation (approximately 1.1km) and by vegetation screening around this receptor, which would afford only partial views. The magnitude of effect of the T-pylon option would be reduced further in comparison to the steel lattice pylon as it is smaller, would break the skyline to a lesser extent and would benefit more from screening in the vicinity of the receptor.
- 9.188 Both options would result in negligible magnitude negative effects on a group of receptors in Kenn, comprising the Grade II* Listed Church of St John the Evangelist and its Scheduled and Grade II Listed churchyard cross, due to changes to their setting, although the steel lattice pylon option would be slightly more prominent in views than the T-pylon option. The existing 132kV overhead line approximately 1km away would be replaced by larger infrastructure on a similar alignment. The magnitude of effect would be reduced by the distance of separation. The magnitude

of effect of the T-pylon option would be reduced further in comparison to the steel lattice pylon as it is smaller and would break the skyline to a lesser extent.

- 9.189 The steel lattice pylon option would result in negative effects of low magnitude on one Grade II Listed Buildings due to changes in its setting, whereas the T-pylon option would result in negligible magnitude negative effects. For Hope Farmhouse, the existing 132kV overhead line approximately 150m away would be replaced with larger infrastructure on a similar alignment. The magnitude of effect of the steel lattice pylon option would be increased as a result of its greater height, and because the T-pylon option would benefit more from screening by buildings and vegetation in the vicinity of the receptors.
- 9.190 Both options would result in low magnitude negative effects on the Grade II Listed Stone-edge Farmhouse due to changes to its setting, although the T-pylon option would be slightly more prominent in views than the steel lattice pylon. The existing 132kV overhead line approximately 50m away, would be replaced by new infrastructure on a similar alignment, and the existing 132kV W Route overhead line, which runs parallel to it, would also be removed. The T-pylon option would appear more prominent than the steel lattice pylon option, due to the T-pylon having a solid central column and cross beam. The T-pylon options would also comprise the introduction of a new and visible group of modern elements in the receptor's setting, whereas the steel lattice pylon option would comprise a slight increase in the degree to which an extant element of the setting contributes to it.
- 9.191 Both options would result in low magnitude negative effects on Grade II Listed Wellhouse Farmhouse and its Listed range due to changes to their setting, although the T-pylon option would be slightly more prominent in views. The existing 132kV overhead line approximately 175m away would be replaced with larger infrastructure. The magnitude of effect would be reduced by adjacent vegetation and buildings that provide screening from the pylons closest to the receptors. The magnitude of effect would be increased for the lattice pylon option due to its greater height. However, the magnitude of effect would be increased for the T-pylon as it would introduce a new modern element to the setting, rather than an increase in size of an existing element.
- 9.192 The steel lattice pylon option would result in low magnitude negative effects on two Grade II Listed Buildings due to changes to their setting, whereas the T-pylon option would result in negligible magnitude negative effects. For The Grange, the

existing 132kV overhead line approximately 500m away would be replaced on a similar alignment; the magnitude of effect would be reduced by the distance of separation and partial screening provided by adjacent buildings and vegetation. The magnitude of effect for the T-pylon would be reduced further due to its lower height and because it would benefit more from the screening adjacent to the receptor.

- 9.193 Both options would result in negligible magnitude negative effects on three Grade II Listed Buildings/structures due to changes to their settings, although the steel lattice pylon option would be slightly more prominent in views than the T-pylon option. For Kenn Court Farmhouse, the existing 132kV overhead line approximately 1km away would be replaced by larger infrastructure on a similar alignment. For Jacklands Farm and a nearby milestone, the existing 132kV overhead line, approximately 600m away, would be replaced by larger infrastructure approximately 700m away. For all of these receptors, the magnitude of effect would be reduced by the distance of separation. The magnitude of effect of the T-pylon option would be reduced further in comparison to the steel lattice pylon as it is smaller and would break the skyline to a lesser extent.
- 9.194 The steel lattice pylon option would result in a negligible magnitude negative effect on the Grade II Listed Lampley Farmhouse due to changes to its setting, whereas the T-pylon option would have no effect on this receptor. The existing 132kV overhead line approximately 330m away would be replaced by new infrastructure approximately 460m away. This receptor benefits from adjacent vegetation screening and later buildings, and vegetation screening intervening between it and the overhead line. The steel lattice pylon option would be visible only in partial views at certain points around the receptor's setting, whereas due to its lower height the T-pylon would have little or no visibility.
- 9.195 The steel lattice pylon option would result in a negligible magnitude negative effect on Nye Farm Scheduled Monument due to changes to its setting, whereas the T-pylon option would have no effect on this receptor. The existing 132kV overhead line approximately 200m away would be replaced by larger infrastructure approximately 300m away. The magnitude of effect is reduced by screening from nearby buildings and trees that surround the receptor. The magnitude of effect of the T-pylon would be less than that of the steel lattice pylon due to its shorter height and consequent greater benefit from screening, such that any change to the receptor's setting would be insufficient to affect its sensitivity.

Potential for Mitigation

- 9.196 For both the steel lattice and T-pylon overhead line options the potential for mitigation of effects on historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 9.197 Scope to mitigate effects on the settings of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 9.198 For both options, there may be scope to mitigate effects on built heritage by provision of interpretation boards and/or improvements to the settings of affected assets.
- 9.199 For both options, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place. It is assumed that an effective programme of archaeological mitigation can be implemented as part of the project.
- 9.200 For both options, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting.

Summary

- 9.201 Both options would have an overall major negative scale of effect on the historic environment, although the magnitude of effect of the steel lattice pylon option is slightly greater than that of the T-pylon, and the latter would therefore be preferred from a historic environment perspective. The negative effects on Listed Buildings of the steel lattice pylon option and T-pylon option are of equal magnitude, although a low height steel lattice option would be of lower magnitude than either option in this localised area. The use of low height steel lattice pylons at Tickenham would have a lower magnitude of effect than either the standard height steel lattice pylon or the T-pylon option. However, for reasons outlined in Chapter 5 of this report the localised use of low height steel lattice pylons would not be of benefit overall in this Section.

- 9.202 Both options would have an overall major negative scale of effect on Listed Buildings, although the steel lattice pylon option would be slightly more prominent in views than the T-ylon option, regarding the settings of a number of very high and high value receptors. The two options would have equal effects on two Grade I and two Grade II* Listed Buildings, but overall the steel lattice pylon option would have slightly more widespread negative effects on 18 Grade II Listed Buildings. Both options would have an overall minor negative scale of effect on Scheduled Monuments. The effect of the steel lattice pylon option is slightly more widespread, affecting five receptors compared to four for the T-ylon option.
- 9.203 Both options would have an overall minor negative scale of effect on one Conservation Area.
- 9.204 Both options would have an overall minor negative scale of effect on the historic landscape. For both options, replacement of the existing 132kV overhead line with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character zones. Both options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal, etc.
- 9.205 The steel lattice pylon and T-ylon options would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon numbers. The overall scale of effect would be minor negative. The potential for as-yet undiscovered archaeological remains to be present along the Proposed Route is high.
- 9.206 Mitigation of the indirect visual effects of the overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation in situ is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline conditions

- 9.207 The Proposed Route does not cross any international wildlife site designations within Section D. However, the North Somerset and Mendip Bats Special Area of Conservation (SAC) has a number of SSSI component sites within a 5km radius. This site is valued at the European level. Although some of the component sites fall outside of Section D, they are considered within this Section because of the presence of horseshoe bats which are likely to use habitats within and adjacent to the Proposed Route in Section D. The composite sites of the SAC within 5km of the Proposed Route are:
- Kings Wood and Urchin Wood SSSI (3km east);
 - Banwell Ochre Caves SSSI (1.5km south) (in Section C); and
 - Banwell Caves SSSI (3.7km southwest) (in Section C).
- 9.208 North Somerset Council has identified a 5km consultation zone surrounding the component sites of the SAC. Within this consultation zone development proposals are subject to particular scrutiny with regards to their potential effects on the SAC. For the majority of Section D the Proposed Route travels through the 5km SAC consultation zone.
- 9.209 There are two national wildlife site designations that are oversailed by the Proposed Route. These are valued at the national level. These are:
- Biddle Street, Yatton SSSI is a network of ditches and rhynes supporting a diverse range of aquatic plants and invertebrates; and
 - Tickenham, Nailsea and Kenn Moors SSSI is a network of ditches and rhynes supporting a diverse range of aquatic plants and invertebrates.
- 9.210 In addition to this, the following nationally designated sites are within a 1km radius of the Proposed Route:
- Puxton Moor SSSI (approximately 80m west) is a network of ditches and rhynes supporting a diverse range of aquatic plants and invertebrates;
 - Yanal Bog SSSI (approximately 760m east) is a calcareous lowland mire; and
 - Kenn Church, Kenn Pier and Yew Tree Farm SSSI (approximately 800m west) is designated for its geological interest and is not considered further.

9.211 There are four Sites of Nature Conservation Interest (SNCI) that would be crossed by the Proposed Route. These are:

- Puxton Moor SSSI and Surrounding Rhynes SNCI includes unimproved and semi-improved neutral grassland, ditches and notable plant and invertebrate species. Puxton Moor SSSI and an Avon Wildlife Trust nature reserve sit within the boundaries of this designation;
- Rhynes South of Dolemoor Lane SNCI includes semi-improved neutral grassland and ditches and supports notable invertebrate species, particularly aquatic beetles;
- Congresbury Yeo Adjacent Land and Rhynes SNCI includes a mix of aquatic, grassland and woodland habitats and supports a diverse range of notable ditch flora and invertebrates. Biddle Street Yatton SSSI sits within the boundaries of this designation; and
- Nailsea and Tickenham Moors SNCI includes marshy and semi-improved grassland with a diverse and notable aquatic plant and invertebrate community. Tickenham, Nailsea and Kenn Moors SSSI sits within the boundaries of this designation.

9.212 In addition to the local wildlife sites which would be crossed, there are several sites within a 1km radius of the Proposed Route:

- Yanal Bog and Adjacent Rhynes SNCI (approximately 670m to the east) includes calcareous lowland mire, ditches and marshy grassland and supports a diverse flora. Yanal Bog SSSI sits within the boundaries of this designation;
- Horsecastle Pond, Yatton SNCI (approximately 770m to the east) is a pond with diverse flora;
- Rust Lane Borrow Pool and Meadows SNCI (approximately 720m to the north) includes pond, swamp, grassland and woodland habitats and supports a diverse flora;
- Nursebatch Farm Fields SNCI (approximately 780m to the south east) includes marshy and unimproved and semi-improved neutral grassland habitats and supports a diverse flora;

- Batch Farm Meadow SNCI (approximately 680m to the south east) includes marshy and semi-improved neutral grassland habitats and supports a diverse flora; and
 - Towerhouse Wood and Adjacent Fields SNCI (approximately 700m to the east) includes ancient woodland and species-rich damp woodland with a diverse ground flora.
- 9.213 The Proposed Route travels for approximately 13km through the flat open farmland of the Somerset Levels and Moors. Predominately pasture, but with areas of arable, the fields are mainly bordered by wet ditches which are often associated with hedgerows.
- 9.214 There are no woodlands within Section D. There is a network of hedgerows which are predominately species-poor. However, their value is increased due to their association with the ditch network and their likely role as wildlife corridors in an otherwise open landscape. Species that have been recorded in the area which may use the hedgerows include bats (including species associated with the North Somerset and Mendip Bats SAC), dormouse, reptiles and farmland bird species. The network of hedgerows is valued at the district level, but the value of individual ditches will vary depending on associations with other species.
- 9.215 Aquatic habitats are important in this Section. Field ditches are a dominant feature of the landscape and several watercourses are also present including Towerhead Brook (in the south), the River Yeo/Congresbury Yeo and Little River (near Yatton) and the River Kenn, Blind Yeo and Land Yeo (near Nailsea). Species that have been recorded in the area and may use these habitats include otter, water vole, amphibians and invertebrates. Many of the ditches are included within SSSI or SNCI designations and are valued accordingly. The remainder of the ditch and watercourse network is valued at the district level, although the value of individual ditches will vary depending on associations with other species.
- 9.216 The intrinsic value of the arable, improved and semi-improved grassland habitats is low but could be increased by association with valued faunal species. The breeding and wintering bird surveys have highlighted a number of areas with particular ornithological interest. These include the pasture and orchards north of Sandford (farmland and woodland bird species), the land north of Hewish and south of North End (farmland bird species) and Nailsea and Tickenham Moors (potentially important habitats for breeding and wintering wildfowl and waders, although only

low numbers of wintering birds have been recorded). These areas are valued at the district level while the remaining areas are valued at the local level.

Assessment of Effects

- 9.217 No works would occur within or adjacent to the North Somerset and Mendip Bats SAC, there is some potential for loss of tree bat roosts outside the designation (if hedgerow trees are affected and have potential to support SAC bats) and small scale losses of bat foraging or commuting habitat as a result of hedgerow removal to create access for construction. This would lead to fragmentation impacts on horseshoe bats associated with the SAC, leading to a moderate negative medium-term magnitude of effect.
- 9.218 Both pylon options would avoid Puxton Moor SSSI, however both Biddle Street Yatton SSSI and the Tickenham, Nailsea and Kenn Moors SSSI would be crossed. Where the Proposed Route crosses these sites, the pylons would be located outside SSSI boundaries (i.e. avoiding the ditches) and the conductors (wires) would oversail the protected features. However, construction access to the pylon locations will likely require the SSSI ditches to be crossed. Furthermore, the fields adjacent to the SSSI ditches fall within various SNCI designations. There is potential for impacts to occur on these SSSI and SNCI sites during the construction period through habitat loss (from temporary crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species supported by the designations including otter, water vole and breeding and wintering birds (from human activities).
- 9.219 Both options would require construction access and the need for ditch crossings within the designated sites. Leading potentially to habitat losses and temporary reductions in water quality. Therefore such impacts are likely to result in a high negative, medium-term magnitude of effect for both pylon options.
- 9.220 Only small scale hedgerow losses to create construction access are predicted with either option although the permanent loss of individual trees to ensure electrical safety clearances cannot be ruled out. To the south of Lampley Road, the Proposed Route follows the existing 132kV overhead line (which will be removed), therefore safety clearances will already be maintained and additional tree loss along part of the route is unlikely with either option. However, to the north of Langley Road, additional tree loss may be required. Such losses could be greater with the

T-pylon (due to its greater width) in comparison to the lattice pylon option, leading to a low negative, medium-term magnitude of effect prior to mitigation.

- 9.221 Grassland habitats and their associated flora and fauna are likely to experience a low, negative temporary magnitude of effect during construction from ground disturbance and disturbance from human activities. This effect would rise to moderate negative in areas highlighted as notable for birds.
- 9.222 As described above, the Proposed Route for the steel lattice pylon and T-pylons deviate slightly at one location within Section D. However, where this occurs both routes would traverse through arable and pastoral land and effects would be similar.
- 9.223 In combination the low to high magnitude of effects on receptors of local to European value would lead to an overall moderate negative effect on ecology as a result of either the steel lattice pylon or the T-pylon option prior to mitigation.

Potential for Mitigation

- 9.224 For both pylon options, existing field access points and watercourse crossings would be used for works traffic wherever possible and standard environmental protection measures implemented including the timing of works to avoid sensitive periods, the prevention of encroachment of traffic onto retained habitats and implementation of pollution control methods. This is particularly important for construction works within the SSSI and SNCI designations, but also for any works affecting habitats that are hydrologically linked to these sites.
- 9.225 Where appropriate, prior to habitat clearance works, licensed temporary exclusion methods would be used to prevent death or injury to protected species such as bats, water vole or great crested newt if present.
- 9.226 To the north of Lampley Road, where the routes deviate from the existing 132kV overhead line alignment, tree loss may be required to achieve electrical safety clearances. Pollarding or coppicing of hedgerow trees could be used to avoid total loss of habitat and avoid fragmentation of these features.
- 9.227 If necessary, works within those parts of Section D, identified as being notable for birds, could be timed so as to avoid the most sensitive periods. This mitigation measure could apply to either of the pylon design options.

Summary

- 9.228 Both overhead line options would avoid substantial impacts on ecology but detailed consideration of working methods will be required to avoid impacts on SSSIs during construction access and pylon foundation works. Mitigation including wildlife-friendly working methods and the use of existing field access points for construction traffic would in the long-term reduce impacts on ecology in Section D to minor negative.
- 9.229 The Proposed Route broadly follows the existing 132kV overhead line (which will be removed), deviating slightly in the north near Nailsea. Construction of the new overhead line in this area of the route is likely to have fewer impacts on hedgerow trees as safety clearances will already be maintained under the existing 132kV overhead line. However, new pylons will need to be constructed so impacts resulting from these works remain.
- 9.230 Overall, on balance, the scale of residual ecological impact would not differ between the pylon options. The construction of the individual lattice pylons may result in longer disturbance period, although the T-pylon may require a greater extent of hedgerow tree removal due to the greater width of the pylon.

Section D: Summary of Preferred Pylon Option

- 9.231 Whilst the T-pylon would be more prominent in the local **landscape** because of its solid central column, cross beam and the configuration of the insulators and conductors, overall it is preferred as it would be less prominent in the wider Somerset Levels and Moors landscape due to its lower height and visibility diminishing with distance. The T-pylon would result in a less coherent appearance in the landscape when viewed along with the existing and proposed 132kV overhead lines. However, this only occurs in a small part of the large overall Section.
- 9.232 From a **visual** perspective, the T-pylon would tend to be less visible and for a shorter distance than the steel lattice pylon because it is 12m lower meaning a lesser extent would be visible above tree and hedge screening combined with the effect of distance, although other steel lattice pylons would still be visible in the landscape within a small part of the large overall Section. Reduced visual effects of a T-pylon would be evident in over two hundred receptor views and over 6.5km of settlement edge. This is compared to approximately fourteen receptors and seventy properties where the T-pylon would be more prominent than the steel lattice pylon due to the solid central column and cross beam and the conductor configuration.
- 9.233 From an **historic environment** perspective, whilst both pylon designs are considered to have major negative effects on the historic environment, the T-pylon would result in effects of slightly less magnitude particularly in relation to one Grade I and one Grade II* church. The steel lattice pylon and the T-pylon options would result in a slightly less effect on two Grade II Listed Buildings each. The key differentiator between the options in this Section is the effects on the nationally important churches at Puxton and Kenn.
- 9.234 Whilst there are slight differences between the steel lattice and T-pylons from an **ecological** perspective these do not help to differentiate between the options in this Section.
- 9.235 Within Section D, the environmental appraisals have identified that the T-pylon would be preferable overall in terms of effects on landscape, views and the historic environment. Importantly, the T-pylon would minimise effects on the nationally important churches at Puxton and Kenn and, due to its reduced height, would have less overall effect on landscape character and middle distance and distant views.

- 9.236 Whilst there are advantages and disadvantages of both pylon designs in this Section, overall the use of the T-pylon would reduce the effects of the greatest magnitude.
- 9.237 Based on the findings of the appraisals it is therefore recommended that the T-pylon is taken forward to consultation for Section D.

10 APPRAISAL SECTION E – TICKENHAM RIDGE

Section Boundaries

- 10.1 Section E, Tickenham Ridge, extends from Clevedon Road (near Stone-edge Batch) in the south across the ridge to the M5 motorway. Two existing 132kV overhead lines pass through the area - the F Route and the W Route. To facilitate construction of the Proposed Route, National Grid is proposing to remove the existing 132kV W route overhead line between a point south west of Nailsea and Portishead substation (within Section F) and replace it with underground cables. These proposals are separately reported. For all options, the 132kV Bridgwater to Avonmouth Route would be removed in its entirety.

Definition of Proposed Route Options

- 10.2 The Proposed Route would cross Clevedon Road on a south west-north east alignment before changing direction to the rear of the Star Inn public house and travelling to the south of the existing 132kV overhead lines along the ridge. In this area the T-pylon alignment would deviate slightly from that of the steel lattice, being closer to that of the existing 132kV overhead line. To the east of Whitehouse Lane, the alignments converge and the Proposed Route would continue in a north easterly direction to the west of Priors Wood and the 132kV W route before crossing the W Route and changing direction to cross the M5 motorway.
- 10.3 The Proposed Route through Section E is shown on Figure 4.5. It would be 3.9km long. Low height steel lattice pylons have been considered in this Section for the reasons stated in Chapter 5.

Landscape

Baseline Conditions

Mendip Hills Area of Outstanding Natural Beauty

- 10.4 The Mendip Hills AONB is approximately 13km south of Section E beyond the Somerset Levels and Moors.
- 10.5 The Mendip Hills AONB is of national importance and was designated under the 1949 National Parks and Access to the Countryside Act, the primary purpose of which is to conserve and enhance the natural beauty of the landscape.
- 10.6 The Mendip Hills are a range of limestone hills which stretch eastwards from the Bristol Channel rising dramatically above the flat Somerset Levels and Moors. The Mendip Hills offer tourism and recreational interest.

National Landscape Character Assessment

- 10.7 Section E comprises the Bristol, Avon Valleys and Ridges (NLCA 118) and Severn and Avon Vales National Landscape Character Areas (NLCA 106).
- 10.8 The majority of Section E is in the Bristol, Avon Valleys and Ridges Character Area (NLCA 118) which is described as a landscape of mixed landform, geology and settlement pattern with low-lying, shallow valleys that contrast with the limestone ridges and scarps. The ridge extends irregularly east west through Section E and comprises limestone with sandstones, silts and conglomerates outcropping at the northern end. In the west, the ridge rises, often steeply, from the Levels. High ground in the west and south of this character area was settled at an early date and remained important through the Iron Age particularly as sites of hillforts. Cadbury Camp is an Iron Age hillfort, which is now managed by the National Trust.
- 10.9 The Bristol, Avon Valleys and Ridges character area includes wooded scarps and downland ridges which are high and open. The wooded scarps are mostly ancient woodland. Agricultural land is a mix of arable and pasture with a variable hedgerow pattern.
- 10.10 The northern most part of Section E is in the Severn and Avon Vales Character Area (NLCA 106), which comprises the lower valleys of the River Severn and Avon and is described as a low lying open agricultural vale landscape. This character area continues north into Section F.

- 10.11 The majority of the Severn and Avon Vales character area is described as being agricultural land, with traditional orchards widespread across the area. Woodland is noted as sparse and the landscape as generally open. A small proportion of this character area in Section E is urban. Industry at Portbury and Avonmouth is further north in adjacent Sections F and G.

Local Landscape Character Assessment

- 10.12 North Somerset Council's „North Somerset Landscape Character Assessment“ produced in 2005, characterises Section E as the Tickenham Ridges and Combes (LCA E5), the Failand Settled Limestone Plateau (LCA G2) and the Abbots Leigh Sandstone Uplands (LCA F1).
- 10.13 The Tickenham Ridges and Combes character area (LCA E5) covers the southern part of Section E. It is described as an elevated ridge of Carboniferous Limestone and Mercia Mudstone that rises steeply to a substantial area of high ground south of Bristol. The southern boundary of this character area is defined by the B3130 and 50m contour whilst the top of the ridge defines this character area in the north.
- 10.14 Tickenham Ridge provides a distinctive backdrop to the flat Moors landscape in the south. Wide views over the open lowlands are described as contrasting with views enclosed by intricate wooded slopes in part of this character area. The area is noted in the North Somerset Landscape Character Assessment as being largely peaceful and secluded. There are extensive areas of broad-leaved woodland much of which is Ancient Woodland. Parkland is also noted in large historic estates; Tyntesfield Registered Park and Garden is approximately 3km southeast of the Proposed Route on the ridge and Clevedon Court, also a Registered Park and Garden, is approximately 3km to the west.
- 10.15 The North Somerset Landscape Character Assessment description for the Tickenham Ridges and Combes character area identifies one of the „Forces for Change“ being a demand for tall vertical structures in this area referred to as visually prominent from lowland areas.
- 10.16 The western extent of the Failand Settled Limestone Plateau (LCA G2) extends across high ground through the central part of Section E, between Tickenham Ridge in the south and the Abbots Leigh Sandstone Uplands in the north. This area is a level or gently shelved upland landscape with large regular open fields with variable hedgerows. A large proportion of this character area is utilised for leisure

purposes particularly in the east including Bristol and Clifton Golf Club. Other parts of the area are noted as being more rural and pastoral with some ancient woodland and grassland.

- 10.17 The northern part of Section E comprises the western extent of the Abbots Leigh Sandstone Uplands (LCA F1), which is described as an undulating upland area that falls to the north. Wide views extend over the Bristol Channel and the urban areas of Bristol further east. The area is rural, mainly pasture with woodland, and is described as having a peaceful ambience. This landscape is semi-enclosed with rolling hills and valleys and sinuous woodland blocks and belts. Ancient woodlands are frequent, and include Prior's Wood east of the proposed 400kV overhead line. Woodland is generally easily accessible for walkers via a network of footpaths including along the steep combe valleys. Settlement comprises scattered farmsteads and a few villages linked by winding rural roads, for example Portbury on lower ground at the northern edge of the character area in Section E.

- 10.18 The North Somerset Landscape Character Assessment description for the Sandstone Uplands character area identifies the pressures for masts and other tall structures in this area.

Forest of Avon Community Forest

- 10.19 Section E is in the Forest of Avon, which is one of twelve Community Forests in England. The Forest of Avon extends over 57,000 hectares across four local authority areas including North Somerset, Bath and North East Somerset, Bristol and South Gloucestershire.
- 10.20 The Forest of Avon Plan published in 2002 identifies that more than 30% of the area in Section E is woodland, which is a higher percentage of tree cover than surrounding areas.
- 10.21 As well as setting out objectives for local areas and woodland cover, the Plan identifies two main strategy areas for North Somerset including „Gordano and Parkland“ across Section E.

Section E Landscape Character

- 10.22 Many of the landscape characteristics discussed above and described in published landscape character assessments are present in Section E. Section E comprises Tickenham Ridge, which rises steeply from lower lying land and provides a

distinctive backdrop to the Levels in the south and Clapton Moor to the north. In the south of Section E the landscape is enclosed in parts with localised low ground and sinuous woodland blocks and belts on higher ground to the north and south. Prior's Wood extends across the northern slopes of Tickenham Ridge east of the Proposed Route. Prior's Wood is a Nature Reserve protected and promoted by the Avon Wildlife Trust, and accessible to walkers via a network of footpaths including along the steep valley.

- 10.23 Settlement at the base of the south-facing ridge includes ribbon development along the B3130 Clevedon Road at Tickenham. The Iron Age hillfort Cadbury Camp sits on the top of Tickenham Ridge northwest and west of the proposed route. On the northern slopes and edge of Tickenham Ridge there are scattered farmsteads including Naish Farm and Little Naish, and a few villages linked by rural roads including Portbury which lies northeast of the Proposed Route of the new 400kV overhead line on lower ground near the M5.

Landscape Sensitivity

- 10.24 There are no national landscape designations in Section E. The Mendip Hills AONB is approximately 13km to the south. This Section is valued locally and has regional value. Visitor attractions in this Section include Noah's Ark Zoo Farm at Moat House Farm and Prior's Wood Nature Reserve. Numerous PRoW run through Section E including The Gordano Round recreation route which runs across a much wider area.
- 10.25 The overall character of this Section, comprising Tickenham Ridge, the Limestone Plateau and Sandstone Uplands to the north is in good condition and generally intact.
- 10.26 Tickenham Ridge is a strong landscape feature which has a close association with the Somerset Levels and Moors on lower ground to the south in Section D. In the southern part of Section E the Proposed Route would run across localised lower ground on Tickenham Ridge enclosed by wooded slopes to the north and south. Due to the sense of enclosure provided by the wooded slopes, and the presence of two existing 132kV overhead lines, this landscape has a lower susceptibility to change from a new 400kV overhead line compared to the higher ground and the open north facing slope in the northern part of this Section. The northern part of Section E comprising the Abbots Leigh Sandstone Uplands character area also has

a close association with Clapton Moor on lower ground to the north in the adjacent Section F.

- 10.27 The presence of the two existing 132kV overhead lines (F Route and W Route) in the landscape reduces the sensitivity (susceptibility to change) of this landscape from a new 400kV overhead line particularly where, as is proposed, overhead lines would be removed as part of the new 400kV overhead line.
- 10.28 The landscape sensitivity of Section E in relation to a new overhead line is moderate in the southern part of this Section. In the north of this Section the sensitivity of the landscape is higher due to the absence of woodland backgrounding on higher ground and the visual prominence of the ridge in the local landscape particularly to the north.

Assessment of Effects

- 10.29 The Proposed Route would cross Tickenham Ridge on a different alignment to the existing 132kV overhead lines. Where references are made below to the route of the Proposed Route in relation to the existing 132kV overhead lines in Section E, this is for orientation only: the existing 132kV lines would be removed.

Effects of a new overhead line

- 10.30 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used.
- 10.31 There would be no effect on the Mendip Hills AONB due to the distance of approximately 13km between Section E and the designated landscape in the south.
- 10.32 A new 400kV overhead line in Section E would have a direct negative effect on Tickenham Ridge, which for the purpose of this appraisal collectively refers to the Tickenham Ridges and Combes, the Failand Settled Limestone Plateau and the Abbots Leigh Sandstone Uplands landscape character areas in this Section.
- 10.33 A new 400kV overhead line in Section E would also have indirect negative effects on the Levels and Moors landscape to the south in Section D and on Clapton Moor and Portishead Ridge to the north in Section F.
- 10.34 A new 400kV overhead line across Tickenham Ridge in Section E would introduce a linear development comprising conductors suspended from arms on supports at regular distances into a landscape that includes existing overhead lines. There

would be negative effects from the greater size and scale of the 400kV pylons compared to the existing 132kV pylons, although the presence of two existing 132kV overhead lines in this Section would influence the magnitude of effect (scale of change) of introducing a new 400kV overhead line.

10.35 The proposed 400kV overhead line would run obliquely over Tickenham Ridge between mature woodland. Wooded rising ground partly encloses the route of the new 400kV overhead line where it runs on locally lower ground up Tickenham Ridge in the southern part of this Section. Chummock Wood, Mogg's Wood and Prior's Wood would provide backgrounding and filtering and screening in views of a new 400kV overhead line reducing its influence on the local landscape. In the northern part of this Section a new 400kV overhead line would be seen running up, across and over Tickenham Ridge backgrounded in places by the ridge landform and woodland. At the top of the ridge the new 400kV overhead line would be seen against the sky to a greater extent than the existing 132kV overhead line. The extent and effectiveness of backgrounding of a new 400kV overhead line, and the considered effects of the line may differ if different support types are used.

10.36 A new 400kV overhead line would have a negative effect on the northern edge of Mogg's Wood and on trees and hedgerow along field boundaries and roads for example Cadbury Camp Lane, where these would be lost to allow construction access and because of removal or lopping to achieve the electricity safety clearances required. Woodland and hedgerow are a component of the landscape character of Section E.

Comparison between the steel lattice pylon (standard and low-height variant) and the T-pylon

10.37 This part of the appraisal considers effects that would arise from a new 400kV overhead line using steel lattice pylons, including the low-height variant, compared to a new 400kV overhead line using the T-pylon.

10.38 In Section E both the steel lattice pylon overhead line and T-pylon overhead line routes generally follow the same alignment except for some minor variations at pylon locations and at the changes in direction in the south of Section E, north of Batch Farm in Stone-edge Batch and between Chummock Wood and Mogg's Wood south of Cadbury Camp Lane. At these locations the T-pylon would require two tension pylons to negotiate a more gradual change in direction compared to one tension pylon on the steel lattice pylon alignment. Proposed T-pylon tension pylons

(with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.

- 10.39 The existing overhead lines operating at 132kV in Section E are suspended from steel lattice pylons. The presence of existing overhead lines with steel lattice pylons reduces the sensitivity (susceptibility to change) of the landscape in this Section resulting from a new overhead line using steel lattice pylons, compared to if there was no existing infrastructure.
- 10.40 A new 400kV overhead line in Section E supported by T-pylons would introduce a new and different pylon structure to Tickenham Ridge, where there are currently two existing 132kV overhead lines, the F Route and the W Route. However, both these overhead lines would be removed as part of the proposal (the W Route 132kV overhead line would be replaced with underground cables). A new 400kV overhead line using T-pylons in Section E would not be totally uncharacteristic compared to existing overhead lines using steel lattice pylons. Existing overhead lines and the T-pylon share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.
- 10.41 In the southern part of Section E a new 400kV overhead line using steel lattice pylons running northeast southwest on localised partly enclosed lower ground would be backgrounded more effectively by landform and woodland on Tickenham Ridge because the thin steel members in this open structure make background features visible beyond. Backgrounding would be less effective for a new T-pylon overhead line due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice pylon. However the T-pylon would be approximately 12m lower than the steel lattice pylons which would make it less likely to protrude above surrounding higher ground and would reduce its influence in the local landscape.
- 10.42 The low-height steel lattice pylon is approximately 11m lower than the standard steel lattice pylon and may be an appropriate alternative to the steel lattice pylon in the southern part of Section E in order to minimise negative effects on the skyline and on the local landscape.

- 10.43 The low-height steel lattice pylon is a similar height to the T-pylon; however it is constructed using steel members of a thicker gauge than the standard steel lattice pylon, has more reinforcing members, and has a base 5m wider and a cross arm 7m wider than the T-pylon.
- 10.44 A new 400kV overhead line using the steel lattice pylon in Section E would have a moderate negative magnitude of effect (scale of change) on the southern part of Tickenham Ridge, which is in good condition and has a moderate landscape sensitivity to this change. The low-height steel lattice pylon would also have a moderate negative magnitude of effect (scale of change) in the south of this Section. The lower height of this pylon reduces its visibility in the local landscape; however the thicker gauge steel, additional reinforcing members and increased width of this structure is considered to make it more prominent in the partly enclosed landscape in the southern part of this Section.
- 10.45 The T-pylon would result in a lower magnitude of effect (scale of change) on the landscape in the southern part of this Section due its lower height compared to the steel lattice pylon and due to its lower prominence in this partly enclosed landscape, compared to the low-height steel lattice pylon. Overall, a new T-pylon overhead line would result in a moderate negative effect on the southern part of Tickenham Ridge, (as considered in relation to the steel lattice pylon and low-height steel lattice pylon on Tickenham Ridge).
- 10.46 On the top and northern slopes of Tickenham Ridge a new 400kV overhead line using the steel lattice pylon would result in greater negative magnitude of effect (scale of change) (although remaining moderate negative) on this part of Section E due to the visual prominence of this landscape feature, the absence of woodland backgrounding on the higher ground, and a greater extent of the steel lattice pylon seen against the sky compared to the existing 132kV overhead lines. The removal of the existing F Route 132kV overhead line and the replacement of the existing W Route 132kV overhead line with underground cables on the northern slopes of Tickenham Ridge in Section E would however minimise the magnitude of effect (scale of change) of a new 400kV overhead line across this part of Section E. A new 400kV overhead line using the standard steel lattice pylon would result in a moderate negative magnitude of effect (scale of change) on the northern slopes of Tickenham Ridge as well as in the southern part of Section E.

- 10.47 On the top and northern slopes of Tickenham Ridge a low-height steel lattice pylon would result in a lower negative magnitude of effect on this landscape compared to the standard steel lattice pylon due to a smaller extent being visible against the sky. However the overall magnitude of effect (scale of change) of the low-height pylon on the Tickenham Ridge landscape would be moderate negative, similar to that considered for the standard steel lattice pylon. This is due to the effect of the thicker gauge steel and additional reinforcing members of the low-height pylon compared to the standard steel lattice pylon and the low-height pylon being approximately 11m wider than the standard steel lattice pylon.
- 10.48 A new T-ylon overhead line on the Proposed Route on the top of Tickenham Ridge and across the northern slopes of the ridge in Section E would result in a lower negative effect on the landscape compared to the standard steel lattice pylon. A new T-ylon overhead line would tend to benefit less from backgrounding by woodland and landform on Tickenham Ridge compared to the open design of the standard steel lattice (and low-height steel lattice pylons); however a smaller extent would appear above woodland and landform compared to the standard steel lattice pylon, (similar to the low-height steel lattice pylon), reducing the prominence of the T-ylon particular on top of the ridge, in the local and wider landscape. The T-ylon would tend to be of a similar prominence to the low-height steel lattice pylon on the open northern slopes of the ridge due to the thicker gauge steel, and additional reinforcing members (of the low height steel lattice pylon). The overall effect of a new 400kV overhead line using the T-ylon across the top and northern slopes of Tickenham Ridge would be moderate negative, as considered in relation to the standard steel lattice and low-height steel lattice pylons.

Potential for Mitigation

- 10.49 It is not possible to install a 400kV overhead line in the landscape of Tickenham Ridge and avoid negative effects.
- 10.50 Pylons have been sited to maximise backgrounding and cross Tickenham Ridge obliquely between woodlands to avoid or minimise sharp changes in direction to assist in reducing potential negative effects. Mitigation by way of hedgerow and woodland planting in the vicinity of a new overhead line, depending on land owners' consent being granted, would be in keeping with the existing landscape character and could also assist in reducing potential effects.

- 10.51 The removal of the 132kV W Route overhead line in addition to the 132kV Bridgwater to Avonmouth Route overhead line would greatly reduce the negative cumulative and residual effects of a new 400kV overhead line that would occur otherwise.

Summary

- 10.52 In Section E both the steel lattice pylon and T-pylon overhead line routes generally follow the same alignment except for some minor variations at pylon locations and at the changes in direction in the southern part of Section E. A new T-pylon overhead line would require two tension pylons to negotiate a more gradual change in direction north of Stone-edge Batch and south of Cadbury Camp Lane compared to one tension pylon in each of these locations (changes in direction) on the proposed steel lattice overhead line.
- 10.53 A new steel lattice overhead line on the Proposed Route in Section E would have a moderate negative residual effect on the southern part of Tickenham Ridge, with a greater negative residual effect (although remaining moderate negative) where it would cross the Tickenham Ridge landscape and run obliquely down the generally open north facing hillside.
- 10.54 A new T-pylon overhead line on the Proposed Route in the southern part of Section E would result in a lower negative residual effect on the landscape compared to the standard steel lattice and low-height steel lattice pylons. Whilst a new T-pylon overhead line would tend to benefit less from backgrounding by woodland and landform on Tickenham Ridge compared to the open design of the steel lattice, a smaller extent of the T-pylon would appear above woodland and landform surrounding the lower ground, compared to the standard steel lattice pylon, (similar to the low-height steel lattice pylon), reducing the prominence of the T-pylon in the local and wider landscape. The T-pylon would also tend to appear less dominant in the partly enclosed landscape in the south of Section E compared to the low-height steel lattice pylon.
- 10.55 Overall, a new T-pylon overhead line would result in a moderate negative residual effect on the southern part of Tickenham Ridge, (as considered in relation to the standard steel lattice and low-height steel lattice pylons on Tickenham Ridge).
- 10.56 On the top and northern slopes of Tickenham Ridge a new 400kV overhead line using the low-height steel lattice pylon would result in a lower negative effect

compared to an overhead line using the standard steel lattice pylon. This is due to its lower height and the smaller extent that would be visible against the sky. However the low-height steel lattice pylon is constructed with thicker gauge steel and additional reinforcing members, and is approximately 11m wider than the standard steel lattice pylon.

- 10.57 The overall residual effect of a new 400kV overhead line using low-height steel lattice pylons across the top and northern slopes of Tickenham Ridge would be moderate negative, as considered in relation to the standard steel lattice pylon.
- 10.58 A new T-ylon overhead line on the Proposed Route on the top of Tickenham Ridge and across the northern slopes of the ridge would result in a lower negative residual effect on the landscape compared to the standard steel lattice and a similar negative residual effect to the low-height steel lattice pylons. Backgrounding by woodland and landform on Tickenham Ridge would be less effective for a new T-ylon overhead line as compared to the open design of the steel lattice pylons; however a smaller extent of the T-ylon would appear above woodland and landform compared to the standard steel lattice pylon, (similar to the low-height steel lattice pylon), reducing the prominence of the T-ylon particularly on top of the ridge, in the local and wider landscape. The T-ylon would tend to be of a similar prominence to the low-height steel lattice pylon on the open northern slopes of the ridge due to the thicker gauge steel, and additional reinforcing members of the low-height steel lattice pylon.
- 10.59 The overall residual effect of a new 400kV line using the T-ylon across the top and northern slopes of Tickenham Ridge would be moderate negative, as considered in relation to the standard steel lattice and low-height steel lattice pylons.
- 10.60 The removal of the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines, particularly on the north facing slope of Tickenham Ridge would be beneficial in minimising the negative effects of a new 400kV overhead line.
- 10.61 With regard to effects on the landscape, overall the T-ylon on the Proposed Route throughout Section E is generally preferred. A new 400kV overhead line using the T-ylon would tend to be less effectively backgrounded by landform and woodland compared to the steel lattice design. However the lower height of the T-ylon compared to the standard steel lattice pylon and the lower prominence of the T-ylon in the partly enclosed landscape in the southern part of Section E would result

in reduced negative residual effects on the ridge and surrounding lowland landscape.

- 10.62 If a new 400kV overhead line using the T-pylon is identified as being preferable overall in Section E and the T-pylon is not preferred in Section D in the south and Section F in the north, and vice versa the transition between pylon types would need to be sited where there is screening and filtering by, for example, trees and mature hedgerow to avoid a potentially greater adverse effect on the landscape as a result of the change between two different pylon types.

Visual Amenity

Baseline Conditions

- 10.63 The over-riding characteristic of Section E is the elevated wooded landform of Tickenham Ridge. The route of the new overhead line would pass over the ridge obliquely between Stone-edge Batch to the south and Portbury to the north between mature woodland. On the southern slope of the ridge the two existing 132kV overhead lines run parallel and closely adjacent through a valley of lower ground which reduces visibility in this area diverging on the northern slopes.
- 10.64 Views of the southern slopes of Tickenham Ridge include suspension pylons and tension pylons at the top of the ridge and on elevated ground at Stone-edge Batch where the existing 132kV overhead lines change direction. On the top of Tickenham Ridge and on its northern slopes views of the existing 132kV overhead lines are available, often visible with limited backgrounding and tension pylons at changes in direction.
- 10.65 The M5 motorway crosses the ridge to the west near Clevedon and runs along its lower northern slopes.
- 10.66 The ridge landform divides views in the area. Receptors to the south of the ridge experience views of the southern part of the ridge and out across the Levels and Moors of Section D. Receptors to the north experience views of the northern slopes and out across Clapton Moor to Portishead in Section F with the docks of Portbury and Avonmouth in Section G visible beyond. Long views north extend across the Bristol Channel with the Welsh Hills in the distance.
- 10.67 Receptors on the south of the ridge generally have open and some filtered views; in places there are long views across the Moors. Towards the top of the ridge and in the east, mature woodland and built form obscure and filter views out from the higher ground. The existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines are visible in most views as they run down the ridge to Stone-edge Batch and across Nailsea Moor in Section D.
- 10.68 The landform to the north of Tickenham Ridge slopes down steeply to the northwest towards Clapton Moor and the Gordano Valley in Section F before rising up to Portishead Ridge. The views of receptors on the ridge (users of a long distance route, national cycleways, PRoW, an outdoor tourist attraction, roads and some houses) are largely obscured by landform and mature woodland at the top of the

ridge and on the northern slopes. There are views in gaps in woodland, from some fields and from the M5 motorway receptors have views across the Gordano Valley to Portishead Ridge and Portishead with some views northeast to Portbury and Avonmouth docks.

- 10.69 Pylons of the existing 132kV overhead lines at the top of Tickenham Ridge and down the northern slopes are visible from Section E and F against the sky with no backgrounding. These „skylined“ pylons are seen in view from the northern part of Section E and Section F including from public footpaths, cycleways and from the settlements of Portbury, Weston in Gordano, Portishead, Portbury Wharf and Sheepway (approximately 2.5-3km to the north of the ridge).
- 10.70 To the east of Tickenham Ridge the landform slopes down more gradually towards Portbury and the River Avon in Section G. Receptors have some open views with others obscured or filtered by landform, mature woodland and hedgerows. Open views north are generally distant towards Portbury and Avonmouth docks, with the existing tall 132kV pylons, allowing the lines to cross the river, large dock structures and Seabank Power Station visible. Views extend further north towards the Bristol Channel to the Severn Bridge and the Welsh Hills in the distance. The existing 132kV Bridgwater to Avonmouth Route and W Route 132kV overhead lines are visible as they run down Tickenham Ridge and across Clapton Moor and Portbury Wharf in Section F.

Public Views

- 10.71 The main public views in this section are experienced by sensitive visual receptors comprising people using public footpaths, cycle routes, outdoor tourist attractions and outdoor recreation facilities.
- 10.72 There are views of the existing 132kV overhead lines in places from the Gordano Round which is a published 26 mile long distance waymarked walk around the Gordano Valley. It runs along the coast path between Portishead and Clevedon, along Tickenham Ridge and includes the Wraxall, Abbots Leigh and Portbury areas. The walk passes under the existing 132kV overhead lines on Caswell Hill on the northern slope of Tickenham Ridge. Here there are views along the existing overhead lines as they cross Tickenham Ridge and continue north across Clapton Moor and Portbury Wharf in Section F.

- 10.73 The Gordano Round includes occasional long distance views northeast to Section F from several locations including Clevedon Court Wood where „*magnificent views of the Gordano Valley can also be seen from the top of the ridge*“ (The Gordano Round: Gordano Footpath Group: 2011). Occasional views south to Nailsea Moor in Section D are also possible from the footpath on Cadbury Camp Lane at the top of Tickenham Ridge, with the existing 132kV overhead line visible in the distance (1km). To the east of Section E the Gordano Round runs along Happerton Lane and Pill Road with long distance views (2km) north towards Avonmouth and the existing 132kV overhead lines where they cross the River Avon in Section G.
- 10.74 There are a number of PRow on Tickenham Ridge with views to the existing overhead lines south where they cross Section D and to the north where they cross Sections F and G. Some of these run directly under the existing overhead lines at Round Wood and Moggs Wood to the south of the ridge and on Caswell Hill to the north where footpath users experience long views along the overhead lines as they cross the ridge and continue across the adjacent sections.
- 10.75 On the south of the ridge the footpath between Round Wood and Stone-edge Batch forms part of the Nailsea Round Loop Walk 4 Cadbury Camp, a circular walk from Nailsea to Cadbury Camp on Tickenham Ridge. From Cadbury Camp the route has „*fabulous views across the Bristol Channel to Wales, Steephelm, Crook Peak [in Section C] and Backwell Hill [in Section D]*“ (Nailsea and District Footpath Group: The Nailsea Round: 2010). To the south of Cadbury Camp on the southern slope of the ridge the walk has „*good views to Tickenham and on to Worlebury Hill, Crook Peak [in Section C] and Backwell Hill [in Section D]*“ (Nailsea and District Footpath Group: The Nailsea Round: 2010). During a site visit the existing 132kV overhead lines were noted as just perceptible across Nailsea Moor 2km to the south.
- 10.76 National Cycle Route 334 Clifton Link runs between Portbury and Failand where there are occasional long-distance open views north towards the existing overhead lines as they run through Sections F and G (1-1.5km). National Cycle Route 410 forms part of Regional Route 10 the Avon Cycleway and runs through Portbury in Section E. The cycle route has views west from Caswell Lane (200m to 1km) to the W Route overhead line as it crosses Tickenham Ridge. Views north across Clapton Moor include both of the existing 132kV overhead lines above trees in the distance.
- 10.77 There are also long distance views from some outdoor tourist attractions and outdoor recreation facilities. Tickenham Golf Club is on the southern slopes of the

- ridge on Clevedon Road 400m from the existing 132kV overhead lines with views south across Nailsea Moor in Section D and east across Tickenham Ridge with the existing 132kV overhead lines visible.
- 10.78 Cadbury Camp is a National Trust site comprising an Iron Age hill fort on the top of Tickenham Ridge and has long distance views south and southwest across Section D down to Nailsea Moor, Nailsea and West End (2km); and beyond to Crook Peak (in Section C) and across the Bristol Channel to the Welsh Hills and Hinkley Point. The existing 132kV overhead lines are just visible across Nailsea Moor and above trees backgrounded by the Moors.
- 10.79 Noah's Ark Zoo Farm is on the top of Tickenham Ridge in a sunken area of land near the northern slope. It has views up to the existing 132kV Bridgwater to Avonmouth Route (150m) and the W Route 132kV overhead lines as they pass over and close to the zoo on higher ground to the west and towards the northern slope of Tickenham Ridge.
- 10.80 Gordano Rugby Football Club on Caswell Lane has views of the existing 132kV W Route and the route of the new overhead line 500m away on the northern slope of Tickenham Ridge and across Clapton Moor in Section F.
- 10.81 South of Portbury, Oakham Treasures Museum at Oakham Farm (1.4km) has some channelled views between hills towards the new overhead line and to Portbury Dock and dock structures; however the existing 132kV overhead lines are not visible.
- 10.82 During a site visit to National Trust properties at Clevedon Court (approximately 3km) and Tyntesfield (approximately 3.5km) views typically were screened or heavily filtered by boundary trees, vegetation and built form. In long distance views that may be available to Nailsea and Kenn Moor the existing 132kV overhead lines are considered to be barely perceptible due to tree screening and distance.
- 10.83 The M5 motorway runs along the bottom of the northern slopes of Tickenham Ridge crossing the ridge to the west at Clevedon. The guide to the Gordano Round walk describes it as „*one of the most picturesque stretches of motorway in the country with wonderful views across the Gordano Valley*“ (Gordano Footpath Group: 2011). The existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines are visible in views when travelling north and south along the motorway particularly

in views on the northern side of the ridge where they pass over the motorway and can be seen as they run north down the ridge and across the Moors in Section F.

Private Views

- 10.84 On the south of Tickenham Ridge there are views from individual properties along the B3128 Tickenham Hill, Cuckoo Lane and Whitehouse Lane. These receptors have some views of the existing 132kV overhead lines crossing the ridge with mature woodland and landform obscuring views in places. Five properties on Cuckoo Lane are within 50m to 200m of the existing 132kV overhead lines. On Cadbury Camp Lane one property has views of the existing overhead lines 50m away. Further west five properties have long distance views south across Nailsea Moor (in Section D) through gaps in woodland, with the existing 132kV overhead lines visible in the distance 1.5km away.
- 10.85 The main views of the new overhead line from settlements on the southern slope of Tickenham Ridge in Section E would be from Wraxall (2.5km), Stone-edge Batch (30m to 800m), Tickenham (1.5km to 2.5km) and elevated parts of Clevedon (3.5km). Settlements are generally linear (excluding Clevedon) with long distance views across Nailsea Moor in Section D with the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines visible from Tickenham and Stone-edge Batch. There are few views of the 132kV overhead lines from Wraxall and Clevedon and where they appear in views they are barely visible. Properties in Stone-edge Batch have long views of the existing overhead lines crossing Tickenham Ridge to the north and across Nailsea Moor to the south (in Section D). The overhead lines are 50m from properties near the Star Inn public house. In places views from settlements are obscured and screened by intervening built form and vegetation.
- 10.86 There are long distance panoramic views down towards Section D and beyond to the Mendip Hills and Crook Peak (in Section C) from some private receptors on the elevated landforms of Dial Hill and Strawberry Hill in Clevedon and at Cadbury Camp. From Clevedon the existing 132kV overhead lines are not visible due to distance and backgrounding. Some receptors in Tickenham, Stone-edge Batch and Wraxall also experience similar views from the base of the ridge across Nailsea Moor in Section D.
- 10.87 On the northern slopes of Tickenham Ridge there are views from individual properties on Caswell Hill, Caswell Lane, Common Lane, Happerton Lane and the

A369 on the boundary of Section E and G. Receptors experience long distance views north to Portbury and Avonmouth docks and the tall 132kV pylons crossing the River Avon in Section G. Caswell Cross Cottages, on Caswell Hill, are 150m from the existing 132kV W Route overhead line where it crosses the M5 motorway, with views of the overhead line on Tickenham Ridge and as it crosses Clapton Moor in Section F.

- 10.88 Settlements with views on the northern slope of Tickenham Ridge include Lower Failand on the slope of the ridge and Portbury which is adjacent to the M5 motorway on the boundary between Section E and Section F. In Lower Failand open long distance views are available in places towards Portbury (2.5km) and Avonmouth docks and Seabank Power Station in Sections F and G, with the Bristol Channel and the Welsh Hills in the distance. The existing 132kV Bridgwater to Avonmouth Route overhead line is visible at the River Avon crossing where tall pylons provide clearance over the river.
- 10.89 In Portbury views of the existing 132kV overhead lines to the north are largely obscured by landform, buildings and trees adjacent to the M5 motorway. Some views are available towards Portbury Dock from elevated ground to the south and from the settlement edge near the M5 motorway; however the existing 132kV Bridgwater to Avonmouth Route overhead line is not visible. Views up to the 132kV W Route overhead line on the slopes of Tickenham Ridge with limited backgrounding are available west.
- 10.90 Views within Section E are locally important with the combination of Tickenham Ridge and the flat Levels landscape in Section D and F locally distinctive but not of greater distinction or value.

Assessment of Effects

- 10.91 The existing 132kV Bridgwater to Avonmouth Route overhead line would be removed in Section E, and in Section D and F, as part of the Hinkley Point C Connection project. The 132kV W Route overhead line would be undergrounded in Section E between Stone-edge Batch and the M5 motorway. The W Route underground cables would continue across to a point south west of Nailsea in Section D and across Clapton Moor to Portishead substation in Section F.

Effects of a new overhead line

- 10.92 The route of the proposed 400kV overhead line would closely follow that of the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines over Tickenham Ridge.
- 10.93 A new 400kV overhead line in Section E would have a negative effect on public and private visual receptors. A 400kV overhead line passing over Tickenham Ridge would be visible particularly where it crosses the top of the ridge where there is limited backgrounding. This would be visible to receptors in Section E and in distant views from the south in Section D and the north in Sections F and G.
- 10.94 The greatest effects on views would be experienced by sensitive visual receptors nearest to the new overhead line, such as users of PRow along the ridge and the nearest residential properties and outdoor tourist attractions. For many visual receptors, the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines are already present in views. In general views the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines would be replaced with a 400kV overhead line, which would be more visible on the ridge landform above trees and hedgerows due to the greater height of the pylons.
- 10.95 The greatest negative magnitude of effect (scale of change) on public views would be from a long distance route, PRow, a cycleway, a recreation facility and a tourist attraction.
- 10.96 The Gordano Round Long Distance Footpath and five PRow on Tickenham Ridge pass under or within 200m of the new 400kV overhead line. Footpath users presently have near distance views of two existing 132kV overhead lines, which would be replaced with near distance views of a single 400kV overhead line. On the Gordano Round and two PRow between Naish Farm and Prior's Wood receptors would have expansive views of a new 400kV overhead line as it crosses the ridge at Whitehouse Lane with limited backgrounding. Where a new overhead line would pass over the footpaths on Naish Hill receptors have long views down the ridge and along the line to Portishead, Portbury Wharf and Avonmouth in Section F.
- 10.97 Two PRow on the southern slopes of Tickenham Ridge are part of Nailsea Round Loop Walk 4 Cadbury Camp, along Old Lane to Stone-edge Batch. Footpath users would experience long views along a new 400kV overhead line as it passes over

and continues northeast up to the top of Tickenham Ridge and southwest to Stone-edge Batch and across Nailsea Moor in Section D. Views would include suspension pylons and tension pylons at the top of the ridge and on elevated ground at Stone-edge Batch with limited backgrounding. On the top of Tickenham Ridge users of the public right of way through Moggs Wood, between Cadbury Camp Lane and Tickenham Hill, would experience near distance views of a new 400kV overhead line where it passes over the footpath near Cadbury Camp Lane.

- 10.98 From National Cycle Route 410 (Regional Route 10 the Avon Cycleway) on Caswell Lane at (the boundary of Section E with Section F) views of a new 400kV overhead line would replace the existing 132kV W Route overhead line where it passes over and is visible up Tickenham Ridge with limited backgrounding, and across Clapton Moor in Section F.
- 10.99 The greatest negative magnitude of effect (scale of change) on public views from outdoor tourist attractions and recreation facilities would be from a zoo farm and a sports club. Noah's Ark Zoo Farm is on the top of Tickenham Ridge in an area of sunken ground near Whitehouse Lane. Visitors presently have expansive near distance views up and across the top of the ridge to both the existing 132kV overhead lines with the W Route passing over and the F Route 200m west. Both the existing 132kV overhead lines would be removed from near distance views and replaced with a new 400kV overhead line 200m west on a similar alignment to the existing lines.
- 10.100 Gordano Rugby Football Club is on Caswell Lane, adjacent to the M5 motorway, on the north of Tickenham Ridge with middle distance and distant views up to the two existing 132kV overhead lines (500m and 1.3km away) crossing the ridge and Clapton Moor in Section F. Receptors would have the existing overhead lines replaced with views up to a new 400kV overhead line in middle distance and distant 500m west down Tickenham Ridge and in near distance views 200m north along the M5 motorway in Section F to Portbury, where there is presently no overhead line. However an alternative alignment (Alternative Route Option B) may be used in Section F where a new overhead line would follow a similar alignment to the existing W Route 132kV overhead line in middle distance views north across Clapton Moor in Section F (500m west). A new 400kV overhead line on this alignment would have a lower adverse effect on receptor views north as it would be 300m further away in middle distance views and visible above trees.

- 10.101 The greatest negative magnitude of effect (scale of change) on private views would be from around forty three properties with near and middle distance views between 30m to 500m from the new 400kV overhead line. To the south of the ridge these include over twenty properties in Stone-edge Batch and four along the north side of the B3128 Tickenham Hill. In Stone-edge Batch properties are between 50m to 500m from the route of the new 400kV overhead line and on Tickenham Hill 300m. A new 400kV overhead line would be further south and approximately 50m closer to these receptors than the two existing 132kV overhead lines. Receptors would have long views of a new 400kV overhead line running up Tickenham Ridge and across Nailsea Moor in Section D. In particular in Stone-edge Batch where the new 400kV overhead line would pass close to properties with a change in direction meaning a tension pylon 200m away to the north and a pylon on elevated ground 100m south in near distance views. These two pylons would be particularly visible in receptor views and from surrounding receptors due to their elevated location at the base of the ridge.
- 10.102 At the top of Tickenham Ridge four properties on Cuckoo Lane with near distance views (150m to 250m away from a new overhead line) and eight properties on Cadbury Camp Lane with near and middle distance views (75m to 500m away) would have a new 400kV overhead line introduced in views replacing the two existing 132kV overhead lines. The new 400kV overhead line would be 50m further from properties on Cuckoo Lane than the nearest W Route 132kV overhead line, including one property where the existing W Route overhead line is 30m north. On Cadbury Camp Lane a new overhead line would be 40m closer to one property (Cuckoos Mead) however the existing W Route 132kV overhead line would be removed 50m to the south and the existing Bridgwater to Avonmouth 132kV overhead line removed 100m to the west. Seven other properties on Cadbury Camp Lane with views down to the new overhead line would have a new 400kV overhead line 50m further away on a similar alignment to the two 132kV overhead lines to be removed.
- 10.103 Six properties on the top of Tickenham Ridge at Naish Farm on Naish Hill would have a mixture of open and filtered views of a new overhead line passing over the ridge visible on elevated landform and above trees in places. A new 400kV overhead line would replace views of the two existing 132kV overhead lines.
- 10.104 On the north of the ridge (at the boundary between Sections E and Section F) adjacent the M5 motorway, Caswell Cross Cottages would have a 400kV overhead

line introduced in near distance views 100m west adjacent to the existing W Route overhead line. These receptors would have views along a new 400kV overhead line up Tickenham Ridge, with limited backgrounding. Views north are restricted by mature boundary tree screening and the elevated M5 motorway and views of the new 400kV overhead line would be heavily filtered and screened. Depending on the Proposed Route selected a new overhead line would be heavily filtered or screened either 100m north parallel to the M5 motorway or north across Clapton Moor on a similar alignment to the existing W Route 132kV overhead line.

- 10.105 Distant views are available towards the ridge and the existing 132kV lines up the ridge from receptors in Sections D and F. In Section D to the south receptors would have views to a new overhead line at Stone-edge Batch and at the top of Tickenham Ridge above trees and would include fifteen PRoW and two country lanes across Nailsea Moor (from 50m to 3.5km away), over twenty properties in Stone-edge Batch where the new 400kV overhead line would pass close to and around twenty properties in Nailsea with middle distance views (600m) near Pound Lane. A 400kV overhead line would also be visible above trees in more distant views to the top of Tickenham Ridge from receptors west of Nailsea Moor in Section D.
- 10.106 In Section F receptors would have expansive views of a new overhead line above trees across Clapton Moor and up Tickenham Ridge with pylons visible at the top. In views from receptors to the east or west a new overhead line passing over Tickenham Ridge would be visible with limited backgrounding and „sky-lining“ on the ridge slopes. From the north views of the new 400kV overhead line would be backgrounded except at the top of the ridge where the taller 400kV line would be more visible against the sky as compared to the existing 132kV overhead line. Receptors have middle distance and distant views and include five PRoW across Clapton Moor (500m to 1km north), two PRoW, two cycleways and three properties on the west edge of Portbury (1km east), The Gordano Round walk and properties along 2km of the southern and eastern settlement edge and 2km of elevated land in Portishead (1.5km to 3km north), properties along 500m of settlement edge in Weston in Gordano (3.5km west) and eight properties in Sheepway (1.5km north). Receptors in Section D and F would experience negative effects where a 400kV overhead line would be more visible on the ridge landform and above trees with increased sky lining due to the increased height and scale of a new 400kV overhead line as compared to the existing 132kV lines.

- 10.107 A new 400kV overhead line in Section E would generally have a moderate negative effect on views in the long term. A number of visual receptors would experience the greatest negative effect where a 400kV overhead line would replace near distance views of the two existing 132kV overhead lines at Stone-edge Batch in the south and Caswell Hill in the north.

Comparison between the steel lattice pylon or low-height steel lattice pylon and the T-pylon

- 10.108 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon; the low-height steel lattice pylon; or the T-pylon.
- 10.109 In Section E both the steel lattice pylon overhead line (whether standard height or low-height variant) and T-pylon overhead line routes generally follow the same alignment except for minor variations at changes in direction and pylon locations at Stone-edge Batch and near the top of the ridge at Mogg's Wood. Here the T-pylon would require two additional tension pylons, rather than suspension pylons, to negotiate more gradual changes in direction compared to the steel lattice pylon alignment. However, proposed T-pylon tension pylons do not differ significantly in appearance from T-pylon suspension pylons, whereas the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel.
- 10.110 For the majority of visual receptors the existing 132kV Bridgwater to Avonmouth Route and W Route overhead lines are already present in views. A new 400kV overhead line in Section E would replace views of the existing 132kV overhead lines and would be more visible on the ridge above landform, trees and hedgerows due to the greater height of the pylons. In general, visibility of a new 400kV overhead line using the T-pylon would be less and over a shorter distance compared to a line constructed using the steel lattice pylon, due to the T-pylon's lower height (12m lower than the standard steel lattice pylon but between 8m and 10m higher than the existing 132kV pylons) combined with screening by intervening landform, trees and hedges. The steel lattice pylon would benefit more from ridge backgrounding due to the lattice design where the T-pylon does not benefit from backgrounding to the same extent due to its solid massing. However the steel lattice pylon supports would be visible for a greater extent above backgrounding of

landform and trees, meaning the steel lattice pylon would be more visible at the top of Tickenham Ridge with increased „sky-lining“.

- 10.111 Due to the distance of most views the difference between the T-ylon and steel lattice pylon conductor configurations would be barely perceptible. The T-ylon would be more readily screened or partially obscured by landform and trees with less pylon support visible and reduced „sky-lining“ due to its lower height. In views up and down Tickenham Ridge it is considered that the T-ylon would tend to be more prominent than the steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open lattice steel design, which benefits more from ridge backgrounding. However it is considered that the effects of increased height and sky lining of the standard steel lattice pylon above the ridge background would have a greater negative effect on views than the T-ylon that is 12m lower.
- 10.112 The low-height steel lattice pylon may be used on Tickenham Ridge as an alternative to the standard steel lattice pylon because its lower height means it tends to be less visible. The low-height variant pylon is approximately 11m lower but 11m wider than the standard steel lattice pylon, resulting in a smaller extent of the low-height pylon being visible above the ridge against the sky compared to the taller standard steel lattice pylon. The low-height steel lattice pylon is constructed using steel members of a thicker gauge than the standard steel lattice pylon and has more reinforcing members. On and near the top of Tickenham Ridge the T-ylon would tend to be less visible than the standard steel lattice pylon due to its lower height, but similar in height to the low-height steel lattice pylon. The T-ylon and the low-height steel lattice pylon are considered to be of similar prominence due to the increased width and gauge of steel for the low-height steel lattice pylon making it more visible against the sky than a standard steel lattice pylon where „sky-lining“ is unavoidable.
- 10.113 Where views are towards the side elevation of a new overhead line the T-ylon support would be less prominent than the standard and low height steel lattice pylons as it is 5m narrower. Where there is screening by landform and trees the T-ylon and the low-height steel lattice pylon would be more readily screened entirely than the taller standard steel lattice pylon where the same amount of cover would only partially screen the standard steel lattice pylon.

- 10.114 In near distance views within 250m of a new overhead line, where several pylons are visible in views along the line, the T-pylon is considered to be more prominent than the standard steel lattice pylon but less prominent than the low-height steel lattice pylon, although with less support visible against the sky compared to the steel lattice pylon due to its lower height. The T-pylon would be more prominent than the steel lattice pylon due to the solid central column and cross beam, the „diamond“ configuration of conductors suspended from the pylon and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. The low-height steel lattice pylon would tend to appear larger in scale than the T-pylon in close views as its base is 5m wider and its cross arm 7m wider than the T-pylon and is constructed from thicker gauge steel than the steel lattice pylon.
- 10.115 In long distance views looking up to the elevated landform of Tickenham Ridge from receptors in Section D to the south on Nailsea Moor, in Stone-edge Batch and in Nailsea receptors would have views of a new overhead line at Stone-edge Batch and at the top of Tickenham Ridge above trees. It is considered that only the top part of support of one or two pylons would generally be seen in views of the top of the ridge, whichever support type is used. A new overhead line using a T-pylon would tend to appear more prominent than a steel lattice pylon in near distance views within 250m at Stone-edge Batch, where pylons would be on elevated ground, due to it having a solid central column and cross beam as compared to steel lattice design that would benefit more from ridge backgrounding. However the standard steel lattice pylon would be 12m taller and would protrude above the ridge background with increased „sky-lining“ where it would be more prominent with a greater extent visible than the lower T-pylon or low-height steel lattice pylon. In views to the top of Tickenham Ridge the T-pylon would tend to be less visible than the steel lattice pylon due to its lower height and the effect of intervening landform and tree screening, meaning a shorter length of overhead line would be visible if the T-pylon was used. In distant views down from Tickenham Ridge across Section D it is considered that the T-pylon would be more visible in the distance than the steel lattice pylon due to less tree and hedge screening across the eastern part of Nailsea Moor.
- 10.116 In distant views from Section F receptors in Clapton Moor, Portbury, Portishead, Weston in Gordano and Sheepway would have expansive views of a new overhead line above trees across Clapton Moor and looking up Tickenham Ridge with three

pylons considered to be visible at the top. In views from receptors to the east or west a new overhead line up Tickenham Ridge would be visible with reduced backgrounding on the peak of the ridge slopes and increased „sky-lining“. A new overhead line using a T-pylon would tend to appear more prominent than a steel lattice pylon up Tickenham Ridge due to it having a solid central column and cross beam as compared to steel lattice design that would benefit more from ridge backgrounding in views from the north (from Portishead and Sheepway area). In views up the side of the ridge from the east (Weston in Gordano and Clapton Moor area) and west (Portbury area including National Cycle Route 410 and Gordano RFC) a new 400kV overhead line would have limited backgrounding above the ridge where it would be visible down the peak of the slope, compared to views from the north where a new overhead line would be backgrounded by the ridge. A new 400kV overhead line using a T-pylon or a low-height steel lattice pylon would tend to be less visible due to their lower height and reduced „sky-lining“ as compared to the standard steel lattice pylon. However, each would appear more prominent against the sky than a standard steel lattice pylon where „sky-lining“ is unavoidable. At the top of Tickenham Ridge the T-pylon or low-height steel lattice pylon would be less visible than the standard steel lattice pylon due to their lower height (although it is considered that only three pylons would be visible at the top of the ridge).

10.117 There would be several pylons in views from the Gordano Round long distance footpath and five PRow on Tickenham Ridge that cross under the overhead line or within 200m with near distance views along the line. The T-pylon is considered to be more prominent in these views than the steel lattice pylon due to the solid central column and cross beam, the prominent „diamond“ configuration of conductors and because the conductors are closer together and form a larger element in the view. However the T-pylon would be less prominent than the low-height steel lattice pylon. The Gordano Round long distance footpath and two PRow on Naish Hill and Caswell Hill also have expansive near and middle distance views of a new overhead line crossing Tickenham Ridge from 200m to 1km away with several pylons visible and partially backgrounded in places by trees. In these views the T-pylon and low-height steel lattice pylons would be more prominent in the closest views, compared to the steel lattice standard pylon, but visible over shorter distances due to their lower height with reduced „sky-lining“.

10.118 In near distance views within 100m from three PRow in the valley landscape on the southern slope of Tickenham Ridge (at Mogg's Wood, Old Lane and Round

Wood) the standard steel lattice pylon is considered to benefit more from ridge backgrounding but would be 12m higher and would protrude above the ridge background against the sky. In views from these footpaths the T-ylon or low-height steel lattice pylon would be more prominent and benefit less from ridge backgrounding but would be lower with less pylon support visible above the ridge background. However the low-height steel lattice pylon is a wider structure than the T-ylon (base 5m wider and cross arm 7m wider) with a thicker gauge steel and would be more prominent and appear to „fill the space“ in an enclosed valley landscape. The side elevation of the overhead line would form part of many receptor views due to the valley landscape and the effects of a T-ylon would be less due to it being narrower than the standard steel lattice pylon and the low-height steel lattice pylon, notwithstanding its solid construction.

- 10.119 The greatest negative magnitude of effect (scale of change) on public views from outdoor tourist attractions and recreation facilities would be from a zoo farm and a sports club. It is considered that the T-ylon or low-height steel lattice pylon would be less visible above the ridge landform and limited tree backgrounding with reduced sky lining compared to the standard steel lattice pylon that is 12m taller and would have more of the cross support visible against sky. The T-ylon and low-height steel lattice pylon would however be more prominent in near distance views within 250m.
- 10.120 The greatest negative magnitude of effect (scale of change) on private views would be from around forty three properties with near and middle distance views between 50m to 500m from the new overhead line. These properties are in Stone-edge Batch, Tickenham Hill, Cuckoo Lane, Cadbury Camp Lane, Naish Farm and Caswell Cross. A new overhead line using the T-ylon or the low-height steel lattice pylon would have a smaller extent visible against sky where a new overhead line would extend above ridge backgrounding and trees, compared to the standard steel lattice pylon that is 12m taller and would have a greater extent visible against sky. This would be particularly relevant in private receptor views north up and across the valley landscape from properties in Stone-edge Batch and on Tickenham Hill where the existing 132kV overhead lines have full backgrounding and are well screened in the valley from many receptors. However, the T-ylon or low-height steel lattice pylon would be more prominent in views from properties, with near distance views within 250m, due to the lower effectiveness of backgrounding on the solid massing of the T-ylon and the thicker gauge steel of the low-height steel

lattice pylon. The configuration of conductors that are closer together would also have a greater visual impact than the steel lattice pylon.

Potential for Mitigation

- 10.121 Undergrounding the existing W Route 132kV overhead line as proposed would reduce the negative cumulative effects on views for receptors. A single 400kV overhead line would be visible on Tickenham Ridge as opposed to a 400kV overhead line adjacent to the existing W Route 132kV overhead line.
- 10.122 It would be possible to minimise negative effects on views through careful planning of access to avoid the need for road improvements to the local lane network, by utilising existing gaps in hedgerows and by reinstating roads to their original condition once construction is complete. Some short term negative visual effects would be unavoidable until re-establishment. It is considered that no material change to access requirements would be needed for either the steel lattice or T-pylon designs.
- 10.123 Mitigation by way of additional hedgerow and tree belt planting in the vicinity of a new overhead line, subject to landowner agreement, would be in keeping with the existing landscape character and could assist in reducing potential effects on views. Over the long term, after 15 years and beyond, adverse effects on views arising from use of the T-pylon would be reduced more than those from using a steel lattice design because maturing trees would be more effective in screening due to the T-pylon's lower height.

Summary

- 10.124 In Section E an overhead line using the T-pylon would have two more tension pylons than an overhead line using the steel lattice pylon supports, but these would negotiate more gradual changes in direction and do not differ significantly in appearance from T-pylon suspension pylons. For a new 400kV overhead line, whether using steel lattice pylons or T-pylons the level of effect on views would largely be moderate negative, due to the distance of most receptors from the line and the presence of existing overhead lines in views, albeit there are receptors of high sensitivity. In middle distance and distant views the T-pylon is considered to be less visible than the standard steel lattice pylon due to the reduced height of pylons and the greater benefits from filtering, screening and backgrounding. However where visible closer in near distance views within 250m and where there

is limited backgrounding the T-pylon would tend to appear more prominent due to the solid central column and cross beam and the „diamond“ shape conductor bundle, as compared to the steel lattice design.

- 10.125 The greatest negative effect would be experienced by fifty two sensitive receptors that pass under a new 400kV overhead line or are within 500m with near and middle distance views along the line. These receptors include a long distance footpath, National Cycle Route 410 and five PRoW that the new overhead line would pass over or within 200m; and an outdoor tourist attraction, an outdoor recreation facility and forty three properties from which the new 400kV overhead line would be within 50m to 500m. The T-pylon is 12m shorter with less of the structure visible above tree and ridge backgrounding, compared to the standard steel lattice pylon that would more readily protrude above backgrounding with increased sky lining.
- 10.126 The T-pylon would also be more readily screened by landform and trees than the standard steel lattice pylon due to its lower height. However in near distance views within 250m the T-pylon would tend to be more prominent than the standard steel lattice pylon due to the solid massing and close conductor configuration as opposed to the more open lattice steel design, which benefits more from ridge backgrounding. However it is considered that the effects of increased height and sky lining of the standard steel lattice pylon above the ridge background would have a more negative effect on views than the T-pylon that is 12m lower.
- 10.127 A new 400kV overhead line would be visible from seventy five public and private receptors and 4.5km of settlement edge in Sections D and F where it crosses the elevated landform of Tickenham Ridge. These include high sensitivity receptors on the Gordano Round long distance footpath, National Cycle Route 410 and 26, twenty two PRoW and over fifty properties and 4.5km of settlement edge between with middle distance and distant views 500m and 3.5km away. The T-pylon is considered to be less visible as the line crosses Tickenham Ridge due to it being 12m shorter and more readily screened by landform and trees compared to the standard steel lattice pylon that would more readily protrude above ridge backgrounding with increased sky lining. This would also be the case in views to the top of Tickenham Ridge where the T-pylon or the low-height steel lattice pylon would tend to be less visible than the standard steel lattice pylon due to its lower height and the effect of intervening landform and tree screening, meaning a shorter length of overhead line would be visible if the T-pylon or the low-height steel lattice

pylon was used (although it is considered that only a few pylons would be visible at the top of the ridge).

- 10.128 In Section E the low-height steel lattice pylon has been considered as an alternative support to the standard steel lattice pylon and T-pylon on top of the ridge and on the slopes of the ridge, particularly in the valley landscape on the southern slopes. The low-height steel lattice pylon is used as an alternative to the standard steel lattice pylon due to the low-height (11m lower) having a reduced visual effect in views of elevated locations where backgrounding and screening are reduced and pylons may otherwise break the skyline and be visible for a greater distance. The low-height steel lattice pylon is a similar height to the T-pylon but is larger in scale, has a base 5m wider and a cross arm 7m wider than the T-pylon and is constructed from thicker gauge steel than the standard steel lattice pylon.
- 10.129 The low-height steel lattice pylon or the T-pylon would be suitable for use on the top of Tickenham Ridge at the highest point due to their lower height and the effect of intervening landform and tree screening. However where receptors are close in a landscape with a strong sense of enclosure, such as a valley or woodland surrounding, the low-height steel lattice pylon can tend to appear more „out of scale“ as compared to the T-pylon or steel lattice pylon as it fills the space more, due to the wider base and cross arm and thicker gauge steel. Due to this the T-pylon is preferred to the low-height steel lattice pylon on Tickenham Ridge, particular in the enclosed valley landscape on the southern ridge where receptors are close to the new overhead line with near distance views along the line within 250m.
- 10.130 For all pylon support options there would generally be moderate negative effects on views, due to the presence of the existing overhead lines on Tickenham Ridge and the effects of distance and filtering by vegetation. This would reduce to low negative in more distant views from the south in Section D due to the oblique alignment of the Proposed Route and its location in a valley. In distant views from the north in Section F this would remain moderate negative due to the elevated location and limited backgrounding and the large number of receptors that would have views of a new 400kV overhead line as it crosses Tickenham Ridge. The greatest negative effect would be experienced by fifty two sensitive receptors on Tickenham Ridge where a new 400kV overhead line would replace a 132kV overhead line in near and middle distance views within 500m.

- 10.131 Undergrounding the existing W Route 132kV overhead line would reduce the negative cumulative and residual effects on views for receptors. A single 400kV overhead line would be visible on Tickenham Ridge rather than a 400kV overhead line adjacent the existing W Route overhead line.
- 10.132 From a visual amenity perspective the T-pylon is preferred in Section E due to it being 12m shorter with less of the structure visible above tree and ridge backgrounding, compared to the standard steel lattice pylon that would more frequently protrude above backgrounding with greater „sky-lining“. The T-pylon would also be more readily screened by landform and trees than the standard steel lattice pylon due to the lower height. Although the steel lattice design would benefit more from ridge backgrounding than the T-pylon it is considered that the effects of increased height and „sky-lining“ of the standard steel lattice pylon above the ridge background would have a more negative effect on views than the T-pylon that is 12m lower.
- 10.133 The removal of the two existing overhead lines on steel lattice pylon supports would also mean that although the T-pylon would be a new landscape feature (albeit not totally uncharacteristic compared to existing overhead lines) it would be the only overhead line visible on Tickenham Ridge.
- 10.134 The low-height steel lattice variant would also present an option that would be shorter than the standard steel lattice pylon. The T-pylon is preferred because its smaller footprint and narrower profile is better suited to the areas of enclosure along the route where a low-height steel lattice pylon would tend to be more dominant.

Historic Environment

Baseline Conditions

- 10.135 No Grade I or Grade II* Listed Buildings have a setting that includes the Proposed Route.
- 10.136 One Grade II Listed Building within 100m of the Proposed Route has a setting that would be affected by it. Batch Farmhouse is at the edge of Stone-edge Batch, and at the bottom of the narrow valley that the Proposed Route follows over Tickenham Ridge. This receptor is within 50m of two 132kV overhead lines (the F Route overhead line, which is proposed for removal as part of the Hinkley Point C Connection project, and the W Route overhead line, which is proposed to be undergrounded between a point south west of Nailsea and Portishead substation).
- 10.137 A further seven Grade II Listed Buildings/structures within 500m of the Proposed Route have settings that would be affected by it. Tickenham House is on the ridge of the valley, and includes later dwellings in its setting, as well as clear views of both existing 132kV overhead lines, downhill and approximately 300m and 350m away, to the rear of the receptor. The setting of Moat House Farmhouse comprises a group of modern farm buildings within a dip on top of Tickenham Ridge, with the existing 132kV overhead lines approximately 350m and 550m to the west, the more distant line also being downhill. Five other receptors form a group along Cadbury Camp Lane, a setting of well-spaced dwellings surrounded by sparse woodland on the top of a ridge. These are Little Naish (approximately 290m and 530m from the existing overhead lines), a statue of King John (approximately 375m and 600m) and a gazebo (approximately 340m and 560m) at Naish House, The Lodge (approximately 200m and 410m), and the coach house and stable at Naish Farmhouse (approximately 375m and 540m). All of these receptors are of high sensitivity.
- 10.138 A further three Grade II Listed Buildings within 10km of the Proposed Route have settings that would be affected by it. A milepost in Tickenham is on a footpath with a low hedge, approximately 600m and slightly elevated from the two existing 132kV overhead lines. The dairy at Lower Charlton Farm and Charlton House/The Downs School are both approximately 120m above Ordnance Datum (AOD), with views over a small valley containing Prior's Wood to the two existing 132kV overhead lines, approximately 750m and 1km away. These receptors are of high sensitivity.

- 10.139 One Scheduled Monument within 10km of the Proposed Route has views including areas within it. This receptor is Cadbury Camp hillfort, which is sited on a hill above and north of Tickenham at a height of 115m AOD. The hillfort is ringed by trees but has partial views south across the Somerset Levels and Moors North (Section D) and west along Tickenham Ridge; the two extant parallel 132kV overhead lines form minor elements of this receptor's setting, as do the settlements of Tickenham, Stone-edge Batch, and Nailsea. This receptor is of very high sensitivity.
- 10.140 One Registered Park and Garden within 10km has a setting that includes the Proposed Route. This is Clevedon Court, which is a Grade II* Registered Park and Garden within a predominately tree-covered area on high ground approximately 3km from the existing 132kV overhead line, on the opposite side of the M5 motorway. Tyntesfield Registered Park and Garden, which comprises areas of formal garden, parkland and woodland, and occupies a hillside east of Tickenham Ridge, would be unaffected as it is screened from the Proposed Route by topography, vegetation and the settlement of Nailsea.
- 10.141 No Conservation Areas or Registered Battlefields would be affected by the proposals.
- 10.142 The buffer zone contains 27 known non-designated heritage receptors. These are: 4 late medieval/post-medieval buildings, 1 mesolithic findspot, 2 prehistoric findspots, 3 Roman findspots, 1 Iron Age enclosure, 2 post-medieval limekiln sites, 1 barrow, 1 marlpit, 1 quarry, 1 post-medieval public house, 1 smithy site, 1 undated settlement, 2 Roman settlements, 1 medieval farm site, 1 late prehistoric earthwork field system, 1 DMV, 1 medieval moat, 1 early medieval settlement, 1 undated earthworks. These receptors are of high, moderate, low and negligible sensitivity.
- 10.143 This section of the route crosses a complex and varied historic landscape. Most of the southern half of the section (rising up to Tickenham Ridge) is characterised in the North Somerset Historic Landscape Characterisation as „late medieval enclosed fields created by local arrangement and exchange“. There are two small zones of „medieval enclosed field created by assart“ in the centre of the section, which also includes parts of zones of „post-medieval designed ornamental landscape“ at Naish, and „C18- 19th parliamentary enclosure“ north of West Hill. Small areas of pre-C18th woodland are present in the centre and the north of the section. The remainder of the northern part of the section is part of a zone of „medieval enclosed fields created by organised clearance“. The boundary between Sections E and F is

straddled by a thin zone of „medieval enclosed fields created by assart“. The medieval enclosed fields and the woodlands are of moderate sensitivity; all other historic landscape zones within this section are of low sensitivity.

- 10.144 Hedgerows associated with former settlement at Whitehouse Lane, the former field system and Saxon settlement south of Naish House, parish boundaries, or any historic buildings and archaeological sites described in the North Somerset Historic Environment Record may all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects

Effects equal for both Options

- 10.145 For both the steel lattice pylon and T-pylon options, the potential effects on all historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 10.146 Both options would result in a low magnitude negative effect on Batch Farmhouse Grade II Listed Building due to changes to its setting. The two existing 132kV overhead lines, which pass approximately 30m away, would be removed and a single larger overhead line would be constructed. Two existing pylons approximately 90m away and in the periphery of the view from the front of the receptor would be replaced by a single, larger pylon approximately 150m away and slightly further in the periphery of the view. Two existing pylons approximately 200m away and in the direct view from the rear of the receptor would be replaced by a larger pylon approximately 160m away and in a slightly more peripheral position in the view. The magnitude of effect would be reduced by the fact that the existing overhead lines already dominate this receptor's setting. The T-pylon option would appear more prominent than the steel lattice pylon option, due to its solid central column and cross beam; however, the steel lattice pylon would be more prominent due to its greater height; at this distance, these effects are broadly equal in magnitude.
- 10.147 Both options would result in low magnitude negative effects on a group of four Grade II Listed Buildings along Cadbury Camp Lane. These are: Little Naish, a statue of King John and a gazebo at Naish House, and a coach house and stable at Naish Farmhouse. For these four receptors, an existing overhead line downhill and 300-350m away would be replaced by larger infrastructure 10-70m further away.

For both options, the magnitude of effect would be reduced by the distance of separation and partial screening adjacent to the receptors from buildings and vegetation. However, for both options, the magnitude of effect would be increased by the prominence of the three closest pylons, which are positioned on the top of the ridge and so would be viewed almost completely against the sky; the magnitude of this effect would be greater for the more prominent T-pylon option. Due to their greater height, five steel lattice pylons would be visible from the receptor, whereas only four T-pylons would be visible.

- 10.148 Both options would result in low magnitude negative effects on the Grade II Listed „The Lodge“, which is an outlying element of the group on Cadbury Camp Lane. New, larger infrastructure would be constructed approximately 165m away, which would be 35m closer than the two existing 132kV overhead lines that would be removed. For both options, the magnitude of effect would be reduced by mature vegetation adjacent to the receptor and along Whitehouse Lane.
- 10.149 Both the steel lattice pylon and T-pylon options would result in negligible magnitude negative effects on the Grade II Listed Moat House Farmhouse due to changes to its setting. If low height steel lattice pylons were used, the effect would be neutral. The two existing 132kV overhead lines, approximately 350m and 550m away, would be removed and replaced with larger infrastructure approximately 600m away. For both options, the magnitude of effect would be reduced by adjacent partial screening from vegetation and by the distance of separation. However, for both options, the magnitude of effect would be increased by the prominence of the three closest pylons, which are positioned on the top of the ridge and so would be viewed almost completely against the sky; the magnitude of this effect would be greater for the more prominent T-pylon option. Due to their greater height, five steel lattice pylons would be visible from the receptor, whereas only three T-pylons or low height steel lattice pylons would be visible.
- 10.150 Both options would result in negligible magnitude negative effects on the Grade II Listed Tickenham House due to changes to its setting. The two existing 132kV overhead lines, approximately 350m away, would be replaced by larger infrastructure approximately 300m away. The magnitude of effect would be reduced by the distance of separation, the receptor's higher elevation, and the backgrounding provided by the ridge. Both the existing infrastructure and the Proposed Route are visible in the centre of the view from the rear of the receptor, although adjacent buildings and vegetation provide partial screening. The steel

lattice pylon option would benefit from backgrounding to a greater extent than the T- pylon option. However despite this, the closest pylon would be less visible for the T- pylon as it would be viewed in side elevation.

- 10.151 Both options would result in negligible magnitude negative effects on the Grade II Listed milepost at Tickenham due to changes to its setting. A single line of larger pylons would replace the two extant 132kV overhead lines, visible in open views across the Levels at a distance of approximately 600m. For both options, the magnitude of effect would be reduced by the distance of separation. Most of the pylons for both options would break the skyline, although the negative impact of this would be slightly greater for the steel lattice pylons due to their greater height. The magnitude of effect would be slightly greater for the T-pylons due to the greater visibility of their solid central columns and cross beams.
- 10.152 Both options would result in negligible magnitude negative effects on two Grade II Listed Buildings due to changes to their setting. For the dairy at Lower Charlton Farm and Charlton House/The Downs School, an existing overhead line approximately 1km away would be replaced by larger infrastructure on a similar alignment. While this represents a negative effect, the magnitude is reduced to neutral by the distance of separation, the presence of a second existing overhead line closer in the foreground of the view and, for The Downs School, effective vegetation screening adjacent to the receptor. The magnitude of effect of the T- pylons would be greater than that of the steel lattice pylons due to their greater visibility, whereas the magnitude of effect of the steel pylons would be greater due to a larger number and proportion of pylons being visible over the intervening terrain. The magnitude of effect would be reduced to neutral if low height steel lattice pylons were used.
- 10.153 Both options would result in a negligible magnitude negative effect on Cadbury Camp hillfort Scheduled Monument due to changes to its setting. The two existing 132kV overhead lines would be replaced with larger infrastructure at a distance of at least 950m. Further south, near Nailsea in Section D, the new infrastructure would be closer to the receptor than the existing overhead lines, at 1.5km away rather than 1.9km. For both options, the magnitude of effect would be reduced by the distance of separation and the higher elevation of the receptor. For both options the magnitude of effect would be reduced by backgrounding against the surrounding terrain; as the Proposed Route would only break the skyline in views from this receptor of the top of Tickenham Ridge; this reduction would be greater for

the steel lattice pylon option than the T-ylon option. The T-ylon option would appear more prominent than the steel lattice pylon option, due to its solid central column and cross beam, although the steel lattice pylon would be more prominent due to its greater height; at this distance these effects are broadly equal in magnitude.

- 10.154 Both options would result in a negligible magnitude negative effect on one Grade II* Registered Park and Garden due to changes to its setting. For Clevedon Court, the existing 132kV overhead line approximately 3km away would be removed and replaced on approximately the same alignment. For both options, the magnitude of effect would be reduced by the distance of separation and by the presence within the view from Clevedon Court of the M5 between this receptor and the Proposed Route.
- 10.155 Both options would result in a low negative magnitude of effect on the historic landscape. Removal of the two 132kV overhead lines and replacement with a 400kV overhead line on larger pylons would change the historic landscape character of the Proposed Route and surrounding area. While the overall magnitude of effect of both options on the historic landscape is equal, variations in how the two options relate to several factors (including topography, screening and backgrounding) mean that one or the other option would have less magnitude of effect in certain localised areas. The effect on historic landscape character is reduced where the Proposed Route is backgrounded by surrounding higher ground, which is the case for most views towards or down from Tickenham Ridge; this reduction in the magnitude of effect is more marked for the steel lattice pylon option because it lacks the solid central columns and cross beams of the T-ylon. For both options, the magnitude of effect would be reduced where the landscape is experienced at greater distance and with greater screening by topography, buildings and vegetation. The magnitude of effect of the T-ylon is less than that of the steel lattice pylon option due to its lower height, which also results in the T-ylon experiencing a greater reduction in magnitude due to screening, where it is present.
- 10.156 For both options, there is potential for negative effects on buried archaeological remains at ancillary work locations (including access tracks) and at pylon locations. The magnitude of effect would be high - low on receptors of moderate - negligible sensitivity.

- 10.157 For both options, improvements to the road network necessary for construction activities could cause negative effects to historic landscape elements such as „important“ hedgerows and historic lanes. The magnitude of these effects would be low on receptors of low sensitivity.

Potential for Mitigation

- 10.158 Scope to mitigate effects on the setting of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 10.159 For all routes, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place.
- 10.160 For all routes, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting (note that some hedgerow loss may be unmitigable).

Summary

- 10.161 There is little to differentiate between steel lattice pylon and T-ylon options in this Section. Both options would have an overall minor negative scale of effect on the historic environment. The T-ylon option has a slightly greater negative scale effect on one Registered Park and Garden than the steel lattice pylon option. The scale of effect would be equal for all other receptors, although there would be variations in effect depending on the way in which the heritage values of individual receptors or their settings are experienced.
- 10.162 Both options would have an overall minor negative scale of effect on Listed Buildings. Both options would have a low negative magnitude of effect on six Grade II Listed Buildings, and a negligible negative magnitude of effect on a further five Grade II Listed Buildings.
- 10.163 Both options would have a minor negative scale of effect on one Scheduled Monument.

- 10.164 Both options would have a minor negative scale of effect on one Grade II* Registered Park and Garden.
- 10.165 Both options would have an overall minor negative scale of effect on the historic landscape. For both options, replacement of two existing 132kV overhead lines with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character zones. Both options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal, etc.
- 10.166 The steel lattice pylon and T-pylon options would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon numbers. The overall scale of effect would be minor negative. The potential for as-yet undiscovered archaeological remains to be present along the Proposed Route is high.
- 10.167 Mitigation of the indirect visual effects of the overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation *in situ* is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline conditions

- 10.168 There are no international or national wildlife site designations within or adjacent to the Proposed Route in Section E. However, approximately 120m of the Proposed Route falls within the northernmost extent of the consultation zone for the North Somerset and Mendip Bats Special Area of Conservation (SAC).
- 10.169 One Site of Nature Conservation Interest (SNCI) is crossed by the Proposed Route in Section E. This is the Tickenham Hill, Cadbury Camp and Chummock Wood Complex SNCI which contains ancient woodland and unimproved and semi-improved calcareous and neutral grassland. SNCIs are valued at the county level.
- 10.170 There are a number of SNCIs which in Section E which lie within a 1km radius of the Proposed Route. These include:
- Abbot's Horn SNCI (approximately 50m north of the T-pylon route and 80m north of the steel lattice route) which contains semi-natural broad-leaved woodland including ash and hazel coppice;
 - Birch Wood and Prior's Wood SNCI (approximately 50m east) which contains ancient woodland with an interesting flora and an area of diverse neutral grassland. It supports a notable invertebrate community and the majority of the site is also an Avon Wildlife Trust nature reserve;
 - Summerhouse Wood SNCI (approximately 140m south of the steel lattice route and 170m south of the T-pylon route) which contains ancient woodland with a diverse ground flora;
 - Cockheap Wood, Dunhill Wood and Parsonage Wood Complex SNCI (approximately 390m west) which contains ancient woodland with a diverse ground flora and notable invertebrate community;
 - Fields adjacent to M5 Portbury SNCI (approximately 810m to the north west) which contains damp semi-improved neutral grassland supporting a diverse floral community; and
 - Breach Wood (Wraxhall and Failand) SNCI (approximately 730m to the east) which contains ancient woodland with a diverse canopy and shrub layer.

- 10.171 Section E comprises valley farmland in the south leading up to the wooded scarps of Tickenham Ridge in the north and east. The higher ground in the north of the Section is more open with larger fields.
- 10.172 This Section is one of the most wooded sections along the route and there are a number of woodlands associated with the Proposed Route. They include Mogg's Wood, Round Wood, Abbott's Wood, Chummock Wood and Prior's Wood. There are records of bats, dormouse and badger in and around this Section and these woodlands are likely to support these species. Prior's Wood was identified during breeding bird surveys as being of notable value for woodland bird species. These woodlands form part of a strong connective feature across the wider landscape. All of these woodlands are ancient semi-natural types and covered by SNCI designations and as such are valued at the county level.
- 10.173 The majority of hedgerows are species-poor but there are several tracks along the northwest edge of the Section that are bordered by species-rich hedgerows on both sides. The hedges create links between woodland blocks on either side of the corridor and could support a range of species including birds, bats and dormouse. The network of hedgerows is valued at the district level, but the value of individual hedgerows will vary depending on composition and association with other species.
- 10.174 In contrast to the Somerset Levels and Moors, the fields in this Section are not bordered by ditches. Aquatic habitats along the route are limited to the watercourse that runs through the valley of Prior's Wood and a few scattered ponds and ditches around Noah's Ark zoo. Water vole, eel and great crested newts have been recorded in the area and may be present along the Proposed Route. Collectively the aquatic habitats are valued at the local level.
- 10.175 The Section comprises a mix of agricultural land with the north dominated by arable land and the south predominately pasture. The intrinsic value of these habitats is low but could be increased if they support valued faunal species. A number of species have been recorded in the area which (given there is a good range of woodland, hedgerow and aquatic habitats adjacent to the fields) could utilise the pasture and arable land. These include badger, brown hare, hedgehog, harvest mouse, reptiles and amphibians. The fields will also support a range of farmland and woodland edge bird species, but have not been identified during surveys as an area of particular note for birds. These grassland habitats are valued at the local level.

Assessment of Effects

- 10.176 As stated above, the southern extent of the Proposed Route in Section E falls within the consultation zone of the North Somerset and Mendip Bats SAC. However, impacts upon qualifying bat species are unlikely due to the distance between Section E and the SACs (largely over 5km). Furthermore, there would be no loss or fragmentation of potential foraging or commuting habitat within the consultation zone in Section E. There is some potential for loss of tree bat roosts outside the consultation zone (if trees are affected which have potential to support SAC bats).
- 10.177 Both pylon options would avoid all wildlife designations with the exception of Tickenham Hill, Cadbury Camp and Chummock Wood SNCI, which is crossed by both overhead line routes at Cadbury Camp Lane. At this point most of the SNCI is grassland habitat, some of which will be affected by the construction of one pylon in this area. There is also a narrow stretch of woodland extending from Mogg's Wood and where the overhead lines cross this feature, a small loss of trees from this ancient woodland will be required to achieve electrical safety clearances. The SNCI and associated flora and fauna would experience a moderate negative, permanent magnitude of effect across both overhead line options. No other woodland habitat would be affected by the Proposed Route.
- 10.178 Due to the greater width of the T-Pylon design (in comparison to the steel lattice pylon) additional tree loss could be required in order to achieve electrical safety clearances. However, this would still create a medium-term overall moderate negative, magnitude of effect prior to mitigation.
- 10.179 No hedgerow losses are predicted with either option although the permanent loss of individual hedgerow trees to ensure electrical safety clearances cannot be ruled out. Such losses could be greater with the T-pylon (due to its greater width) in comparison to the lattice pylon option, but would still lead to a low negative, medium-term magnitude of effect prior to mitigation with either design.
- 10.180 There are likely to be differences in the extent of foundations between each pylon design. However, considering the low intrinsic value of the grassland habitats which would be impacted during construction, impacts upon grassland habitats (and their associated flora and fauna) would remain as a low negative magnitude of effect for both the steel lattice pylon and T-pylon options prior to mitigation.

- 10.181 Impacts on aquatic features would be largely avoided, with the exception of a single ditch which feeds a new pond at Noah's Ark zoo which would be crossed. There is a small potential for impacts to occur on this ditch and pond through a reduction in water quality (from run-off and pollution events during construction). Such impacts are likely to result in a medium-term low negative, magnitude of effect across both overhead line options.
- 10.182 In combination the low to moderate magnitude of effects on receptors of local to county value would lead to an overall moderate negative effect on ecology as a result of either pylon option prior to mitigation.

Potential for Mitigation

- 10.183 For both pylon design options, existing field access points and watercourse crossings would be used for all works traffic wherever possible and standard environmental protection measures implemented including the timing of works to avoid sensitive periods, the prevention of encroachment of works activities onto retained habitats and implementation of pollution control methods.
- 10.184 Where appropriate, prior to habitat clearance works, licensed temporary exclusion methods would be used to prevent death or injury to protected species such as great crested newt and water vole should they be found to be present in affected areas.
- 10.185 Where tree loss is required to achieve electrical safety clearances, pollarding or coppicing could be used to avoid total loss of habitat. Alternatively, where complete tree removal is required, replacement tree planting could be undertaken outside the overhead line easement subject to landowner agreement. However, due to the uncertainty of securing landowner agreement for works outside the easement, this form of mitigation has not been taken into account in the appraisal of effects. Within the permanent easement, scrub habitats and double hedgerow planting could be used to provide bird, bat and dormouse foraging and roosting or nesting habitat and to maintain connectivity across the landscape. Loss of mature trees cannot be mitigated within a reasonable timeframe, and therefore any replacement planting for loss of ancient woodland (where the Proposed Routes cross Mogg's Wood) would constitute compensation rather than mitigation.
- 10.186 Impacts on grassland habitats within the Tickenham Hill, Cadbury Camp and Chummock Wood SNCI could be minimised through the use of artificial tracks to

reduce ground disturbance during pylon construction works and appropriate grassland seeding or re-use of stored turfs post-construction.

Summary

- 10.187 Both pylon design options would avoid substantial impacts on ecology in Section E. Impacts would largely be restricted to the small loss of trees (ancient woodland) on the edge of Mogg's Wood, hedgerow tree loss and temporary effects on arable and pasture fields (including a field within a SNCI) during pylon construction. Although loss of individual mature trees can only be compensated rather than mitigated, losses would be minimal. Losses could potentially be greater with the T-pylon design option due to its greater width. Mitigation including wildlife-friendly working methods and use of existing field access points for construction traffic would in the long term, reduce impacts on ecology in Section E for either option from moderate negative to minor negative.
- 10.188 Overall, on balance, the scale of residual ecological impact would not differ between the pylon options. The construction of the individual lattice pylons may result in a longer disturbance period, although the T-pylon may require a greater extent of woodland tree and hedgerow tree removal due to the greater width of the pylon.

Section E: Summary of Preferred Pylon Option

- 10.189 Whilst the T-pylon would benefit less from backgrounding and would be more prominent in the local **landscape** because of its solid central column, cross beam and the configuration of the insulators and conductors, it would be less visible on the southern part, top and northern slopes of Tickenham Ridge and in the local and wider landscape due to its reduced height. Its reduced height would also result in less structure being visible against the sky.
- 10.190 From a **visual** perspective, the T-pylon would be more prominent in near distance views and would result in the greatest negative effects from fifty two sensitive receptors that pass under a new 400kV overhead line or are within 500m with views along the line. However, it would be less visible overall due to its reduced height and screening and would be less visible against the sky. Where the T-pylon is visible this would be for a shorter distance than steel lattice pylons.
- 10.191 From an **historic environment** and **ecological** perspective, there is little to differentiate between options in this Section.
- 10.192 Based on the findings of the appraisals, it is therefore recommended that the T-pylon is taken forward to consultation for Section E.

11 APPRAISAL SECTION F – PORTISHEAD/PORTBURY

Section Boundaries

- 11.1 Section F extends north from the M5 motorway to the existing Portishead 132kV electricity substation and east to the Portbury Docks complex. The Churchill to Portishead 132kV W route overhead line (“132kV W route”) enters the substation from the south, while the 132kV Bridgwater to Avonmouth Route overhead line passes the substation to the north. Both 132kV lines then run from the substation in an easterly direction to cross the Portbury Docks complex. East of the substation, these lines are renamed as „BW” and „G” respectively¹⁹).

Definition of Proposed Route Options

- 11.2 Within Section F two route options have been considered, referred to as Proposed Route Option A and Alternative Route Option B as shown in Figure 4.6. Proposed Route Option A is 1.8km long and runs northeast roughly parallel to the M5 and A369. Alternative Route Option B is approximately 3km long and runs north of the M5 on a direct alignment east of existing 132kV overhead lines. South and east of Portishead substation, Alternative Route Option B changes direction across Portbury Wharf Nature Reserve and away from Portishead substation. Alternative Route Option B then runs southeast parallel to the route of the existing Bridgwater to Avonmouth 132kV overhead line and joins the alignment of Proposed Route Option A further east in the adjacent Section G.
- 11.3 Proposed Route Option A and Alternative Route Option B for the new 400kV overhead line run on different alignments to the existing 132kV overhead lines; although Alternative Route Option B runs closer to existing 132kV overhead lines, particularly the 132kV W Route but includes a number of changes of direction across land east of Portishead.
- 11.4 Whilst National Grid maintains that Proposed Route Option A offers the most appropriate solution for a connection in this study area, the issues raised by local people during the consultation are recognised and National Grid are proposing to consult on both Proposed Route Option A and Alternative Route Option B as part of its formal consultation under Section 42 and Section 47 of the Planning Act. Following this formal consultation and an analysis of feedback, one route alignment

¹⁹ As noted previously, for the purposes of this report the G route between Bridgwater and Avonmouth will be referred to as the 132kV Bridgwater to Avonmouth route.

will be submitted to the Planning Inspectorate as part of the application for an Order granting Development Consent.

- 11.5 The steel lattice and T-pylons follow the same alignment on Proposed Route Option A through this Section apart from a slight deviation just north of the M5 to allow for the „smoothing out“ of a directional change for the T-pylon. Similarly, there are minor differences for T-pylon and steel lattice alignments on Alternative Route Option B where the route turns east, just south-east of Portishead substation. Alternative Route Option B is longer and so would require additional pylons (of either design) to that proposed for Proposed Route Option A.
- 11.6 Low height steel lattice pylons have not been considered in this Section for the reasons stated in Chapter 5.

Landscape

Baseline Conditions

National Landscape Character Assessment

- 11.7 Section F comprises the Severn and Avon Vales (NLCA 106) and the Bristol, Avon Valleys and Ridges National Landscape Character Areas (NLCA 118).
- 11.8 The majority of Section F is in the most southern end of the Severn and Avon Vales character area (NLCA 106), which extends along the east side of the River Severn comprising the lower valleys of the River Severn and Avon which are described as a flat low-lying predominantly pastoral, vale landscape. Woodland is sparse and the landscape is generally open. Urban influences in and adjacent to this Section include Portishead including Portbury Wharf, and industry at The Royal Portbury Dock and Avonmouth Docks. The M5 motorway runs southwest-northeast along the southern boundary of this Section.
- 11.9 The western part of the Bristol, Avon Valleys and Ridges character area (NLCA 118) extends over higher ground west of the route of the new 400kV overhead line in this Section and includes the central and western extent of Portishead. This character area (NLCA 118) also includes part of the Gordano Valley on lower ground southwest of the route of the new 400kV overhead line.
- 11.10 The Bristol, Avon Valleys and Ridges character area encloses the Severn and Avon Vales character area in the west and provides backgrounding to low-lying land. The area is described as a landscape of very mixed landform, geology and settlement pattern with low-lying, shallow valleys that contrast with the limestone ridges and scarps.
- 11.11 Tickenham Ridge extends irregularly east-west to the south of this Section and rises steeply from the Moors. High ground in the local area was settled at an early date and remained important through the Iron Age particularly as sites of hillforts.

Local Landscape Character Assessment

- 11.12 North Somerset Council's „North Somerset Landscape Character Assessment“, produced in 2005, characterises Section F as the Abbots Leigh Sandstone Uplands (LCA F1), Clapton Moor (LCA A2), Portbury Settled Coastal Edge (LCA C2) and Portishead Ridge (LCA E4).

- 11.13 The most southern extent of Section F is characterised as the western most part of the Abbots Leigh Sandstone Uplands (LCA F1) which extends west and east into the adjacent Section E. It is described as an undulating upland area that falls to the north. The area is rural, mainly pasture with woodland. Settlement comprises scattered farmsteads and a few villages linked by winding rural roads, for example Clapton in Gordano north of the M5. Wide views are noted as extending over the Bristol Channel.
- 11.14 The North Somerset Landscape Character Assessment description for the Sandstone Uplands landscape type identifies one of the „Forces for Change“ being the pressures for masts and other tall structures in this area.
- 11.15 The majority of Section F is in the Clapton Moor character area (LCA A2) which comprises Clapton Moor and the Gordano Valley enclosed by the steep slopes of limestone ridges to the north and south. The pastoral landscape of Clapton Moor is more varied compared to the Moors landscapes south of Tickenham Ridge and includes greater woodland cover, marshy grassland, wet and mixed woodland and occasional arable fields. Field boundaries are also more varied including an increasing use of fencing to replace hedgerows and ditches, along with hedgerow field boundaries with mature trees.
- 11.16 The eastern extent of Section F includes the western part of the Portbury Settled Coastal Edge character area (LCA C2), which largely comprises car depots with large areas of hardstanding and tall mature tree planting around car storage areas. Other parts of the Portbury Settled Coastal Edge character area (LCA C2) in this Section comprise flat low-lying pastoral land with areas of marshy ground.
- 11.17 Views from Section F extend across the Bristol Channel, and include industrial activity at Portbury Dock and Avonmouth Dock further east and northeast. Industrial dockland activity provides a frequently changing scene of container ships docking, loading and unloading and cranes are visible along with wind turbines and tall buildings at Avonmouth Dock.
- 11.18 Portishead Ridge (LCA E4) refers to the outcrop of limestone and sandstone forming the coastal edge between Portishead and Clevedon in the south-west. This higher ground includes steep wooded slopes which provide a backdrop to the lower ground. There are views over the Gordano Valley.

- 11.19 The North Somerset Landscape Character Assessment description for the Portishead Ridge character area identifies one of the „Forces for Change” being a demand in this area for tall vertical structures such as masts referred to as prominent when viewed from lowland areas.

Forest of Avon Community Forest

- 11.20 Section F is in the Forest of Avon, which is one of twelve Community Forests in England. The Forest of Avon extends over 57,000 hectares across four local authority areas including North Somerset, Bath and North East Somerset, Bristol and South Gloucestershire.
- 11.21 The Forest of Avon Plan published in 2002 identifies that less than 10% of the low-lying land in Section F has woodland cover, which is a lower percentage of tree cover compared to surrounding areas, including Portishead Ridge.
- 11.22 The Forest Plan sets out objectives for local areas and woodland cover, and identifies two main strategy areas for North Somerset including „Gordano and Parkland” in Section E in the south.

Section F Landscape Character

- 11.23 Many of the landscape characteristics identified above and described in published landscape character assessments are present in Section F. Section F comprises generally flat low-lying land across Clapton Moor and across the Gordano Valley to the southwest. The land falls towards lower-lying land north of the M5 motorway which is built on an embankment. Farmland is predominantly pasture with some arable fields in particular to the south of the A369 The Portbury Hundred. There are numerous horse paddocks and stables in this Section. Mature trees and hedgerow define field boundaries across Clapton Moor and in Portbury Wharf Nature Reserve. Some hedgerows in the Nature Reserve are maintained at a low height. There are also mature trees and hedgerow on both sides of the A369 The Portbury Hundred and along the disused railway. The A369 runs approximately east to west and the disused railway approximately southeast to northwest across the southern part of this Section.
- 11.24 Low-lying land is in the foreground of Tickenham Ridge which rises steeply to the south and Portishead Ridge which rises to the west and north of the Gordano Valley. Woodland extends across these ridge landscapes.

- 11.25 Portishead and Portbury Wharf are in the northwestern extent of Section F. Portishead is partly on lower-lying ground but extends west onto the higher ground of Portishead Ridge. New housing development on the edge of Portbury Wharf has extended the development edge further east. Portbury Wharf Nature Reserve lies to the east of the settlement and includes bird hides and a network of recreational footpaths and PRoW. Portishead substation is adjacent to the settlement edge and is partly encompassed by the Nature Reserve. There are two existing 132kV overhead lines in this area running into and out of the Portishead substation site close to the settlement edge.
- 11.26 On the eastern edge of Section F there are large car depots and storage areas accessed off The Drove and surrounded by fencing and tree planting with tall lighting columns. Large warehouses and dockland activity are evident further east at The Royal Portbury Dock, with dockland activity, cranes and wind turbines at Avonmouth visible beyond.

Landscape Sensitivity

- 11.27 There are no national level landscape designations in Section F. Tickenham Ridge and distance prevents intervisibility between the landscape in Section F and the Mendip Hills AONB in the far south.
- 11.28 Section F is valued locally and has regional value due to the recreational interests in this landscape. The Gordano Round recreation route runs through Section F in the west and extends across Clapton Moor and up and along higher ground through Portishead. Portbury Wharf Nature Reserve includes bird hides and a network of footpaths and PRoW with information boards. Open space on the eastern edge of new housing at Portishead offers recreational and educational interest for local residents. Weston Big Wood Nature Reserve lies on higher ground west of the both Alternative Route Option B and Proposed Route Option A.
- 11.29 The strength of character of the predominantly pastoral landscape of Clapton Moor (LCA A2) in Section F is recorded in North Somerset Council's Landscape Character Assessment (2005) as being moderate as it includes characteristics typical of the Moors landscape although showing greater diversity in land cover. North Somerset Council's Landscape Character Assessment (2005) states that "*the changing use of land along the periphery, Portishead urban edge, the M5 and views to The Royal Portbury Dock (also) have a disruptive effect*". The character of

- Portishead Ridge (LCA E4) is noted as being moderate in strength and affected by mixed land use and the visible urban edge of Portishead.
- 11.30 North Somerset Council's Landscape Character Assessment (2005) records the condition of Clapton Moor (LCA A3) across the majority of this Section as being generally good due to active management of pasture land, Portbury Wharf Nature Reserve and the Gordano Valley Nature Reserve in the west. However the North Somerset Landscape Character Assessment notes that certain activities such as installing fences to replace hedgerows and a change in the nature of activity around the periphery of the area is damaging its integrity and unity and reducing its distinctive character.
- 11.31 Portishead Ridge and Tickenham Ridge are strong landscape features which have a close association with Clapton Moor (and the Gordano Valley further west) on lower ground in Section F.
- 11.32 Clapton Moor is a relatively large-scale flat landscape between Portishead Ridge to the west and Tickenham Ridge to the south. Compared to Portishead Ridge and Tickenham Ridge, Clapton Moor is considered to have a lower susceptibility to change from larger structures such as overhead lines. The susceptibility to change of the landscape to the introduction of a new 400kV overhead line would be higher where the landscape is more open due to limited or no tree and hedgerow cover.
- 11.33 There are several existing overhead lines present in the area. These include the Bridgwater to Avonmouth 132kV overhead line, the W Route 132kV overhead line running from Churchill substation north to Portishead substation, and the BW Route 132kV overhead line between Portishead substation and Seabank substation in the northeast. The Bridgwater to Avonmouth 132kV overhead line runs northwards to the west of Portishead substation and changes direction immediately northwest of the substation site to run southeast towards Section G.
- 11.34 Existing 132kV overhead lines in the area, together with Portishead substation and dockland development beyond, reduces the sensitivity (susceptibility to change) of this landscape to the proposed overhead line as compared to one without such development, particularly as the Bridgwater to Avonmouth 132kV overhead line and the W Route 132kV overhead line would be removed (the latter replaced by underground cables), as part of a new 400kV overhead line.
- 11.35 The landscape sensitivity of Section F to a new 400kV overhead line is moderate.

Assessment of Effects

- 11.36 Two alignments for a new 400kV overhead line have been identified in Section F and are referred to below as Proposed Route Option A, and Alternative Route Option B route as shown in Figure 4.6.
- 11.37 Proposed Route Option A would result in the least negative effects on the local landscape compared to Alternative Route Option B because Proposed Route Option A is shorter (by approximately 1.2km), is more direct, minimises sharp changes in direction and landscape effects are generally constrained to the M5 and A369 corridor. Proposed Route Option A for the new 400kV overhead lines avoids negative effects on Portbury Wharf and on the adjacent Nature Reserve, which is valued as a recreational and educational resource.
- 11.38 Both the existing Bridgwater to Avonmouth 132kV overhead line and the W Route 132kV line would be removed (and the W Route replaced with underground cables) if the Proposed Route was built. The removal of existing 132kV overhead lines would result in a positive effect on the landscape in the vicinity of these 132kV overhead lines, particularly as part of Proposed Route Option A.
- 11.39 The removal of the existing 132kV lines would also greatly reduce the negative in-combination effects which would otherwise occur if a new 400kV overhead line was built on Alternative Route Option B across Clapton Moor. The existing 132kV BW Route overhead line would however remain in place in this Section although a section of it would be replaced with underground cables where the new 400kV overhead line on Alternative Route Option B crosses this existing line.

Effects of a new overhead line

- 11.40 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used.
- 11.41 A new 400kV overhead line in Section F would have a direct negative effect on the Severn and Avon Vales landscape southeast and east of Portishead, and indirect effects on Portishead Ridge in the west and Tickenham Ridge in the south in the adjacent Section E.
- 11.42 A new 400kV overhead line in Section F would introduce a linear development comprising conductors suspended from arms on supports at regular distances into a landscape that includes existing overhead lines; although Alternative Route

Option B is closer to the route of existing 132kV lines than Proposed Route Option A. There would be negative effects from the greater size and scale of the 400kV pylons compared to the existing 132kV pylons, although the presence of two existing 132kV overhead lines in this Section reduces the sensitivity (susceptibility to change) of this landscape to a new 400kV overhead line on the landscape in Section F particularly on Alternative Route Option B. The landscape in Section F is also influenced by the M5 motorway and industrial activity further east at The Royal Portbury Dock and at Avonmouth Dock.

- 11.43 Portishead Ridge and Tickenham Ridge would provide backgrounding to a new 400kV overhead line on Proposed Route Option A across the southern part of Clapton Moor, and across Alternative Route Option B crossing the flat low-lying Clapton Moor landscape, although to varying extents. A new 400kV overhead line would protrude above the backdrop of these hills in places, particularly where the hills are lower or more distant. These hills provide greater backgrounding to the smaller existing 132kV pylons. The extent and benefit of backgrounding of a new 400kV overhead line, and the considered effects of the line may differ if different support types are used.
- 11.44 There are mature hedgerows and trees across Clapton Moor, including along field boundaries and along the A369 The Portbury Hundred and the dismantled railway. Mature hedgerow and trees provide some filtering and partial screening which would reduce the influence of a new 400kV overhead line on the landscape in Section F.
- 11.45 A new 400kV overhead line would be likely to have a negative effect on trees and hedgerows along ditches, field boundaries and roads in Section F where these would be lost to allow construction access and because of removal or lopping to achieve the electricity safety clearances required. Field ditches and hedgerows are a component of the landscape character of Section F.

Comparison between the steel lattice pylon and the T-pylon on Proposed Route Option A and Alternative Route Option B

- 11.46 This part of the appraisal considers effects that would arise from a new 400kV overhead line using steel lattice pylons compared to a new 400kV overhead line using the T-pylon. A comparison of pylon types is discussed below for both Proposed Route Option A and Alternative Route Option B.

- 11.47 In Section F on Proposed Route Option A and Alternative Route Option B, both the steel lattice pylon overhead line and the T-ylon overhead line would generally follow the same alignment, except for some minor variations at pylon locations and at the changes in direction. On Proposed Route Option A the T-ylon would require two tension pylons on farmland between the M5 motorway in the south and the A369 The Portbury Hundred in the north compared to one tension pylon in this location on the steel lattice pylon alignment. On Alternative Route Option B the T-ylon would require four tension pylons in Portbury Wharf Nature Reserve compared to two tension pylons on the steel lattice pylon alignment where the route of the new 400kV overhead line changes direction to run northeast across the Nature Reserve, and changes direction to run southeast into adjacent Section G.
- 11.48 T-ylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-ylon suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel than steel lattice suspension pylons.
- 11.49 The existing overhead lines operating at 132kV in Section F and in the adjacent Sections E and G are suspended from steel lattice pylons. The presence of existing overhead lines with steel lattice pylons reduces sensitivity of the landscape in this Section to a new overhead line using steel lattice pylons.
- 11.50 A new 400kV overhead line in Section F supported by T-ylons would introduce a new and different pylon structure along the M5 motorway and the A369 (Proposed Route Option A) and across Clapton Moor and the car depots and storage areas on the eastern edge of Section F (Alternative Route Option B). A new 400kV overhead line using T-ylons in Section F would not be totally uncharacteristic compared to existing 132kV overhead lines using lattice pylons. Existing overhead lines and the T-ylon share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support. The two existing 132kV overhead lines running obliquely across the northern slopes of Tickenham Ridge in the adjacent Section E and crossing the M5 motorway before running north across Clapton Moor would also be removed as part of the proposal (the W Route 132kV overhead line would be replaced with underground cables). The Bridgwater to Avonmouth 132kV overhead line running southeast beyond Portishead substation into Section G would also be removed.

Proposed Route Option A

- 11.51 A new 400kV overhead line on Proposed Route Option A using the steel lattice pylon would be backgrounded more effectively by trees and hedgerow along the A369 The Portbury Hundred and on Clapton Moor to the north, by Portishead Ridge to the west, and by landform and woodland on Tickenham Ridge to the south in Section E because the thin steel members in this open structure make background features visible beyond. Backgrounding would be less effective for a new T-pylon overhead line due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice pylon.
- 11.52 The T-pylon would tend to appear more prominent in the local landscape compared to the steel lattice pylon due to the T-pylon's solid central column and cross beam, its „diamond“ configuration of conductors and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. However the T-pylon would be approximately 12m lower than the steel lattice pylons reducing its influence in the local landscape. The lower height of the T-pylon would reduce the extent of pylon visible against the sky and would reduce its visibility above intervening trees along the M5 motorway and adjacent field boundaries, along the A369, The Portbury Hundred to the north of Proposed Route Option A, and along the northern edge of Portbury to the south.
- 11.53 A new 400kV overhead line using steel lattice pylons on Proposed Route Option A would have a moderate negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape.
- 11.54 A new 400kV overhead line using the steel lattice pylons or the T-pylon on Proposed Route Option A would result in some tree loss particularly where it crosses the A369 The Portbury Hundred northwest and north of Portbury. A new T-pylon overhead line is considered to result in greater tree loss to accommodate this wider structure in the landscape compared to the steel lattice pylon.
- 11.55 Overall a new 400kV overhead line using the T-pylon on Proposed Route Option A would have a similar moderate negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape compared to the steel lattice pylons. Backgrounding would be less effective for a new T-pylon overhead line and there would likely be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon, where it crosses the A369 The Portbury Hundred. However the

lower height of the T-pylon would otherwise reduce its visibility in the local landscape particularly where there is screening and filtering by trees and hedgerow.

Alternative Route Option B

- 11.56 A new 400kV overhead line on Alternative Route Option B using the steel lattice pylon would also be backgrounded more effectively by trees and hedgerow along the A369 The Portbury Hundred; on Clapton Moor by Portishead Ridge to the west; and by landform and woodland on Tickenham Ridge to the south in Section E. This is because the thin steel members in this open structure make background features visible beyond. Backgrounding would be less effective for a new T-pylon overhead line due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice. However the T-pylon would be approximately 12m lower than the steel lattice pylons, reducing its visibility above intervening trees and hedgerow and against the sky, and reducing its influence in the local landscape.
- 11.57 A new 400kV overhead line on Alternative Route Option B in Section F supported by T-pylons would introduce a new and different pylon structure crossing the route of the existing BW Route 132kV line (a section of which would be replaced with underground cables where Alternative Route Option B crosses this existing line), and running southeast from Portishead substation towards the adjacent Section G roughly parallel and close to the existing BW Route to be retained. This would result in a greater change than introducing a series of similar structures and may produce an incoherent appearance. However, a new overhead line using T-pylons on Alternative Route Option B would not be totally uncharacteristic compared to existing overhead lines using lattice pylons. The existing overhead line and the T-pylon would share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.
- 11.58 The T-pylon would tend to appear more prominent in the local landscape (and from elevated landform such as Tickenham Ridge) compared to the steel lattice pylon due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of conductors and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. However the T-pylon would be approximately 12m lower than the steel lattice pylons reducing its influence in the local landscape. The lower

height of the T-pylon would reduce the extent of pylon visible against the sky and would reduce its visibility above intervening trees along the M5 motorway, along the A369 The Portbury Hundred, along field boundaries on Clapton Moor and in Portbury Wharf Nature Reserve, and above trees surrounding car depots and storage areas on the eastern edge of Section F.

- 11.59 A new 400kV overhead line using the steel lattice pylons or the T-pylon on Alternative Route Option B would result in some tree loss particularly where it crosses the A369 The Portbury Hundred. A new T-pylon overhead line is considered to result in greater tree loss to accommodate this wider structure in the landscape compared to the steel lattice pylon.
- 11.60 Overall a new 400kV overhead line using steel lattice pylons on Alternative Route Option B would have a moderate negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape. A new T-pylon overhead line on Alternative Route Option B would have a similar moderate negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape. Backgrounding would be less effective for a new T-pylon overhead line and there would likely be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon, where it crosses the A369 The Portbury Hundred. However the lower height of the T-pylon would otherwise reduce its visibility in the local landscape particularly where there is screening and filtering by hedgerow and trees.

Potential for Mitigation

- 11.61 It is not possible to avoid direct negative effects on the landscape of the Severn and Avon Vales landscape or indirect negative effects on Portishead Ridge and Tickenham Ridge with a new 400KV overhead line.
- 11.62 Pylons have been sited to maximise backgrounding by higher ground and avoid or minimise sharp changes in direction to assist in reducing potential negative effects. Mitigation by way of hedgerow and tree planting in the vicinity of a new overhead line, depending on land owners' consent being granted, would be in keeping with the existing landscape character and could also assist in reducing potential effects.
- 11.63 The removal of the 132kV W Route line in addition to the Bridgwater to Avonmouth 132kV overhead line would greatly reduce the negative effects cumulative and residual effects of a new 400kV overhead line that would occur otherwise.

Summary

- 11.64 Two alignments for a new 400kV overhead line have been identified in Section F: Proposed Route Option A and Alternative Route Option B. Proposed Route Option A runs northeast roughly parallel to the M5 and A369. Alternative Route Option B runs north of the M5 on a direct alignment east of the existing 132kV overhead lines and changes direction across Portbury Wharf Nature Reserve away from Portishead substation. Alternative Route Option B then runs southeast parallel to the route of the Bridgwater to Avonmouth 132kV overhead line further east and into the adjacent Section G.
- 11.65 In Section F the steel lattice pylon and the T-ylon overhead line routes on both Proposed Route Option A and Alternative Route Option B generally follow the same alignment except for some minor variations at pylon locations and at the changes in direction proposed on both routes in Section F. A new T-ylon line would require two tension pylons to negotiate a more gradual change in direction for Proposed Route Option A compared to one steel lattice pylon required to achieve a similar change in direction. For Alternative Route Option B a new T-ylon line would require four tension pylons to negotiate a more gradual change in direction compared to two steel lattice pylon required to achieve a similar change in direction.
- 11.66 Overall a new 400kV overhead line on both Proposed Route Option A and Alternative Route Option B using the steel lattice pylon would have a moderate negative residual effect on the Severn and Avon Vales landscape including Clapton Moor, which is valued locally and has regional value, is in good condition and has a moderate landscape sensitivity to the proposed overhead line. A new T-ylon overhead line on Proposed Route Option A and Alternative Route Option B would have a similar moderate negative residual effect on the Severn and Avon Vales landscape. Backgrounding would be less effective for a new T-ylon overhead line, the T-ylon would tend to appear more prominent in the local landscape and there would likely be greater tree loss as a result of the T-ylon route, compared to the steel lattice pylon, for example where it crosses the A369 The Portbury Hundred on both Proposed Route Option A and Alternative Route Option B. However the lower height of the T-ylon would otherwise reduce its visibility above intervening tree and hedgerow screening and filtering and above higher ground, reducing its influence in the landscape.

- 11.67 With regard to effects on the landscape, overall the T-pylon on both Proposed Route Option A and Alternative Route Option B in Section F is generally preferred. A new 400kV overhead line using the T-pylon would tend to be less effectively backgrounded by landform and woodland compared to the steel lattice design of the steel lattice pylons and would tend to appear more prominent in the local landscape. However the lower height of the T-pylon compared to the steel lattice pylon would reduce its influence on the wider landscape.
- 11.68 If a pylon type is identified as being preferable overall in Section F and an alternative pylon type is preferred in adjacent Sections E and G, and vice versa the transition between pylon types would need to be sited where there is screening and filtering by for example trees, mature hedgerow and built form to avoid a potentially greater adverse effect on the landscape as a result of the change between two different pylon types.

Visual Amenity

Baseline Conditions

- 11.69 The over-riding characteristic of Section F is the Gordano Valley with the elevated wooded landform of Tickenham Ridge (Section E) to the south and Portishead Ridge to the northwest, with the elevated settlement of Portishead on the coast. Clapton Moor extends across the valley to the settlement of Portishead and Portbury Wharf on the coast. The M5 motorway runs along Tickenham Ridge on the boundary of Section E and F and is set on the lower ridge slope. The existing Bridgwater to Avonmouth 132kV, the Churchill to Portishead 132kV (W Route) and the Portishead substation to Seabank substation 132kV (BW Route) overhead lines run across Section F between Tickenham Ridge in Section E, Portishead substation and Portbury Dock in Section G.
- 11.70 There are long distance views across Clapton Moor and along the Gordano Valley as far as Avonmouth to the east in Section G, with limited filtering by trees and hedgerow vegetation. Tickenham Ridge (Section E) backgrounds views south and Portishead Ridge backgrounds views northwest. Views northeast extend across the flat landscape to Portbury Wharf on the coast and across the Severn Estuary, with the Welsh Hills over 10km in the distance. Views extend northeast to Section G across the industrial dockland of Portbury Docks (1km) and the River Avon (2km) to Avonmouth Docks (over 2km).
- 11.71 The existing Bridgwater to Avonmouth 132kV overhead line runs for 4.3km across Section F and changes direction three times. It passes over the M5 motorway at the boundary of Section E and F heading north down Tickenham Ridge and across Clapton Moor for 1.3km to Portishead. It changes direction at the A369 The Portbury Hundred and takes a northeast alignment for 600m before changing direction and taking a northern alignment for 1km towards Portishead substation at Portbury Wharf. The existing Bridgwater to Avonmouth 132kV overhead line passes close to the substation and changes direction to the north taking a southeast alignment for 1.4km towards the boundary of Section G and then continuing for 2.2km to the River Avon where it passes over the river on two tall pylons to Avonmouth.
- 11.72 The existing W Route 132kV overhead line runs for 2.1km across Section F from the boundary of Section E at Tickenham Ridge to Portishead substation at Portbury Wharf, changing direction twice. The W Route 132kV overhead line passes over

the M5 motorway and changes direction taking a northwest alignment for 1.1km across Clapton Moor and is parallel to the existing Bridgwater to Avonmouth 132kV overhead line. At the A369 The Portbury Hundred the W Route changes direction slightly and takes a north alignment parallel and approximately 50m east of the existing Bridgwater to Avonmouth 132kV overhead line for 950m to Portishead substation.

- 11.73 The existing BW Route 132kV overhead line takes a southeast alignment parallel 70m south of the existing Bridgwater to Avonmouth 132kV overhead line for 1.2km from Portishead substation to the boundary with Section G and then continuing for 2.4km to the River Avon where it passes over the river to Avonmouth.
- 11.74 Views of the existing 132kV overhead lines in Section F are experienced by approximately thirty receptors on the northern slopes of Tickenham Ridge in Section E (from 200m to 3km distance) and include people using The Gordano Round long distance footpath, eight PRoW, three cycleways, three country lanes, a sports club and fourteen properties on elevated ground in Portbury. Views are across the flat landscape of Clapton Moor and Portbury Wharf with the existing overhead lines often visible above trees, hedges and vegetation. Long distance views northwest to Portishead and Portbury Wharf are also available 4km away from receptors at Lower Failand with existing overhead lines just perceptible above trees.
- 11.75 From the west of Section F a large number of receptors have long views along the Gordano Valley towards the existing 132kV overhead lines as they cross the elevated landform of Tickenham Ridge and the flat landscape of Clapton Moor, visible above trees. Receptors include people using the Gordano Round long distance footpath, over six PRoW, a cycleway, individual properties and receptors in the settlements of Walton in Gordano, Weston in Gordano and Clapton in Gordano. Receptors in Section F also have distant views of the tall pylons carrying the Bridgwater to Avonmouth 132kV overhead line over the River Avon (in Section G) on the sky line.

Public Views

- 11.76 The main public views of the existing 132kV overhead lines across Section F are experienced by visual receptors using public footpaths, cycle routes and outdoor recreation facilities.

- 11.77 The Gordano Round is a waymarked published 26 mile long distance walk around the Gordano Valley. The route takes in the coast path between Portishead and Clevedon, before crossing Clapton Moor to take a route along Tickenham Ridge in Section E. In Section F the Gordano Round runs along Slade Road through the east of Portishead on elevated ground before crossing Clapton Moor on Clapton Drove towards Clapton-in-Gordano at the foot of Tickenham Ridge to the west of the proposed 400kV alignment. On Slade Road footpath users have views from elevated ground towards Tickenham Ridge in Section E and across Portbury Wharf towards Portbury Docks and Avonmouth Docks in Section G. The existing Bridgwater to Avonmouth and W Route 132kV overhead lines are visible on Tickenham Ridge in Section E and above trees as they cross Clapton Moor in Section F. To the east the existing Bridgwater to Avonmouth 132kV and the BW Route 132kV overhead lines are visible as they run parallel across Portbury Wharf to Portbury Docks and the River Avon in Section G, with the tall pylons crossing the river visible on the sky line.
- 11.78 The Gordano Round includes four linked routes of shorter circuits around the long distance route. Link 2 connects the coastal path at Portishead Ridge in Section F with Tickenham Ridge in Section E and crosses the Gordano Valley at Walton Moor. Footpath users experience similar views to the route on Clapton Drove with the guide describing *„excellent views of the Gordano Valley and, above the quarry, across the Severn Estuary“* (The Gordano Round: Gordano Footpath Group: 2011). During a site visit the existing 132kV overhead lines were noted as visible on Tickenham Ridge and above trees across Clapton Moor with the tall pylons crossing the River Avon in Section G on the sky line in views.
- 11.79 There are three PRow and a number of footpaths across Clapton Moor, Portbury Wharf Nature Reserve and Sheepway which pass directly beneath the existing 132kV overhead lines. Footpath users have the overhead lines in the foreground with views of the lines extending up Tickenham Ridge in the distance with seven pylons at the top visible against the sky line.
- 11.80 National Cycle Network Route 26 is along footpaths and the road network between the River Avon in Section G and Portishead in Section F, passing under the existing 132kV overhead lines on Portbury Common near Sheepway. As the route passes beneath them, views along the overhead lines are available to the north and south through gaps in hedgerows with pylons visible above trees.

- 11.81 National Cycle Route 334 Clifton Link passes over the M5 motorway at Portbury on a narrow bridge. From here there are expansive views southwest along the M5 motorway towards the existing 132kV overhead lines on the slopes of Tickenham Ridge (700m to 1km away) in Section E, passing over the M5 motorway with six pylons „sky-lining“ views above the ridge. Four pylons on each of the overhead lines are also visible above trees, largely backgrounded by Portishead Ridge, in views west across Clapton Moor in Section F. Mature trees along the A369 The Portbury Hundred screen views northwest.
- 11.82 National Cycle Route 410 forms part of Regional Route 10 The Avon Cycleway through the Gordano Valley along Nortons Wood Lane, Clevedon Lane and Caswell Lane at the base of Tickenham Ridge close and parallel to the boundary of Section E and F. Roadside trees, hedgerows and woodland screen views for long stretches. The route runs under the existing Bridgwater to Avonmouth 132kV overhead line on Caswell Lane to the east of Clapton in Gordano and under the W Route 132kV overhead line further east adjacent to the M5 motorway. Here cycleway users have long views along the overhead lines as they cross Clapton Moor to the north and up Tickenham Ridge to the south in Section E. From the west cycleway users have occasional long distance views along the Gordano Valley to the two tall Bridgwater to Avonmouth 132kV overhead line pylons passing over the River Avon in Section G.
- 11.83 There are views of the existing 132kV overhead lines from outdoor recreation facilities at Portbury Wharf Nature Reserve, where the overhead lines cross, and from East Wood (1.5km) and Merlin Park (3km) in Portishead. The existing Bridgwater to Avonmouth 132kV overhead line, the W Route 132kV overhead line, the BW Route 132kV overhead line and Portishead substation are visible.
- 11.84 All three 132kV overhead lines pass through Portbury Wharf Nature Reserve parallel and close together, with the W Route and BW Route connecting to Portishead substation in the north of the nature reserve. A public right of way and four footpaths in the nature reserve pass under the existing 132kV overhead lines. The public right of way and two footpaths are also adjacent to the boundary of the substation in the north of the nature reserve. Receptors have long views along the existing 132kV overhead lines across Portbury Wharf Nature Reserve, to the south across Clapton Moor and up Tickenham Ridge (in Section E), and east to the Bridgwater to Avonmouth 132kV tall pylons passing over the River Avon (in Section

- G). Seven pylons at the top of Tickenham Ridge and two passing over the River Avon „sky-line“ in views.
- 11.85 A public right of way and a bench in woodland on elevated ground at East Wood, on Portishead Ridge near the coast in Portishead, have occasional long distance channelled views towards Tickenham Ridge (in Section E) and Portbury and Avonmouth Docks (in Section G). Receptors have distant views of the existing 132kV overhead lines crossing Clapton Moor and Tickenham Ridge and the tall Bridgwater to Avonmouth 132kV pylons passing over the River Avon 4km away. Merlin Park is a public open space and play area in Portishead Down situated at the highest point of Portishead. Receptors have panoramic long distance views above woodland at Weston Big Nature Reserve towards Tickenham Ridge 3.5km away in Section E. Views include the existing 132kV overhead lines at the top of Tickenham Ridge with limited backgrounding and pylons „sky-lining“ views.
- 11.86 The M5 motorway runs along Tickenham Ridge on the boundary of Section E and F and is set on the lower ridge slopes. The existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines pass over the M5 motorway 800m apart as they pass over Tickenham Ridge and across Clapton Moor near Clapton in Gordano. From the west, motorway-users“ views are largely screened by ridge landform and trees although there are occasional expansive views across the Gordano Valley to Portishead, Portbury Wharf and Avonmouth with its associated port industry in Section G. Further east near Clapton in Gordano, where the motorway passes under the existing 132kV overhead lines, views become open and expansive across Clapton Moor to Portishead, Portbury Wharf and Avonmouth in Section G. The existing overhead lines appear on the sky line in views as they pass over Tickenham Ridge and are visible across Clapton Moor above trees. Views northeast include the existing tall Bridgwater to Avonmouth 132kV overhead lines over the River Avon and other industrial dock structures on the Avonmouth sky line.

Private Views

- 11.87 There are views of the existing 132kV overhead lines from settlements in Section F and Section E. The main settlements in Section F from where there are views are the large settlement of Portishead including Portbury Wharf (between 50m to 3.5km away) and the villages of Sheepway (250m to 1km) and Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes over Caswell

Lane near properties, over sailing two property gardens. Further west in the Gordano Valley the villages of Walton in Gordano (6km) and Weston in Gordano (3km) have long distance views towards the overhead line in the east. In Section E settlements with views to the existing 132kV overhead lines in Section F include Portbury (1km from the W Route), adjacent to the M5 motorway on the boundary of Section E and F, and Lower Failand (4km away) on the northern slopes of Tickenham Ridge.

- 11.88 The settlement of Portishead is on the elevated landform of Portishead Ridge allowing receptors some open and some filtered distant panoramic views from 50m to 3.5km away across Section F and towards Portbury and Avonmouth Docks in Section G and Tickenham Ridge in Section E. Receptors along 2km of the southern and eastern settlement edge and 2km of elevated land on Portishead Ridge have views of the existing 132kV overhead lines above trees across Section F, up Tickenham Ridge and on the top of the ridge in Section E, and passing over the River Avon in Section G. Up to seven pylons on Tickenham Ridge and the two tall Bridgwater to Avonmouth 132kV pylons over the River Avon are visible in the skyline of views. Approximately ten apartment blocks four to seven storeys high on level ground at Portbury Marina have similar views to those described above.
- 11.89 In the part of Portishead on level ground east of the ridge views of the existing overhead lines are often obscured by built form with glimpsed views through gaps in buildings towards Portbury Docks in Section G and Tickenham Ridge in Section E.
- 11.90 Portbury Wharf is a new development of 2,550 homes on the eastern edge of Portishead. On the settlement edge to the east properties are 50m to 150m from the existing 132kV overhead lines with their alignment approximately parallel to the development edge for 900m through Portbury Wharf Nature Reserve, with Portishead substation in the north. Receptors have the existing 132kV overhead lines and Portishead substation in foreground views with long views along the overhead lines as they cross the nature reserve and Clapton Moor. Views include the existing overhead lines up Tickenham Ridge and at the top in Section E and the tall Bridgwater to Avonmouth 132kV pylons where they pass over the River Avon.
- 11.91 In Sheepway fourteen properties have views north (500m) and southwest (100m to 1km) towards the existing 132kV overhead lines including the existing Bridgwater to Avonmouth 132kV overhead line, the Churchill to Portishead 132kV overhead line (W Route) and the Portishead to Seabank 132kV overhead line (BW Route) in

views north. These overhead lines are visible above field trees in the distance. There are also distant views south to Tickenham Ridge in Section E where the existing Bridgwater to Avonmouth and W Route 132kV overhead lines pass over at the top of the ridge with limited backgrounding and up to seven pylons appear on the sky line in views.

- 11.92 The village of Clapton in Gordano is on the lower slopes of Tickenham Ridge to the north of the M5 motorway. The existing Bridgwater to Avonmouth 132kV overhead line passes over Caswell Lane near to properties in the east of the village, passing over two property gardens. Properties in the east of the settlement have open and filtered foreground views (10m to 200m) of the existing Bridgwater to Avonmouth 132kV overhead line as it crosses Clapton Moor. Views northeast include the existing W Route 132kV overhead line visible above trees across Clapton Moor 600m east of the Bridgwater to Avonmouth 132kV overhead line. From the west there are similar views however the existing Bridgwater to Avonmouth 132kV overhead line is in middle distance views 200m to 1km away with some views south also available to the overhead lines on the slopes of Tickenham Ridge in Section E.
- 11.93 In the Gordano Valley the small linear settlements of Weston in Gordano (3km) and Walton in Gordano (6km) have long distance views along the valley to the existing overhead lines down Tickenham Ridge in Section E, with limited backgrounding and to the top of pylons visible above trees across Clapton Moor in Section F. There are also distant views across Clapton Moor of the tall Bridgwater to Avonmouth 132kV pylons where they pass over the River Avon in Section G (7km to 10km away).
- 11.94 Views in Section F are locally important with the combination of the Gordano Valley, Portishead Ridge and Tickenham Ridge in Section E locally distinctive but not of greater distinction or value.

Assessment of Effects

- 11.95 The existing Bridgwater to Avonmouth 132kV overhead line would be removed in Section F for 4.3km. The line would also be removed in the adjacent Section E and the southern part of Section G. The W Route 132kV overhead line would be removed and replaced by underground cables in Section F for 2.1km between the M5 motorway at the boundary with Section E and Portishead substation. The W Route 132kV overhead line would also be replaced by underground cables across

Tickenham Ridge in Section E. The existing BW Route 132kV overhead line would remain.

- 11.96 Two alignments for a new 400kV overhead line have been identified in Section F and are referred to below as Proposed Route Option A, and Alternative Route Option B.

Effects of a new overhead line

- 11.97 A new 400kV overhead line in Section F on either Proposed Route Option A or Alternative Route Option B alignment would have a negative effect on public and private visual receptors. Receptors would also have views of a new overhead line on the higher ground of Tickenham Ridge in Section E, where a 400kV overhead line would be particularly visible against the sky especially where it would cross the highest point of the ridge with limited backgrounding.
- 11.98 The greatest effects on views would be experienced by sensitive visual receptors close to the proposed 400kV overhead line and would include users of PRoW , cycleways, a sports club, Portbury Wharf nature reserve, the M5 motorway and the nearest residential properties. The existing Bridgwater to Avonmouth and W Route 132kV overhead lines would be removed from views and replaced with a new 400kV overhead line. The existing BW Route 132kV overhead line would remain in many receptor views. The existing Bridgwater to Avonmouth and the W Route 132kV overhead lines would also be removed from views where they cross Tickenham Ridge (in Section E) and replaced with a new 400kV overhead line.
- 11.99 There would be negative effects on long distance views from receptors in the Gordano Valley and from the elevated landforms of Portishead Ridge to the west and Tickenham Ridge to the south (in Section E) where a new 400kV overhead line would be more visible than the existing 132kV overhead line because of its greater height. From the settlement of Portishead on Portishead Ridge a 400kV overhead line would be more visible than the existing 132kV overhead line to a large number of receptors on elevated ground where it crosses Section F before running south over the higher ground of Tickenham Ridge.
- 11.100 The existing Bridgwater to Avonmouth and the W Route 132kV overhead lines would be removed from views and would bring particular benefit to properties and PRoW across Clapton Moor and Portbury Wharf and from properties on the southern edge of Portishead and in Clapton in Gordano on Caswell Lane.

Proposed Route Option A

11.101 Proposed Route Option A is approximately 1.8km long and diverts east away from the existing W Route 132kV alignment to run parallel to the M5 motorway and Portbury (between 20m and 150m north). For some receptors in Portbury and Sheepway a new 400kV overhead line on Proposed Route Option A alignment would be introduced in views where no overhead lines are presently visible.

11.102 A new 400kV overhead line on Proposed Route Option A alignment in Section F would have a negative effect on public and private visual receptors. The greatest effect on public views would be from ten PRoW, three national cycle routes and a sports club where Proposed Route Option A deviates from the routes of the existing 132kV overhead lines and takes an alignment parallel and north of the M5 motorway. A new 400kV overhead line on Proposed Route Option A would be introduced in near and middle distance views where the existing 132kV overhead line is further away or not visible. This would occur at:

- two PRoW in Section F including one on Station Road where a new overhead line would pass over (and be in near distance views) and one near Upper Caswell Farm in Clapton in Gordano where a new 400kV overhead line would be visible 400m east (in middle distance views);
- eight PRoW in Portbury and across fields to the east and west (in Section E) where a new 400kV overhead line would be visible in near and middle distance views 50m to 500m away beyond the M5 motorway and down Tickenham Ridge in Section E;
- three cycle routes that a new 400kV overhead line would pass over with near distance views along the line including National Cycle Network Route 334 Clifton Link where it passes over the M5 motorway on a pedestrian bridge at Portbury, National Cycle Network Route 26 on the former railway line north of the A369 The Portbury Hundred and National Cycle Network Route 410 (part of Regional Route 10 the Avon Cycleway) at Caswell Lane and High Street; and
- Gordano Rugby Football Club on Caswell Lane in Section E where a new 400kV overhead line would be in near distance views along the M5 motorway 250m north and down Tickenham Ridge in middle distance views 500m southwest in Section E.

- 11.103 The greatest negative magnitude of effect (scale of change) on private views would be from approximately one hundred and twenty six properties that would have views to a new 400kV overhead line on Proposed Route Option A where the existing 132kV overhead line is not visible. These include approximately eighty properties in Portbury and on the settlement edge (in Section E), three properties on Station Road at Cole Acre, approximately forty two properties at Elm Tree Park and Caswell Cross Cottages on Caswell Lane in Section E. These properties would have a new 400kV overhead line on Proposed Route Option A introduced in near and middle distance views between 50m and 400m away adjacent to the M5 motorway, with some screening from built form, boundary trees and vegetation.
- 11.104 Properties in Portbury in Section E would have views of a new 400kV overhead line above built form and trees north of the M5 motorway in near and middle distance views within 500m; in particular properties on the settlement edge and on elevated ground on Caswell Lane and High Street. Receptor views further south in the settlement would have greater screening in views with a new overhead line only visible above rooftops and trees and at gaps between buildings. Properties in Elm Tree Park off Sheepway would have views heavily filtered and screened by mature trees along the disused railway on the southern boundary with a new 400kV overhead line considered to be visible above.
- 11.105 People using the M5 motorway would have the existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines removed from near distance views where these lines presently pass over the motorway 800m apart and cross Tickenham Ridge and Clapton Moor. A new 400kV overhead line would be visible passing over the motorway in the same location as the existing W Route 132kV alignment with a new 400kV overhead line parallel to the motorway in near distance views 20m to 100m north. Receptors would have a new 400kV overhead line in near distance views adjacent to the motorway for 1.8km in Section F and down Tickenham Ridge in Section E.
- 11.106 A positive effect on views would be experienced from a large number of public and private receptors that would have the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines removed from views where they presently pass close to receptors and are presently in near distance views. These include:
- users of Portbury Wharf Nature Reserve and a public right of way and footpaths that run through the nature reserve where the existing Bridgwater to

Avonmouth 132kV and W Route 132kV overhead lines pass over and near to receptors;

- over one hundred properties on the settlement edge of Portbury Wharf and Portbury Common in Portishead where the two existing 132kV overhead lines would be removed from near distance views 40m to 150m away;
- properties in Portishead along over 2km of elevated land on Portishead Ridge and approximately ten apartment blocks at Portbury Marina where the two existing 132kV overhead lines would be removed from distant views 1.5km away;
- fourteen properties in Sheepway where the existing Bridgwater to Avonmouth 132kV overhead line would be removed from middle distance views north (500m away) and both the existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines removed from near and middle distance views southwest (250m to 1km away);
- over thirty properties in Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes close to properties on Caswell Lane and the existing W Route 132kV overhead line crosses Clapton Moor 750m east and both overhead lines would be removed from near and middle distance views; and
- two PRoW across Clapton Moor near Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes over or is 500m away in middle distance views and would be removed.

11.107 These receptors would have two 132kV overhead lines removed from near and middle distance views and replaced with middle distance and distant views of a new 400kV overhead line between 600m and 3km away and largely screened or filtered by trees. The existing BW Route 132kV overhead line and Portishead substation would remain in many receptor views.

11.108 A new 400kV overhead line on Proposed Route Option A alignment would give rise to an overall reduction of negative effects in receptor views from the west of Section F where the existing 132kV overhead lines would be removed from distant views over 1km away above trees across Clapton Moor and replaced with a new 400kV overhead line along the M5 motorway. Receptors include users of over six PRoW some of which include the Gordano Round long distance footpath, a cycleway, individual properties and receptors in the settlements of Walton in Gordano, Weston

in Gordano and Clapton in Gordano. Receptor views from the Gordano Round on Caswell Hill in Section E would have the existing two 132kV overhead lines removed from distant views across Clapton Moor and Portbury Wharf with a new 400kV overhead line Proposed Route Option A screened by ridge landform. However a new 400kV overhead line in Section E would remain in near distance views on the ridge.

Alternative Route Option B

- 11.109 Alternative Route Option B is approximately 3km long and follows the alignment of the existing 132kV overhead lines more closely, parallel to the existing W Route alignment across Clapton Moor to Portbury Wharf. The new 400kV line on Alternative Route Option B would then divert northeast across Portbury Wharf Nature Reserve southeast of the existing overhead lines before changing direction north of the BW Route 132kV overhead line and taking an alignment parallel to the BW Route and similar to the existing Bridgwater to Avonmouth 132kV alignment to Section G.
- 11.110 A new 400kV overhead line on Alternative Route Option B in Section F would have a negative effect on public and private visual receptors. The greatest effect on public views would be from people using a public right of way on Wharf Lane and footpaths through Portbury Wharf Nature Reserve. A new 400kV overhead line would be closer to these receptors than the existing W Route particularly in near distance views from a public right of way on Wharf Lane and footpaths through the south of Portbury Wharf Nature Reserve. However the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines would be removed from near distance views.
- 11.111 Six PRoW near Portbury in Section E, comprising one on the bridge allowing National Cycle Route 334 to cross over the motorway, and five across fields to the west, have views west of the existing 132kV overhead lines on the southern slopes of Tickenham Ridge, passing over the M5 motorway and crossing Clapton Moor. A new 400kV overhead line would be visible above trees across Clapton Moor with a greater extent of pylon support visible against the sky above Tickenham Ridge and Portishead Ridge as compared to the existing 132kV overhead line.
- 11.112 National Cycle Network Route 26 and Route 41 pass under the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines and have near distance views. A new 400kV overhead line would also cross over each of these cycleways

with the existing 132kV overhead lines removed from near distance views. These receptors would experience a negative effect with near distance views of the new 400kV overhead line.

11.113 Receptors at Gordano Rugby Football Club on Caswell Lane in Section E would have views of a new 400kV overhead line above trees across Clapton Moor and Portbury Wharf nature reserve in Section F and passing over the M5 motorway in near distance views 250m north and down Tickenham Ridge in middle distance views 500m southwest in Section E. A new 400kV overhead line would be more visible above Tickenham Ridge and Portishead Ridge with a greater amount of the pylons visible against the sky in views as compared to the existing 132kV overhead lines.

11.114 The greatest negative effect on private views would be from a large number of properties closest to Alternative Route Option B where a 400kV overhead line would be in near and middle distance views. Some properties with distant views would also be affected. Receptors would have the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines removed and replaced with a new 400kV overhead line on a similar alignment. These include:

- over one hundred properties on the settlement edge of Portbury Wharf and Portbury Common in Portishead where the existing two 132kV overhead lines would be removed from near distance views 40m to 150m away and a new 400kV overhead line would be in middle distance views between 250m to 600m away;
- properties in Portishead along over 2km of elevated land on Portishead Ridge and approximately ten apartment blocks at Portbury Marina where the existing two 132kV overhead lines would be removed from distant views from 1.5km away and replaced with a new 400kV overhead line at a similar distance;
- fourteen properties in Sheepway where the existing Bridgwater to Avonmouth 132kV would be removed from middle distance views north (500m away) and a new 400kV overhead line would be 300m away and both the existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines removed from near and middle distance views southwest (250m to 1km away) with a new 400kV overhead line between 100m to 800m away;
- over thirty properties in Clapton in Gordano where a new 400kV overhead line would be visible across Clapton Moor from between 200m and 1.5km away

and the existing W Route 132kV and Bridgwater to Avonmouth 132kV overhead lines would be removed where they pass close to properties; and

- two PRow across Clapton Moor near Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes over or is 500m away (in near and middle distance views) and would be removed and replaced with a 400kV overhead line in middle distance views 400m to 600m away on a similar alignment to the W Route alignment.

11.115 On the settlement edge of Portishead at Portbury Wharf properties have both the existing 132kV overhead lines adjacent in foreground near distance views within 250m. A new 400kV overhead line would be more distant in these views with the existing 132kV overhead lines removed from the foreground. However a negative effect would still be experienced by receptors due to the change in scale from 132kV to 400kV and the existing BW Route 132kV overhead line would remain in views.

11.116 Users of the M5 motorway would have the existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines removed from near distance views where they pass over the motorway 800m apart and cross Tickenham Ridge and Clapton Moor. A new 400kV overhead line would be visible on Tickenham Ridge in Section E and passing over the motorway and Clapton Moor in a similar location to the existing W Route 132kV alignment and would be visible above landform and trees.

11.117 A positive effect on views would be experienced from public and private receptors that would have the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines removed from views where they pass close to receptors and are presently in foreground near distance views. These include:

- In the northwest of Portbury Wharf Nature Reserve both the existing Bridgwater to Avonmouth and W Route 132kV overhead lines would be removed from near distance views within 250m of footpath and bird hide users. A new 400kV overhead line would be visible in the southeast part of the nature reserve above trees;
- over thirty properties in Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes close to properties on Caswell Lane and would be removed from views; and

- two PRow across Clapton Moor near Clapton in Gordano where the existing Bridgwater to Avonmouth 132kV overhead line passes over in near distant views or is 500m away in middle distance views and would be removed.
- 11.118 A new 400kV overhead line using Alternative Route Option B would also have negative effects in receptor views from the west of Section F where the existing 132kV overhead lines would be removed from distant views over 1km away above trees across Clapton Moor and replaced with a new 400kV overhead line that would have a greater extent of pylon support visible above trees due to the increased height. Receptors include users of the Gordano Round long distance footpath, over six PRow, a cycleway, individual properties and receptors in the settlements of Walton in Gordano, Weston in Gordano and Clapton in Gordano. Receptor views from the Gordano Round on Caswell Hill in Section E would also have the two existing 132kV overhead lines removed from distant views over 1km away across Clapton Moor and Portbury Wharf and replaced with views of a new 400kV overhead line on Alternative Route Option B.

Comparison between the steel lattice pylon and the T-pylon on Proposed Route Option A and Alternative Route Option B

- 11.119 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon compared to a new 400kV overhead line using the T-pylon on both Proposed Route Option A and Alternative Route Option B.
- 11.120 In Section F a new 400kV overhead line using the steel lattice pylon or the T-pylon (on both Proposed Route Option A and Alternative Route Option B) would generally follow the same alignment, except for some minor variations of pylon locations and at changes in direction. On Proposed Route Option A using the T-pylon would require two tension pylons on farmland between the M5 motorway in the south and the A369 The Portbury Hundred in the north compared to one tension pylons in this location on the steel lattice pylon alignment. On Alternative Route Option B the T-pylon would require four tension pylons in Portbury Wharf Nature Reserve compared to two tension pylons on the steel lattice pylon alignment where the route of the new 400kV overhead line changes direction northeast across the nature reserve and southeast towards Section G.
- 11.121 T-pylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon

suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel than steel lattice suspension pylons.

- 11.122 For the majority of visual receptors the existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines are already present in views above trees and hedges across Clapton Moor and Portbury Wharf nature reserve in Section F. Existing overhead lines are also visible on Tickenham Ridge in Section E and passing over the River Avon in Section G. A new 400kV overhead line in Section F would be visible in most views where there are presently views of the existing 132kV overhead lines above trees and hedges. In general, visibility of the T-pylon would be less and for a shorter extent compared to the steel lattice pylon, because intervening trees and hedges would more effectively screen the T-pylon due to its lower height (12m lower than the steel lattice pylon but between 8m and 10m higher than the existing 132kV pylons) combined with screening by intervening trees and hedges. The steel lattice pylon would have a greater extent of pylon support visible above trees and ridge backgrounding.
- 11.123 In near distance views within 250m of a new overhead line, where several pylons are visible in views along the line, the T-pylon is considered to be more prominent than the steel lattice pylon. This is due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of conductors suspended from the pylon and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon.
- 11.124 In long distance views east along the Gordano Valley from receptors over 1km away in the west a new 400kV overhead line using the steel lattice pylon would have a greater extent of pylon support visible above trees compared to the existing 132kV overhead lines. Receptors include users of the Gordano Round long distance footpath, over six PRoW , a cycleway, individual properties and receptors in the settlements of Walton in Gordano, Weston in Gordano and Clapton in Gordano. In these receptor views the T-pylon would be more readily screened or partially obscured by trees with less pylon support visible and reduced „sky-lining“ due to its lower height.
- 11.125 In views from sixteen public receptors that would experience the greatest negative effect from a new 400kV overhead line the T-pylon would be more readily screened by trees and hedges compared to the steel lattice pylon due to its lower height.

These include eight PRoW near Portbury in Section E, a public right of way on Wharf Lane and three footpaths through Portbury Wharf Nature Reserve in Section F, three National Cycle Network Routes and Gordano Rugby Football Club. However in near distance views within 250m of these public receptors the T-pylon would be more prominent and benefit less from backgrounding by trees and ridges but would be lower with less pylon support visible against the sky above backgrounding.

- 11.126 The greatest negative magnitude of effect (scale of change) on private views for Proposed Route Option A and Alternative Route Option B would be from over two hundred and sixty properties with near and middle distance views that would be between 100m and 800m from a new overhead line and properties along over 2km of elevated land and around ten apartment blocks with distant views 1.5km away. The effects of the T-pylon and steel lattice pylon on these receptors are described below.
- 11.127 Private receptor views of a new 400kV overhead line on Proposed Route Option A would be available from one hundred and twenty two properties. Eighty properties in Portbury in Section E would have near and middle distance views within 500m of a 400kV overhead line (on Proposed Route Option A) above built form and trees north of the M5 motorway. Forty two properties in Elm Tree Park off Sheepway would have near distance views within 250m of a new overhead line heavily filtered and screened by mature trees along the disused railway on the southern boundary with a new 400kV overhead line visible above. The T-pylon is considered to be less visible above trees and built form and more readily screened compared to the steel lattice pylon that is 12m higher and would have a greater extent of pylon support visible above trees against the sky.
- 11.128 Private receptor views of a new 400kV overhead line using Alternative Route Option B would be available from one hundred and forty six properties in settlements and properties along over 2km of elevated land and over ten apartment blocks. These include over one hundred properties on the settlement edge of Portbury Wharf and Portbury Common in Portishead with middle distance views between 250m to 600m away; fourteen properties in Sheepway with middle distance views 300m away; over thirty properties in Clapton in Gordano with views 200m and 1.5km away; properties in Portishead along over 2km of elevated land on Portishead Ridge and approximately ten apartment blocks at Portbury Marina with distant views from 1.5km away. A new 400kV overhead line using a T-pylon is considered to be less

visible above trees and ridge backgrounding across Portbury Wharf Nature Reserve and Clapton Moor compared to the steel lattice pylon that is 12m higher and would have a greater extent of pylon support visible against sky. However in near distance views within 250m and where there is little screening the solid central column and cross beam and the „diamond“ conductor configuration of the T-ylon means they would tend to be more prominent.

11.129 On Proposed Route Option A the T-ylon is considered to be more prominent in receptor views from the M5 motorway where a new 400kV overhead line would be visible passing over the motorway with a new 400kV overhead line parallel to the motorway in near distance views 20m to 100m north and for 1.8km. This is due to the solid central column and cross beam and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. However a greater extent of the steel lattice pylon support would be visible above tree backgrounding along the A369 The Portbury Hundred. On Alternative Route Option B a new 400kV overhead line would pass over the M5 motorway and cross Clapton Moor on a similar route to the existing W Route 132kV alignment. A new overhead line would be visible above trees across Clapton Moor and the T-ylon would be less visible above trees compared to the steel lattice pylon due to it being 12m lower with less pylon support visible against sky.

11.130 On Alternative Route Option B the presence of the existing BW Route overhead line with steel lattice pylons generally would reduce the magnitude of effect (scale of change) on the local landscape resulting from a new overhead line using steel lattice pylons, compared to the effect experienced if there was no existing infrastructure. Lattice pylons are existing structures within the landscape. Where the existing BW Route 132kV overhead line is within views the steel lattice pylon tends to have a lower effect. The T-ylon would be a new landscape feature; however the T-ylon is not totally uncharacteristic compared to existing overhead lines.

Potential for Mitigation

11.131 Removal of the existing Bridgwater to Avonmouth 132kV overhead line and undergrounding the existing W Route 132kV overhead line as proposed would reduce the negative cumulative effects on views for receptors. A single 400kV overhead line would be visible across Clapton Moor and Portbury Wharf Nature

Reserve as opposed to a 400kV overhead line adjacent to the existing W Route 132kV overhead line. This would have greater benefits if a new overhead line in Section F was on Proposed Route Option A where both the existing 132kV overhead lines would be removed from a large number of receptor views from Portbury Wharf, elevated land in Portishead, Clapton in Gordano and across Clapton Moor.

- 11.132 It would be possible to minimise negative effects on views through careful planning of access to avoid the need for road improvements to the local lane network, by utilising existing gaps in hedgerows and by reinstating roads to their original condition once construction is complete. Some short term negative visual effects would be unavoidable until re-establishment. It is considered that no material change to access requirements would be needed for either the steel lattice pylon or T-pylon design.
- 11.133 Mitigation by way of additional hedgerow and tree belt planting in the vicinity of a new overhead line, subject to landowner agreement, would be in keeping with the existing landscape character and could assist in reducing potential effects on views. Over the long term, for example after 15 years and beyond, adverse effects on views arising from use of the T-pylon would be reduced more than those from using a steel lattice pylon design because maturing trees would be more effective in screening due to the T-pylon's lower height.

Summary

- 11.134 In Section F a new 400kV overhead line using the steel lattice pylon or the T-pylon generally would follow the same alignment on both Proposed Route Option A and Alternative Route Option B except for some minor variations at changes in direction and pylon locations. On the Proposed Route Option A north of Caswell Cross the T-pylon overhead line would require two tension pylons to negotiate a more gradual change in direction compared to one tension pylon (changes in direction) proposed on the steel lattice pylon alignment. On the Alternative Route Option B at Portbury Wharf Nature Reserve the T-pylon overhead line would require four tension pylons to negotiate a more gradual change in direction compared to two tension pylons proposed on the steel lattice pylon alignment.
- 11.135 For the Alternative Route Option B there would largely be moderate negative effects on views where the existing 132kV overhead lines already present in views above trees effectively would be replaced with a new 400kV overhead line, which would be

more visible above trees and hedgerows due to the greater height of the pylons. For Proposed Route Option A there would largely be moderate negative effects on views however a greater negative effect would be experienced where a new 400kV overhead line would be introduced in near and middle distance views within 500m of receptors at Portbury where no overhead lines are presently visible.

- 11.136 On both route options the greatest negative effect would be experienced by sensitive public and private receptors where a new 400kV overhead line would deviate from the routes of the existing 132kV overhead line and would be introduced closer in direct near and middle distance views towards the line and along the line in places where it passes near Portbury and across Portbury Wharf Nature Reserve. These receptors include properties, PRoW, cycle routes and outdoor recreation facilities.
- 11.137 Public receptors include eight PRoW near Portbury in Section E, a public right of way on Wharf Lane, three footpaths through Portbury Wharf Nature Reserve, three National Cycle Network Routes and Gordano Rugby Football Club. Private receptors include eighty properties in Portbury, forty two properties in Elm Tree Park off Sheepway, one hundred properties on the settlement edge of Portbury Wharf and Portbury Common in Portishead, fourteen properties in Sheepway, over thirty properties in Clapton in Gordano, properties in Portishead along over 2km of elevated land on Portishead Ridge and approximately ten apartment blocks at Portbury Marina.
- 11.138 In receptor views the T-pylon is considered to be less visible above trees, built form and ridge backgrounding compared to the steel lattice pylon. The T-pylon also tends to be more readily screened compared to the steel lattice pylon that is 12m higher and would have a greater extent of pylon support visible above trees and backgrounding against the sky. However the solid central column and cross beam and the „diamond“ conductor configuration of the T-pylon means they would tend to be more prominent in near distance views and visible over a greater distance in areas where there is little screening than is the case for the steel lattice pylon.
- 11.139 There would be negative effects on long distance views beyond 1km from receptors in the Gordano Valley and from the elevated landforms of Portishead Ridge to the north and Tickenham Ridge to the south where a 400kV overhead line would be more visible than the existing 132kV lines due to its greater height. The T-pylon is

considered to have less pylon support visible above trees and ridge landform compared to the steel lattice pylon due to its lower height.

- 11.140 A positive effect on views would be experienced by receptors where the existing Bridgwater to Avonmouth 132kV overhead line would be removed from near distance views within 250m at Clapton in Gordano and a public right of way across Clapton Moor, where the route crosses over, and properties on the southern settlement edge of Portishead. The T-pylon would give rise to a lower scale of negative effects on receptor views as it would be further away in middle distance views, more readily screened and have a smaller extent of pylon support visible above trees across Clapton Moor.
- 11.141 A 400kV overhead line on the Proposed Route Option A, parallel to the M5 motorway, offers the potential to have the most positive overall effects on views from the largest number of sensitive receptors at Portbury Wharf where the existing Bridgwater to Avonmouth and W Route 132kV overhead lines pass close in near distance views within 250m of receptors and would be removed from near distance views. The existing BW Route 132kV overhead line and Portishead substation would remain in foreground views. The route is approximately 1.2km shorter than Alternative Route Option B and provides a straighter and more direct route along existing infrastructure of the M5 motorway. The new 400kV overhead line with a T-pylon support on the Proposed Route Option A would have greater positive effects on sensitive receptors at Portbury Wharf due to it being largely screened from receptor views by trees across Clapton Moor and along the A369 The Portbury Hundred, where the steel lattice pylon would have a greater extent of pylon support visible above trees.
- 11.142 Overall from a visual amenity perspective the T-pylon is preferred for both Proposed Route Option A and Alternative Route Option B within Section F. The existing Bridgwater to Avonmouth 132kV and W Route 132kV overhead lines would be removed from views above trees and effectively replaced with a new line using the T-pylon that would tend to be less visible than the equivalent line built using steel lattice pylons due to it being 12m shorter with less of the structure visible above trees, built form and ridge backgrounding. The T-pylon would also be more readily screened by landform and trees than the steel lattice pylon due to the lower height. However the T-pylon would be more prominent in near distance views within 250m of receptors with limited screening due to the solid column and cross beam and the close conductor configuration.

Historic Environment

Baseline Conditions

- 11.143 No Grade I or Grade II* Listed Buildings have a setting that includes the Proposed Route Option A or Alternative Route Option B.
- 11.144 There are no Grade II Listed Buildings within 100m of Proposed Route Option A or Alternative Route Option B that have a setting that would be affected by it.
- 11.145 Three Grade II Listed Buildings within 500m of Proposed Route Option A have settings that would be affected by it. Lower Caswell House is set within a group of domestic buildings on a narrow lane, surrounded by trees and hedges; the two existing 132kV overhead lines (the F Route and the W Route) are partly visible approximately 370m to the west and 280m to the east. Elm Tree Farmhouse in Sheepway is surrounded by trees and is approximately 860m to the south and 1.1km to the east of the two existing 132kV overhead lines. Portbury Priors is on the edge of Portbury, with a setting that includes modern semi-detached housing and tree-lined gardens, as well as open fields to the west; the M5 is in a cutting 150m away, screened by vegetation. These receptors are of high sensitivity.
- 11.146 A further two Grade II Listed Buildings have settings that would be affected by Proposed Route Option A. Moor Farmhouse is on the eastern edge of Portishead, surrounded by mature trees, within approximately 250m of the existing 132kV F Route overhead line (to be removed) and 450m of the 132kV W Route overhead line (to be undergrounded). The Thatched Cottage is in Sheepway, surrounded by trees, the two 132kV extant overhead lines pass parallel approximately 50m apart, approximately 900m to the west and 700m to the north of the receptor.
- 11.147 Of the five Grade II Listed Buildings described above, Lower Caswell House is within 500m of Alternative Route Option B and has a setting that would be affected by it. Three further Grade II Listed Buildings described above have a setting that would be affected by Alternative Route Option B; these are Elm Tree Farmhouse, The Thatched Cottage and Moor Farmhouse. One of the Listed Buildings described above, Portbury Priors, would not include Alternative Route Option B within its setting. No Listed Buildings have a setting that would be affected by Alternative Route Option B but not by Proposed Route Option A.
- 11.148 One Scheduled Monument has a setting including both Proposed Route Option A and Alternative Route Option B. Conygar Hillfort is in an elevated position in

Portbury, at a height of 49m above Ordnance Datum (AOD). The hillfort has sparse tree cover towards the north, and views over the M5 west to moorland between Tickenham Ridge and Portishead, and north across Portbury and the industrial area at the mouth of the River Avon. Within the view to the west, the W Route 132kV overhead line crosses the moorland 1.2km away, and the 132kV Bridgwater to Avonmouth Route overhead line crosses 1.9m away. The setting of this receptor is an important element of its value, but since the setting has been altered considerably further change is less damaging than would otherwise be the case. This receptor is of very high sensitivity.

- 11.149 No Conservation Areas, Registered Parks and Gardens or Registered Battlefields would be affected by the proposals.
- 11.150 Baseline data relating to known non-designated heritage receptors has been collected for a study area extending to 100m around the proposed and Alternative Route Option B. This study area contains 15 known non-designated heritage receptors. These are: 1 Lower Palaeolithic axe site, 1 Mesolithic findspot, 1 Neolithic axe site, 1 railway station, 1 post-medieval/modern building, 1 post-medieval settlement, 1 house site (modern?), 3 Second World War sites, 1 undated oval soilmark, 2 undated earthworks, 1 undated enclosure, and 1 pair of undated linear features. These receptors are of moderate, low and negligible sensitivity.
- 11.151 The boundary between Sections E and F is straddled by a thin historic landscape zone characterised as being „medieval enclosed fields created by assart“. Most of the rest of Proposed Route Option A and Alternative Route Option B in this section are within a zone of „late medieval enclosed fields created by local arrangement and exchange“. Two zones of „post-medieval (C15- 17th) organised enclosure of anciently reclaimed inland moors“ extend into in lower-lying parts to the south and centre of this section. Through most of the section, Proposed Route Option A follows the M5 motorway, which forms a boundary between zones of the characters described above. The northern part of Alternative Route Option B falls within a zone of „post-medieval (C18-19th) parliamentary enclosure“. To the east, these historic landscape zones are replaced by modern „large-scale utility landscapes“ at the boundary with Section G. The medieval fields to the south are of moderate sensitivity; all other historic landscape zones within Section F are of low sensitivity.
- 11.152 Hedgerows associated with former settlement at Portbury or Caswell, with sea defences, parish boundaries, or any historic buildings and archaeological sites

described in the North Somerset Historic Environment Record may all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects (Proposed Route Option A)

Effects equal for both Options (Proposed Route Option A)

- 11.153 For both the steel lattice and T-pylon overhead line options on Proposed Route Option A the potential effects on a number of historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 11.154 Both options would result in a negligible magnitude negative effect on the Grade II Listed The Thatched Cottage, due to changes to its setting. The two existing 132kV overhead lines would be removed and larger infrastructure would be constructed 550m to the south. The pylons closest to the receptor would be well screened by vegetation adjacent to the receptor, but the Proposed Route Option A would be visible to the south-west, backgrounded against Tickenham Ridge. The magnitude of effect would be reduced by the distance of separation and by vegetation screening. The magnitude of effect for the steel lattice pylon option would be greater due to its greater height but reduced due to the greater extent to which they benefit from backgrounding, when compared with the T-pylons.
- 11.155 Both options would result in a negligible negative effect on Conygar Hillfort Scheduled Monument due to changes to its setting. The new 400kV overhead line would be constructed approximately 500m away, on the opposite side of the M5 motorway. The magnitude of effect would be reduced by the presence of the M5 closer in the foreground of the view than the new infrastructure. The steel lattice pylon would benefit more from backgrounding than the T-pylon, but would have a greater negative effect due to its height and degree to which it would break the skyline.
- 11.156 For both options, there is potential to have negative effects on buried archaeological remains at pylon locations (as well as the ancillary work locations). The magnitude of effect would be high to low on receptors of moderate to negligible sensitivity.
- 11.157 For both options, improvements to the road network necessary for construction activities could cause negative effects to historic landscape elements such as „important“ hedgerows and historic lanes. The magnitude of these effects would be low on receptors of low sensitivity.

- 11.158 While both options would have an overall negligible negative magnitude of effect on the historic landscape, variations in how the two options relate to several factors (including topography, screening and backgrounding) mean that one option would have less magnitude of effect in certain localised areas. Both options would result in improvements to the historic landscape character as a result of removal of the two existing 132kV overhead lines. The magnitude of effect would also be reduced for both options by the fact that the new infrastructure would follow a very similar route to the M5 motorway, which forms a boundary between historic landscape character areas. The effects of the T-pylon option would be less widespread than those of the steel lattice pylon option in flat areas, due to the T-pylon's lower height. The effects are reduced where the route is backgrounded by higher ground or where the route is viewed from above (e.g. towards or from Tickenham Ridge), and this reduction in magnitude of effect would be more marked for the steel lattice pylon option because it lacks the solid central columns and cross beams of the T-pylon option.

Effects that differ between Options (Proposed Route Option A)

- 11.159 Both options would result in an overall low positive magnitude of effect on the Grade II Listed Moor Farmhouse although the T-pylon option would result in a slightly greater positive overall effect. Two 132kV overhead lines approximately 250m away would be removed, and larger infrastructure would be constructed, passing within approximately 1.2km. For both options, the magnitude of effect would be reduced by the distance of separation and the presence of vegetation screening (particularly adjacent to the receptor). The magnitude of effect would be lower for the T-pylon option due to its lower height. The lattice pylon option would benefit more from backgrounding along parts of Proposed Route Option A than the T-pylon, but would have an increased magnitude of effect as it would break the skyline to a greater extent where the route crosses Tickenham Ridge. The use of low height steel lattice pylons in this area would minimise the overall magnitude of effect.
- 11.160 The steel lattice pylon would result in an overall low negative magnitude of effect on three Grade II Listed Buildings, for which the T-pylon option would result in a negligible negative magnitude of effect. These are Lower Caswell House, Elm Tree Farmhouse and Portbury Priors. Two of these receptors would benefit from removal of the two existing overhead lines, although this effect would be greater for Lower Caswell House than for Elm Tree Farmhouse, due to the distance of separation between the exiting lines and receptors. All three receptors would receive negative

effects resulting from construction of new, larger infrastructure, the magnitude of which would be reduced by the distance of separation (approximately 270m for Elm Tree Farmhouse and Portbury Priors, and approximately 310m for Lower Caswell House). For both pylon options, the magnitude of positive and negative effects would be reduced by adjacent screening from vegetation and, for Lower Caswell House, adjacent buildings. For Portbury Priors, the magnitude of effect would be reduced due to the intrusion of the M5 into the existing setting. The effects of the T-pylon would be marginally less than that of the steel lattice pylon because the T-pylon would be smaller and break the skyline less, and would benefit more from the existing screening. The effects of the T-pylon option would also be reduced for Elm Tree Farmhouse because the two closest pylons (from which most of the effect would derive) would be viewed in side elevation, which is less dominant than for steel lattice pylons.

Assessment of Effects (Alternative Route Option B B)

Effects equal for both Options (Alternative Route Option B)

- 11.161 For Alternative Route Option B, both steel lattice and T-pylon overhead line options would have equal effects on a number of historic environment receptors, which therefore do not help to differentiate between the options.
- 11.162 Alternative Route Option B would have no effect on Portbury Priors Grade II Listed Building.
- 11.163 For both pylon options, Alternative Route Option B would have an equal magnitude of effect to that of Proposed Route Option A (i.e. negligible negative) on Grade II Listed The Thatched Cottage, although the effects would be different. Alternative Route Option B would differ from Proposed Route Option A because rather than passing 550m to the south, the new infrastructure would pass to the west, north and east, but never reach within approximately 770m of the receptor. For both options, the effect would be greater due to the increased number of pylons visible, but reduced by the distance of separation, when compared with Proposed Route Option A. Unlike Proposed Route Option A, if they were used on Alternative Route Option B the steel lattice pylons would not benefit from backgrounding. The T-pylon option would benefit more from its reduced height if it were used on Alternative Route Option B rather than Proposed Route Option A.

- 11.164 For both pylon options, Alternative Route Option B would result in a negligible negative magnitude of effect on the Grade II Listed Elm Tree Farmhouse. For the steel lattice pylon option, this is lower magnitude than for Proposed Route Option A. The new infrastructure would be approximately 1km - 1.2km away.
- 11.165 For both pylon options, Alternative Route Option B would result in a negligible negative magnitude of effect on Conygar Hillfort Scheduled Monument. The new 400kV overhead line would be closest to the receptor where the route crosses Tickenham Ridge approximately 1.2km away, but would be visible up to approximately 2km away where Alternative Route Option B runs north to Portishead and east to Avonmouth. The magnitude of effect would be reduced by the presence of the M5, Sheepway, and an industrialised area near Avonmouth, closer in the foreground of the view than the new infrastructure. The steel lattice pylon would benefit more from backgrounding due to the T-ylon's greater prominence, but would have a greater effect due to its height.
- 11.166 For both pylon options, Alternative Route Option B would have greater potential for negative effects on buried archaeological remains than Proposed Route Option A, due to the increased number of pylons it would require. While the area affected by pylons is small, they would be placed in some areas of high potential (e.g. near Gate Farm, and on gravel terraces that have yielded important Palaeolithic artefacts) as well as areas of medium and low potential. The magnitude of effect would be high - low on receptors of moderate - negligible sensitivity.
- 11.167 For both pylon options, Alternative Route Option B would have greater potential for negative physical effects on historic landscape elements such as „important“ hedgerows and historic lanes, due to the increased length of the route. The magnitude of these effects would be low on receptors of low sensitivity.
- 11.168 For both options, Alternative Route Option B would have more widespread negative effects on the historic landscape, although the overall magnitude of effect would be the same as for Proposed Route Option A (i.e. negligible negative). Alternative Route Option B follows a similar route to that of the existing F Route and W Route that would be removed. As with Proposed Route Option A, the steel lattice pylon option and T-ylon option would vary in how they relate to several factors (including topography, screening and backgrounding), such that they would have differing magnitudes of effect in certain localised areas, but they would be of equal overall magnitude.

Effects that differ between Options (Alternative Route Option B)

- 11.169 The steel lattice pylon option on Alternative Route Option B would have a low negative magnitude of effect on the Grade II Listed Moor Farmhouse, while the T- pylon option would have a negligible negative effect. For both options, this is a greater negative magnitude of effect than for Proposed Route Option A. The new, larger infrastructure would pass approximately 600m east of the receptor. For both options, the magnitude of effect would be reduced by the distance of separation and the presence of vegetation screening (particularly adjacent to the receptor). The magnitude of effect would be lower for the T-pylon option due to its lower height.
- 11.170 For both options, Alternative Route Option B would have the same magnitude of effect as Proposed Route Option A on Grade II Listed Lower Caswell House, although the infrastructure would be more prominent in views from the receptor. The steel lattice pylon would result in an overall low negative magnitude of effect, while the T-pylon option would result in a negligible negative magnitude of effect. The new infrastructure would pass approximately 250m to the east; although the closest pylon would be in the same location as for Proposed Route Option A, Alternative Route Option B would continue west across the view, rather than turning east and away from the receptor.

Potential for Mitigation

- 11.171 Scope to mitigate effects on the setting of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 11.172 For all routes, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place.
- 11.173 For all routes, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting (note that some hedgerow loss may be unmitigable).

Summary

- 11.174 Both Proposed Route Option A and Alternative Route Option B would have an overall minor negative scale of effect on the historic environment. For both routes, the effects of the steel lattice pylon option are in general of a slightly greater magnitude than those of the T-ylon however, these effects would only be low negative (rather than a negligible negative effect for the T-Pylon option), and are therefore not considered to be a significant differentiator between the options.
- 11.175 For both routes, both pylon options would have an overall minor negative scale of effect on Listed Buildings, although for the steel lattice pylon option this is the result of low magnitude effects, whereas for the T-ylon this is the result primarily of negligible magnitude negative effects. Proposed Route Option A would affect one more additional receptor than Alternative Route Option B.
- 11.176 For the Proposed Route Option A the T-ylon would result in slightly reduced effects on three Grade II listed buildings (Lower Caswell House, Elm Tree Farm House and Portbury Priors). However, for the steel lattice pylon these effects would only be low negative
- 11.177 For the Alternative Route Option B the T-ylon would result in slightly reduced effects on two Grade II listed buildings (Lower Caswell House and Moor Farmhouse). However, for the steel lattice pylon these effects would only be low negative
- 11.178 Both routes would have an overall minor negative scale of effect on one Scheduled Monument. For both routes, there would be no difference in effect between the two pylon options.
- 11.179 Both routes would have an overall minor negative scale of effect on the historic landscape, although these effects would be more widespread for Alternative Route Option B. Replacement of two existing 132kV overhead lines with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character zones. Both pylon options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal, etc.
- 11.180 The steel lattice pylon and T-ylon options would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon

numbers. Alternative Route Option B would have more widespread potential effects, due to its greater length and the presence of high potential areas along its route. The overall scale of effect would be minor negative.

- 11.181 Mitigation of the indirect visual effects of overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation *in situ* is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline Conditions

11.182 National Grid's Proposed Route Option A follows the M5, Alternative Route Option B runs north from the M5 towards Portishead Substation before turning and heading east toward the River Avon. The Severn Estuary SPA/Ramsar/SAC/SSSI lies within 2km of Proposed Route Option A in Section F and within 350m of Alternative Route Option B. The Severn Estuary is designated for a range of factors including coastal and intertidal habitats, migratory fish, invertebrates and internationally important of Annex 1 bird species, spring and autumn migratory bird species and waders and waterfowl assemblages. Overall the site is valued at the international level.

11.183 Proposed Route Option A passes through several Sites of Nature Conservation Interest (SNCI) in Section F. These SNCIs are valued at the County level:

- Fields on Caswell Moor SNCI which contains marshy grassland and reedbed habitat which supports passerines and water vole;
- Fields between Railway Line and A369, Portbury SNCI which contains marshy grassland and reedbed habitat which supports passerines and a diverse flora. Part of the SNCI comprises Priory Farm which is an Avon Wildlife Trust nature reserve; and
- Drove Rhyne and Adjacent Fields SNCI which contains swamp, ditches and semi-improved neutral grassland habitats (this site is on the boundary between Sections F and G).

11.184 Alternative Route Option B also passes through several SNCIs in Section F. These SNCIs are valued at the County level:

- Portbury Wharf Nature Reserve SNCI which contains wetland habitats and supports a range of dragonflies and overwintering and migrating wildfowl. The SNCI is also a Avon Wildlife Trust reserve;
- Portbury Wharf SNCI which contains wetland habitats and supports a range of dragonflies and overwintering and migrating wildfowl. Water vole were reintroduced in 2003;
- Drove Rhyne and Adjacent Fields SNCI which contains swamp, ditches and semi-improved neutral grassland habitats (this site is on the boundary between Sections F and G).

11.185 The following SNCIs are present within a 1km radius of Proposed Route Option A and Alternative Route Option B in Section F:

- Fields north of Upper Caswell Farm SNCI (approximately 230m west of Proposed Route Option A and 100m west of Alternative Route Option B) which contains marshy grassland which supports a wide range of flora;
- Fields west of Lower Caswell House SNCI (approximately 360m west of both routes) which contains marshy grassland which supports a wide range of flora;
- Portbury Wharf Nature Reserve SNCI (approximately 890m north of Proposed Route Option A for the T-pylon, 920m north of Proposed Route Option A for the lattice pylon and crossed by Alternative Route Option B) which contains wetland habitats and supports a range of dragonflies and overwintering and migrating wildfowl. The SNCI is also a Avon Wildlife Trust reserve;
- Fields Between A369 and M5 Motorway, Portbury SNCI (approximately 30m south of Proposed Route Option A for the lattice pylon, 40m south from the preferred route of the T-pylon and 1km south of Alternative Route Option B) which contains marshy grassland and reedbed habitat and supports a diverse flora; and
- Fields on Caswell Moor SNCI which contains marshy grassland and reedbed habitat which supports passerines and water vole (20m west of Alternative Route Option B and crossed by Proposed Route Option A).

11.186 Section F lies between the M5 Motorway and the Severn Estuary. It comprises low, flat pastoral land, wetland habitats and industrial development. Portishead 132kV/33kV substation is located adjacent to Portbury Wharf Nature Reserve and there are two existing 132kV overhead lines running around and into and out of the substation both on north/south and east/west alignments.

11.187 Woodland within and adjacent to Proposed Route Option A and Alternative Route Option B is limited to belts of plantation woodland associated with road verges and plantation planting adjacent to the car depot. There are also areas of scattered trees and dense scrub associated with the pasture fields. These features are valued at the local level.

11.188 The field boundaries are a mix of hedgerow and ditches, some comprising both. The hedgerows range from species-poor to species-rich and are likely to have a

connective function within the local landscape. Bats and hedgehog have been recorded in the wider area and could use these habitats along with a range of farmland birds. The network of hedgerows is valued at the district level, but the value of individual hedgerows will vary depending on composition and association with other species.

11.189 There are a range of wetland habitats within Section F including open water, field ditches, swamp and marshy grassland. A number of species have been recorded in the wider area which may use these habitats and they include otter, water vole, great crested newt and good assemblages of wetland breeding and wintering birds. Many of the wetland habitats fall within the Portbury Wharf Nature Reserve and other SNCI designations, and as such are valued at the county level.

11.190 The Section is dominated by semi-improved pasture. The intrinsic value of this habitat is generally low but could be increased if they comprise valued faunal species. Within the Section, this habitat (in association with the hedgerows, ditches and areas of scrub and bare ground) is likely to support a range of species that have been recorded in the wider area. These include brown hare, badger and reptiles. These grassland habitats are valued at the local level. Surveys found that the fields are also used by birds throughout the year, but the greatest areas of bird activity fall within the Portbury Wharf SNCI and their value is considered under this designation.

Assessment of Effects

11.191 *Proposed Route Option A* The steel lattice option on Proposed Route Option A would require one less pylon. e Construction and assembly of the main T-pylon structure, using a driven mono-pile would take less than one day to complete. The construction of the T-pylon foundations using driven mini-piles may be protracted due to issues with casting concrete on site. Creating the foundations of the lattice pylons would take approximately 1 week.

11.192 Impacts to the Severn Estuary and Portbury Wharf designations would therefore be avoided. However, the Fields on Caswell Moor SNCI would be crossed by Proposed Route Option A and for both pylon design options, two pylons would require construction within this local wildlife site. The erection of these will result in habitat losses during the construction period. This may have impacts on passerines (e.g. reed buntings) and water voles that use the site. This would result in a moderate negative, short-term magnitude of effect.

- 11.193 With either pylon design one pylon would be located on the boundary of fields between the A369 and Railway SNCI and one pylon on the boundary of Drove Rhyne and Adjacent Fields SNCI. This would also result in a moderate negative, short-term magnitude of effect on these local wildlife sites.
- 11.194 For both pylon design options in Section F, effects on bird species associated with the Severn Estuary SPA/Ramsar are unlikely. Within Section F, the greatest level of SPA/Ramsar bird activity is associated with wetland habitats at Portbury Wharf, located approximately 1.5km away to the north. Furthermore, Proposed Route Option A passes between the M5 motorway and the Portbury Hundred road and is therefore previously disturbed by development.
- 11.195 No hedgerow losses are predicted although the permanent loss of individual trees (including plantation trees and scattered trees outside the hedgerow network) to achieve electrical safety clearances cannot be ruled out. Such losses would result in a low negative, medium-term magnitude of effect. Due to the greater width of the T-Pylon design (in comparison to the steel lattice pylon) additional tree loss could be required in order to achieve electrical safety clearances. However, this would still create an overall moderate negative, medium-term magnitude of effect prior to mitigation.
- 11.196 Impacts on wetland habitats would be largely avoided as pylon locations avoid these features. However, during the construction period habitat loss (from temporary ditch crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species using the wetland habitats (from construction activities) may occur. Such impacts are likely to result in a low negative, medium-term magnitude of effect across both overhead line options.
- 11.197 Outside of the SNCI designations, grassland habitats and their associated flora and fauna are likely to experience a low negative, temporary magnitude of effect during construction from ground disturbance and disturbance from construction activities. The extent of foundations between each pylon design is likely to be similar with the exception that one more pylon is required in the T-pylon design.
- 11.198 In combination the low to moderate magnitude of effects on receptors of local to county value would lead to an overall moderate negative effect on ecology as a result of both pylon design options (Proposed Route Option A) prior to mitigation.

- 11.199 *Alternative Route Option B* Both pylon design options for Alternative Route Option B, broadly follow the same alignment. Although there are two locations where the T-ylon route deviates slightly this would not lead to any additional receptors being impacted. The steel lattice pylon option would require one additional pylon.
- 11.200 The Severn Estuary SPA/Ramsar site is located approximately 350m to the north of Alternative Route Option B at its nearest point. Bird species associated with the SPA/Ramsar, such as gadwall, have been recorded using habitats within the Portbury Wharf SNCl through which Alternative Route Option B passes.
- 11.201 Long-term effects during the operational period could result from displacement of birds from favoured habitats due to the presence of overhead lines. These effects are likely to be low as the birds which currently use the SNCl habitats are habituated to overhead lines due to the presence of the existing 132kV overhead lines. Another operational effect could be bird collision with the overhead line during daily or seasonal flights. However, the greatest level of SPA/Ramsar bird activity recorded during ornithological surveys is associated with waterbodies which are located approximately 100m north of Alternative Route Option B at its nearest point. Therefore few flight lines from birds moving between the Severn Estuary and Portbury Wharf habitats would be expected to cross proposed overhead line options. There is currently no evidence that the existing overhead lines are having an impact on SPA/Ramsar bird species. Overall, effects on SPA/Ramsar birds from either the T-Pylon or steel lattice pylon options will result in a low negative, long-term magnitude of effect.
- 11.202 Alternative Route Option B would pass directly through the Portbury Wharf Nature Reserve SNCl. Two steel lattice pylons or one T-ylon would be located within this designation. It also passes through Portbury Wharf SNCl and two lattice pylons or two T-ylons would be located within/on the boundary of this designation. Fewer T-ylons sit within designation boundaries. Temporary effects would result during the construction period leading to degradation of habitats and disturbance/displacement of species, most notably temporary displacement of birds resulting in a high negative, short-term magnitude of effect with either pylon design.
- 11.203 No hedgerow losses are predicted although the permanent loss of individual trees (including plantation trees and scattered trees outside the hedgerow network) to achieve electrical safety clearances cannot be ruled out. Such losses would result in a low negative, medium-term magnitude of effect. Due to the greater width of the

T-Pylon design (in comparison to the steel lattice pylon) additional tree loss could be required in order to achieve electrical safety clearances. However, this would still create an overall moderate negative, medium-term magnitude of effect prior to mitigation.

- 11.204 Impacts on wetland habitats would be largely avoided as pylon locations avoid these features. However, during the construction period habitat loss (from temporary ditch crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species using the wetland habitats (from construction activities) may occur. Such impacts are likely to result in a low negative, medium-term magnitude of effect across both overhead line options.
- 11.205 Outside of the SNCI designations, grassland habitats and their associated flora and fauna are likely to experience a low negative, temporary magnitude of effect during construction from ground disturbance and disturbance from construction activities. One less T-pylon is required, however, considering the low intrinsic value of the grassland habitats which would be impacted during construction, impacts upon grassland habitats (and their associated flora and fauna) would remain as a low negative magnitude of effect for both the lattice pylon and T-pylon options prior to mitigation.
- 11.206 In combination the low to high magnitude of effects on receptors of local to international value would lead to an overall moderate negative effect on ecology as a result of both pylon design options (Alternative Route Option B) prior to mitigation.

Potential for Mitigation

- 11.207 For all options, existing field access points and watercourse crossings would be used for works traffic wherever possible and standard environmental protection measures implemented including the timing of works to avoid sensitive periods, the prevention of encroachment of traffic onto retained habitats and implementation of pollution control methods. This is particularly important for construction works within the SNCI designations, but also for any works affecting habitats that are hydrologically linked to these sites.
- 11.208 A reduction in disturbance/displacement of protected species within those SNCIs to be crossed could be achieved by ensuring the pylon construction works within the site are undertaken outside of the most sensitive season(s) and kept to the shortest timescale.

- 11.209 Where appropriate, prior to habitat clearance works, licensed temporary exclusion methods would be used to prevent death or injury to protected species such as water vole, otter or great crested newt, if present.
- 11.210 Where tree loss is required to achieve electrical safety clearances, pollarding or coppicing could be used to avoid total loss of habitat. Alternatively, where complete tree removal is required, replacement tree planting could be undertaken outside the overhead line easement subject to landowner agreement. However, due to the uncertainty of securing landowner agreement for works outside the easement, this form of mitigation has not been taken into account in the appraisal of effects.
- 11.211 Impacts on terrestrial habitats within the SNCIs could be minimised through the use of artificial tracks to reduce ground disturbance during pylon construction works.
- 11.212 Irrespective of the pylon option adopted, bird deflectors could be adopted to mitigate bird strike.

Summary

- 11.213 Overall, on balance, the scale of residual ecological impact along Proposed Route Option A would not differ between the pylon options. The construction of the individual steel lattice pylons would result in longer disturbance period, although the T-pylon may require a greater extent of woodland tree and hedgerow tree removal due to the greater width of the pylon and does require an additional pylon.
- 11.214 For Proposed Route Option A the differences between the lattice and T-pylon designs are minimal, both require pylon construction within local wildlife sites and at these locations foundation types will require a similar area. One more T-pylon (than lattice) is required for Proposed Route Option A but this is outside any designations and therefore effects on local wildlife sites are similar. Tree losses would be minimal but could potentially be greater with the T-pylon design option. Mitigation including wildlife-friendly working methods, use of existing field access points for construction traffic and habitat reinstatement within local wildlife sites would in the long term, reduce impacts on ecology in Section F along Proposed Route Option A for either pylon design from moderate negative to minor negative.
- 11.215 For Alternative Route Option B, mitigation including wildlife-friendly working methods including timing works to avoid sensitive bird seasons, use of existing field access points for construction traffic, habitat reinstatement within local wildlife sites

and if necessary, installation of bird deflectors would in the long term, reduce impacts on ecology in Section F for either pylon design from moderate negative to minor negative. Within Alternative Route Option B the steel lattice design has one more pylon within the boundaries of designated sites.

- 11.216 Proposed Route Option A would have fewer effects on important receptors than Alternative Route Option B as it would avoid disturbance to SPA/Ramsar bird species that use the Portbury Wharf area. It is also a shorter route and requires fewer pylons.

Section F: Summary of Preferred Pylon Option for Proposed Route Option A

- 11.217 Whilst the T-ylon would benefit less from backgrounding, it would be less visible in the **landscape** due to its reduced height and benefits of screening. Its reduced height would also result in less structure being visible above screening and against the sky.
- 11.218 From a **visual** perspective, the T-ylon would be more prominent in near distance views; however it would result in reduced effects on public views from PRoW, footpaths, cycle routes and Gordano RFC and would be less visible above trees and built form from 122 properties in Portbury and Elm Tree Park than the steel lattice equivalent. Due to its reduced height it would also be less visible in wider views along the Gordano valley but may be slightly more prominent in views from the M5.
- 11.219 From an **historic environment** perspective the T-ylon would result in slightly reduced effects on three Grade II listed buildings (Lower Caswell House, Elm Tree Farm House and Portbury Priors). However, for the steel lattice pylon these effects would only be low negative and are therefore not considered to be a significant differentiator between the options.
- 11.220 From an **ecological** perspective, there is little to differentiate between options in this Section.
- 11.221 Within Section F the environmental appraisals have identified that the T-ylon on Proposed Route Option A would be preferable to steel lattice pylons in terms of effects on landscape, views and historic environment. Importantly, the T-ylon would reduce effects on public views and private views from 122 properties in Portbury and Elm Tree Park and would be less visible in the wider landscape due to its lower height.
- 11.222 Based on the findings of the appraisals, it is therefore recommended that, for Proposed Route Option A, the T-ylon is taken forward to consultation for Section E.

Section F: Summary of Preferred Pylon Option for Alternative Route Option B

- 11.223 Whilst the T-ylon would benefit less from backgrounding, it would be less visible in the **landscape** due to its reduced height and benefits of screening. Its reduced height would also result in less structure being visible against the sky.
- 11.224 From a **visual** perspective, the T-ylon would be more prominent in near distance views; however it would result in reduced effects on public views from PRoW, footpaths, cycle routes and Gordano RFC and would be less visible above trees and ridge backgrounding from 146 properties in settlements, properties along over 2km of elevated land and over 10 apartment blocks. Due to its reduced height it would also be less visible in wider views along the Gordano valley.
- 11.225 From an **historic environment** perspective the T-ylon would result in slightly reduced effects on two Grade II listed buildings (Lower Caswell House and Moor Farmhouse). However, for the steel lattice pylon these effects would only be low negative and are therefore not considered to be a significant differentiator between the options.
- 11.226 From an **ecological** perspective, there is little to differentiate between options in this Section. Although there is a slight preference for the T-Pylon as it requires one less pylon within designated sites there is no difference in magnitude of effect between pylon designs..
- 11.227 Within Section F the environmental appraisals have identified that the T-ylon on Alternative Route Option B would be preferable to steel lattice pylons in terms of effects on landscape, views and historic environment. Importantly, the T-ylon would reduce effects on public views and private views from 146 properties, properties along over 2km of elevated land and over 10 apartment blocks and would be less visible in the wider landscape due to its lower height.
- 11.228 Based on the findings of the appraisals, it is therefore recommended that, for Alternative Route Option B, the T-ylon is taken forward to consultation for Section E.

12 APPRAISAL SECTION G – AVONMOUTH

Section Boundaries

- 12.1 This Section, as shown in Figure 4.7, extends north east from the Portbury Docks complex to Seabank substation. The landscape within this Section is densely developed and includes industry based around Portbury and Avonmouth Docks, residential development within Avonmouth Village and offices, storage and distribution related development in the Severnside area to the north of Avonmouth. The town of Avonmouth lies immediately north of the River Avon in the centre of this Section with the Bristol suburbs of Shirehampton and Lawrence Weston to the east of the route beyond the M5 and M49 motorways.

Definition of Proposed Route Option

- 12.2 In the majority of Section G, including the proposed crossing of the River Avon, a single alignment, known as the Proposed Route has been identified. However, in the southwest of Section G between the boundary with Section F and the River Avon (in the Portbury Settled Coastal Edge character area), two alignments have been identified and are referred to as „Proposed Route Option A” and „Alternative Route Option B”. Proposed Route Option A, and Alternative Route Option B are shown in Figure 4.7. The total length of the new overhead line through Section G would be 9.8km or 10.1km (depending on Proposed Route Option A or Alternative Route Option B alignments). Low height steel lattice pylons have not been considered in this Section for the reasons stated in Chapter 5.
- 12.3 Proposed Route Option A is approximately 1.5km long within Section G, and runs northeast roughly parallel to the disused railway adjacent to industrial units and north of the A369 The Portbury Hundred. This route includes two changes in direction: one is west of Marsh Lane before this route runs northeast over car storage sites comprising large areas of hardstanding; the second is a change of direction where Proposed Route Option A and Alternative Route Option B meet southeast of a coal stockyard. Proposed Route Option A within Section G utilises the same number of pylons for either design option.
- 12.4 Alternative Route Option B is further north than Proposed Route Option A, is approximately 1.8km long (within Section G), and runs roughly parallel to the route of the existing Bridgwater to Avonmouth 132kV overhead line and runs to the north of and roughly parallel to the existing BW Route 132kV overhead line. Alternative

Route Option B runs southeast to the north of industrial units across Portbury Dock and passes over Royal Portbury Dock Road and Marsh Lane. This route then changes direction south of the coal stockyard to run northeast and then changes direction for a second time where Proposed Route Option A and Alternative Route Option B meet southeast of a coal stockyard. Alternative Route Option B within Section G utilises one additional T-pylon.

- 12.5 South of the River Avon Proposed Route Option A and Alternative Route Option B converge and continue as the Proposed Route in a north westerly direction over the River Avon. For the crossing of the River Avon pylons lower than those on the existing 132kV overhead line would be required for either pylon design. North of the River Avon the Proposed Route changes direction sharply to run northwest parallel with the settlement edge of Avonmouth to the north and Avonmouth Docks to the south. The Proposed Route avoids the residential area of Avonmouth, and runs on a different alignment to existing 132kV overhead lines.
- 12.6 The Proposed Route then changes direction sharply to run northwards along the docks before changing direction again to run northeast and then east between industrial units in the International Trading Estate, north of Avonmouth Way and the settlement of Avonmouth, towards Avonmouth substation.
- 12.7 Approximately 200m northwest of Avonmouth substation the Proposed Route changes direction on a northeast alignment to Kings Weston Lane where it crosses the route of the existing G Route 132kV (currently an overhead line that will be removed and replaced with underground cables). The Proposed Route runs northeast parallel to the existing BW Route 132kV overhead line for 1.5km. The existing BW Route 132kV overhead line and the Proposed Route would be close to the M49 and M5 motorways with the Proposed Route changing direction three times. The Proposed Route then crosses the G Route 132kV alignment (underground) at Ballast Lane and at Poplar Park industrial park. The existing G Route 132kV will be undergrounded from Avonmouth substation to just south of the railway and only north of the railway would there be three overhead lines running parallel.
- 12.8 The Proposed Route then continues north of Poplar Park industrial park parallel west of the M49 motorway for 1.3km to Severn Road. The Proposed Route then changes direction north and passes over the road before changing direction again and taking an alignment to Seabank substation which is adjacent to Seabank Power

Station. To facilitate the connection of the Proposed Route with Seabank substation a section of each of the existing G Route 132kV, BW Route 132kV and Seabank to Almondsbury 132kV overhead lines would be removed and replaced by underground cables.

- 12.9 On the Proposed Route, both pylons options would require [extensions](#) to their standard height when crossing the River Avon and passing through the industrial area of Avonmouth. A height extension [of approximately 30m would](#) be required to the two pylons immediately north and south of the River Avon to ensure electrical safety clearances for both the T-pylon and steel lattice pylon options. This would increase the T-pylon height to approximately 64.5m, and the steel lattice pylon height to 76.5m for the two pylons in this location.
- 12.10 The Proposed Route in Section G passes through the industrial area of Avonmouth. Due to the presence of industrial buildings and equipment in this area pylon height extensions of either 3m or 6m would be required to ensure electrical safety clearances between industrial buildings and the overhead lines. This increase in height is the same for both T-pylon and steel lattice pylon options and would increase the T-pylon to 37.5m with a 3m extension and 40.5m with a 6m extension. The height of the steel lattice pylons would increase to 49.5m with a 3m extension and 52.5m with a 6m extension.

Landscape

Baseline Conditions

National Landscape Character Assessment

- 12.11 Section G comprises the southern end of the Severn and Avon Vales National Landscape Character Area (NLCA 106), which extends northeast along the east side of the River Severn and beyond. The Bristol, Avon Valleys and Ridges National Landscape Character Area (NLCA 118) lies east and south of the Proposed Route of the new 400kV overhead line in this Section beyond the M5 and M49.
- 12.12 Section G includes The Royal Portbury Dock and Avonmouth south and north of the River Avon respectively. The M5 motorway runs roughly northeast-southwest in the southern and eastern extent of this Section and is particularly prominent where the M5 is elevated on a bridge crossing over the River Avon. The M49 motorway runs in a northeast direction from the southeast of Avonmouth towards the M4 in the north.
- 12.13 The Severn and Avon Vales character area (NLCA 106) comprises the lower valleys of the River Severn and Avon and is described as a flat low-lying predominantly pastoral vale landscape. Woodland is noted as being sparse and the landscape as being generally open. Section G in the southern part of the Severn and Avon Vales character area (NLCA 106) is described as heavily influenced by industry at The Royal Portbury Dock and at Avonmouth.
- 12.14 The Bristol, Avon Valleys and Ridges character area (NLCA 118) lies south and east of The Royal Portbury Dock and Avonmouth beyond the M5, and extends over higher ground, including Windmill Hill in the south and Kings Weston Hill, Coombe Hill and Spaniorum Hill to the east and southeast. Portishead Ridge is distant from the southern part of this Section in the west. The Bristol, Avon Valleys and Ridges character area (NLCA 118) provides a backdrop to low-lying ground in Section G, in particular in the north of this Section.
- 12.15 The Bristol, Avon Valleys and Ridges character area (NLCA 118) is described as a landscape of very mixed landform, geology and settlement pattern with low-lying, shallow valleys that contrast with the limestone ridges and scarps. This character area (NLCA 118) includes wooded scarps and downland ridges which are high and

open. The wooded scarps are mostly ancient woodland. Agricultural land is a mix of arable and pasture with a variable hedgerow pattern.

Local Landscape Character Assessment

- 12.16 North Somerset Council's „North Somerset Landscape Character Assessment“ produced in 2005, characterises the southern part of Section G south of the River Avon as the Portbury Settled Coastal Edge (LCA C2).
- 12.17 The Portbury Settled Coastal Edge character area (LCA C2) comprises The Royal Portbury Dock and adjacent industry including a coal workings site and car depots with large areas of hardstanding. The M5 contains this area to the south.
- 12.18 Views from the Portbury Settled Coastal Edge (LCA C2) extend across the Bristol Channel, and include industrial activity at The Portbury Dock and Avonmouth Dock north of the River Avon. Industrial dockland activity provides a frequently changing scene of container ships docking, loading and unloading. Cranes are prominent features along with wind turbines and tall industrial buildings at Avonmouth Docks around the southern and western periphery of Avonmouth.
- 12.19 There is no local landscape character assessment that considers Avonmouth. The character of this area is dominated by dockland and industrial activity including container ships, tall cranes and wind turbines, tall industrial buildings, motorways including the elevated section of the M5 and 132kV overhead lines including the tall pylons on the 132kV overhead lines crossing the River Avon. Pylons on the Bridgwater to Avonmouth 132kV overhead line where it crosses the River Avon are particularly tall.
- 12.20 The southern and western edge of Avonmouth adjacent the River Avon in the south and the River Severn in the west is dominated by dockland industry. The residential area of Avonmouth lies north of the River Avon between a redundant railway line and the road network where the A4 and B4054 meet slip roads to the M5 and M49. There is a dense mix of large and smaller scale industrial units north of this road network, including a trading estate adjacent Avonmouth substation. North of these industrial units is a slag heap and industrial works, and commercial development beyond fields divided by ditches and hedgerows.
- 12.21 North of Kings Weston Lane there is a sewage treatment works in the east and additional large scale and smaller scale industrial units in the west accessed off St

- Andrews Road. Further north Poplar Way West runs southeast off St Andrews Road and passes large car storage areas towards large commercial and distribution units in the southeast close to the M49. These units appear to have been built more recently than other industrial areas in Avonmouth and appear more spacious and set in well-maintained amenity landscape areas.
- 12.22 Fields divided by ditches and mature hedgerow lie north of a disused railway line running northwest-southeast on a vegetated embankment across Section G. This area has aspects of rural and remote character that contrasts with industrial areas elsewhere in this Section. Southeast of this area beyond the M49 and adjacent farmland is the small settlement of Hallen. East of Hallen the land rises steeply to the northeast to Spaniorum Hill (in Section G) with woodland across the steep slopes. South of Hallen and the M5, settlement extends across low-lying land, which rises up to wooded hills including Kings Weston Hill and Coombe Hill, also in Section G.
- 12.23 North of the fields in the northeastern part of this Section, there are an industrial works site, a gas works, Chittening Industrial Estate and Seabank Power Station (with adjacent substation) to the west, closer to the Severn Estuary.
- 12.24 The „South Gloucestershire Landscape Character Assessment“ (July 2005) characterises the northern extent of Section G, beyond Seabank Power Station and including Hallen in the southeast, as the Pilning Levels landscape character (LCA 20).
- 12.25 The Pilning Levels character area (LCA 20) is described as a largely flat, semi-enclosed to open agricultural landscape divided by „rhynes“, motorways and a railway line and is punctuated by large scale industry. This character area extends northeast from the route of the new 400kV overhead line and includes farmland divided by ditches and hedgerow in the east and Severnside Works, Avlon Works and the Western Approach Distribution Park in the west and north. The „South Gloucestershire Landscape Character Assessment“ refers to industrial chemical works and distribution sheds as being prominent to the south of this character area, along with the two Severn Bridges in the west and several transmission and distribution overhead lines and pylons crossing this area.
- 12.26 Land southeast of the Pilning Levels character area (LCA 20) is characterised as the Severn Ridges (LCA 18) and includes Spaniorum Hill. This character area is

described as an extensive, complex landform of abrupt scarps and gentle ridges which rise from the lower Levels area. The Landscape Character Assessment for South Gloucestershire refers to the Severn Ridges as being greatly influenced by the adjacent Levels and Severn Estuary.

Forest of Avon Community Forest

- 12.27 Section G is in the Forest of Avon, which is one of twelve Community Forests in England. The Forest of Avon extends over 57,000 hectares across four local authority areas including North Somerset, Bath and North East Somerset, Bristol and South Gloucestershire.
- 12.28 The Forest of Avon Plan published in 2002 identifies that land outside the predominantly urban area in Section G comprises less than 10% of woodland cover.
- 12.29 The Forest Plan sets out objectives for local areas and woodland cover, and identifies two main strategy areas for North Somerset including „Gordano and Parkland” in Section E in the south.

Section G Landscape Character

- 12.30 Many of the landscape characteristics identified above and described in published landscape character assessments are present in Section G. Section G comprises generally flat low-lying land adjacent the River Severn and the River Avon. The area is dominated by industry including large warehouses and depots, car storage areas comprising large areas of fenced hardstanding, a coal stockyard, large industrial buildings, wind turbines, cranes, dock activity, numerous industrial and trading estates, a sewage treatment works, gas works and Seabank Power Station in the north of this Section. There is also industry northeast of the Power Station site including Severnside Works, Severn View Industrial Park, Avalon Works and the Western Approach Distribution Park. To the southeast of this industry is farmland divided into an irregular field pattern by hedgerow and field drains.
- 12.31 Settlement in Section G includes the village of Avonmouth contained by industrial buildings and activity at Avonmouth Dock to the south and west. Avonmouth also extends southeast onto rising ground east of the M5 motorway along Shirehampton and Lawrence Weston east of the M5. There are numerous PRoW running through this Section including the Severn Way National Long Distance Footpath, National Cycle Route 41 and a footpath network across and to the east and south of

Hallen Marsh. The small settlement of Hallen is in the northeastern extent of this Section between the M49 and the M5 motorways, and is east of the existing BW Route and G Route 132kV overhead lines running northeast and northwest towards Seabank substation adjacent the Power Station.

- 12.32 There is higher ground to the south of Section G referring to Tickenham Ridge in the adjacent Section E, and to the east in Section G including Kings Weston Hill, Coombe Hill and Spaniorum Hill. Woodland is a feature on the slopes and on the top of this higher ground.
- 12.33 The majority of this Section comprises development relating to industry including structures such as cranes and plant, buildings and areas of hardstanding. Vegetation cover softens the industrial character of this area in places and includes mature trees, hedgerow and scrub along the M5 motorway and the A369 The Portbury Hundred, along the disused railway, around the periphery of car storage areas and the coal stockyard, and defining field boundaries across land north of Avonmouth substation and across Hallen Marsh.

Landscape Sensitivity

- 12.34 There are no national level landscape designations in Section G.
- 12.35 The Royal Portbury Dock and Avonmouth in Section G are important industrial areas adjacent the River Severn and the River Avon, and close to motorways and the City of Bristol. The heritage of this area and the wider landscape of the City of Bristol and the Severn Estuary are valued nationally. However the landscape in the area through which a new 400kV overhead line would be built has limited local amenity value due to the strong urban and industrial character of this landscape.
- 12.36 Avonmouth comprises a large scale flat landscape dominated by industry with higher ground to the south and east. Compared to higher ground to the east in Section G and to the south in Section E, Avonmouth is considered to have a lower susceptibility to change from larger structures such as overhead lines. The susceptibility to change of the landscape from new 400kV overhead line would be higher in the northeastern extent of this Section where farmland is adjacent industry and landscape character has aspects of more rural and remote character.
- 12.37 There are several existing overhead lines present in the area. These include the Bridgwater to Avonmouth 132kV overhead line, the G Route 132kV overhead line

between Avonmouth substation and Seabank substation further north, and the BW Route 132kV overhead line, which runs roughly parallel and in close proximity to the route of the Bridgwater to Avonmouth 132kV overhead line and the G Route 132kV overhead line. The Bridgwater to Avonmouth and BW Route 132kV overhead lines cross the River Avon on tall 132kV pylons, particularly on the Bridgwater to Avonmouth overhead line, having a greater influence on the surrounding landscape compared to 132kV pylons elsewhere.

- 12.38 In the north of this Section the Seabank to Tockington Tee 400kV overhead line runs east and northeast from Seabank substation and a 132kV overhead line runs from Seabank substation to Almondsbury substation in the east.
- 12.39 Existing 132kV overhead lines in the area, together with existing industrial development, Avonmouth substation and Seabank Power Station (and the adjacent substation), reduces the sensitivity (susceptibility to change) of this landscape has a lower sensitivity to a new overhead line as compared to one without such development.
- 12.40 The landscape sensitivity of Section G in relation to the introduction of a new 400kV overhead line is generally low.

Assessment of Effects

Route Alignments South of the River Avon

- 12.41 Proposed Route Option A would result in least negative effects on the local landscape compared to Alternative Route Option B in Section G because Proposed Route Option A is shorter (by approximately 0.3km), and landscape effects are generally confined to the A369 and M5 corridor.
- 12.42 South of the River Avon, both the existing Bridgwater to Avonmouth 132kV overhead line and a short section of the BW Route 132kV line would be removed (and the BW Route replaced with underground cables). A new 400kV overhead line on Proposed Route Option A that runs along the southern edge of this industrial area would result in a negative effect on this part of the landscape in combination with a positive effect on the landscape resulting from the removal of the existing Bridgwater to Avonmouth 132kV overhead line further north across part of The Royal Portbury Dock.

- 12.43 The removal of the existing Bridgwater to Avonmouth 132kV line would also greatly reduce the negative in-combination effects which would otherwise occur if a new 400kV overhead line was built on Proposed Route Option A and in particular on Alternative Route Option B across The Royal Portbury Dock.

Route Alignment North of the River Avon

- 12.44 North of the River Avon, both the existing Bridgwater to Avonmouth 132kV overhead line (including where it passes over the River Avon on two tall pylons) and a section of the G Route 132kV line would be removed (and the G Route replaced with underground cables). The removal of the existing Bridgwater to Avonmouth 132kV overhead line would result in a positive effect on the landscape in the vicinity of this 132kV overhead line.
- 12.45 The removal of a section of the G Route 132kV overhead line north of Avonmouth substation would greatly reduce the negative effects which would otherwise occur if a new 400kV overhead line was built roughly parallel to the G Route 132kV overhead line between Avonmouth substation and the disused railway in the northeast.

Effects of a new overhead line

- 12.46 This part of the appraisal considers effects that would arise from a new 400kV overhead line regardless of which pylon type is used.
- 12.47 A new 400kV overhead line in Section G would have a direct negative effect on the Severn and Avon Vales landscape including The Royal Portbury Dock and Avonmouth, and indirect effects on higher ground in the south and east.
- 12.48 A new 400kV overhead line in Section G would introduce a linear development comprising conductors suspended from arms on supports at regular distances into a landscape that includes existing overhead lines. Alternative Route Option B in the southwestern extent of this Section is closer to the route of existing 132kV lines than Proposed Route Option A, and a new 400kV overhead line running northeast of Avonmouth substation and running north and northwest to Seabank substation would be closer to existing 132kV overhead lines compared to the section of new 400kV overhead line around the settlement of Avonmouth. There would be negative effects from the greater size and scale of the 400kV pylons compared to the existing 132kV pylons, although the presence of existing 132kV overhead lines in this Section reduces the sensitivity (susceptibility to change) of the landscape in

Section G to the proposed 400kV overhead line. . The landscape in Section G is also influenced by industrial activity at The Royal Portbury Dock and at Avonmouth, and by the M5 motorway which is elevated over the River Avon. Seabank Power Station, with an adjacent substation, is also in this Section.

- 12.49 Higher ground to the south in Section E and to the east (in this Section) would provide backgrounding to a new 400kV overhead line although to varying extents. A new 400kV overhead line would protrude above the backdrop of these hills in places, particularly where the hills are lower or more distant. These hills provide greater backgrounding to the smaller existing 132kV pylons. The extent and benefit of backgrounding of a new 400kV overhead line, and the considered effects of the line may differ if different support types are used.
- 12.50 Hedgerow and tree cover is generally limited in this Section across industrial areas; however there are hedgerows and trees along the A369 The Portbury Hundred, the M5 motorway, the disused railway, and along roads and surrounding industry throughout The Royal Portbury Dock. There are also hedgerows and trees along field boundaries and roads north of Avonmouth substation and across Hallen Marsh in the northeast, and along the railway line running northwest southeast across Section G and along some roads in this area. Hedgerow and tree cover would provide some filtering and partial screening, which would reduce the influence of a new 400kV overhead line on the landscape in Section G.
- 12.51 A new 400kV overhead line would likely have a negative effect on trees and hedgerows along ditches, field boundaries and roads in Section G where these would be lost to allow construction access and because of removal or lopping to achieve the electricity safety clearances required. Field ditches and hedgerows are a component of the landscape character of the undeveloped areas of Section G in the northeast.

Comparison between the steel lattice pylon and the T-pylon

- 12.52 This part of the appraisal considers effects that would arise from a new 400kV overhead line using steel lattice pylons compared to a new 400kV overhead line using the T-pylon.

Route Alignments South of the River Avon

- 12.53 South of the River Avon in the southwestern extent of Section G on Proposed Route Option A and Alternative Route Option B, both the steel lattice pylon

overhead line and the T-pylon overhead line would generally follow the same alignment, except for some minor variations at pylon locations and at the changes in direction on Alternative Route Option B. On Alternative Route Option B the T-pylon would require two tension pylons south of the coal stockyard compared to one tension pylon if the steel lattice pylon is used where the route of the new 400kV overhead line changes direction to run northeast towards the location where Proposed Route Option A and Alternative Route Option B meet south of the River Avon.

- 12.54 T-pylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel than steel lattice suspension pylons.
- 12.55 The existing overhead lines operating at 132kV in the southwestern extent of Section G and in the adjacent Section F and north of the River Avon are suspended from lattice steel pylons. The presence of existing overhead lines with steel lattice pylons reduces the sensitivity (susceptibility to change) of the landscape in this Section to a new overhead line using steel lattice pylons, compared to if there was no existing infrastructure.
- 12.56 A new 400kV overhead line in Section G supported by T-pylons would introduce a new and different pylon structure along the disused railway on Proposed Route Option A to the north of the A369 and the M5 motorway and on Alternative Route Option B across the Royal Portbury Dock.
- 12.57 A new 400kV overhead line using T-pylons in the southern part of Section G would not be totally uncharacteristic compared to existing 132kV overhead lines using lattice pylons. Existing overhead lines and the T-pylon share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support. The existing Bridgwater to Avonmouth 132kV overhead line running southeast across the Royal Portbury Dock and running northeast across the River Avon and Avonmouth towards Avonmouth substation would also be removed as part of the proposal. A section of the BW Route 132kV overhead line south of the Coal Stockyard would also be replaced with underground cables where Proposed Route Option A crosses this existing 132kV overhead line.

- 12.58 A new 400kV overhead line particularly on Proposed Route Option A using the steel lattice pylon would be backgrounded more effectively by for example mature trees and hedgerow along the disused railway and the A369 The Portbury Hundred, and by landform and woodland on Tickenham Ridge to the south in Section E, because the thin steel members in this open structure make background features visible beyond. Backgrounding would be less effective for a new T-ptylon overhead line due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice.
- 12.59 The T-ptylon would tend to appear more prominent in the local landscape compared to the steel lattice pylon due to the T-ptylon's solid central column and cross beam, its „diamond“ configuration of conductors and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. However the T-ptylon would be lower than the steel lattice pylons reducing its influence in the local landscape. The lower height of the T-ptylon would reduce the extent of pylon visible against the sky and would reduce its visibility in the local landscape above intervening trees and hedgerow along the disused railway, the A369 The Portbury Hundred, and the M5 motorway.
- 12.60 A new 400kV overhead line using the steel lattice pylons or the T-ptylon on Proposed Route Option A may result in some tree loss for example where it crosses the Royal Portbury Dock Road. A new T-ptylon overhead line is considered to result in greater tree loss to accommodate this wider structure in the landscape compared to the steel lattice pylon.
- 12.61 A new 400kV overhead line in the southwestern extent of Section G supported by T-pylons would introduce a new and different pylon structure crossing the route of the existing BW Route 132kV line (a section of which would be replaced with underground cables where Proposed Route Option A crosses this existing line), and running southeast on Alternative Route Option B roughly parallel and close to the route of the Bridgwater to Avonmouth 132kV overhead line to be removed and roughly parallel and close to the existing BW Route to be retained. This would result in a greater change, particularly on Alternative Route Option B than introducing a series of similar structures and may produce an incoherent appearance. However, a new overhead line using T-pylons on both Proposed Route Option A and Alternative Route Option B would not be totally uncharacteristic compared to existing overhead lines using lattice pylons. The existing overhead line and the T-ptylon would share

similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support.

- 12.62 A new 400kV overhead line on both Proposed Route Option A and Alternative Route Option B south of the River Avon using the steel lattice pylon would have a low negative magnitude of effect (scale of change) on The Royal Portbury Dock in the Severn and Avon Vales landscape, which is heavily influenced by dockland cranes and 132kV overhead lines, as well as wind turbines and tall and large scale industrial buildings at Avonmouth.
- 12.63 Overall a new 400kV overhead line using the T-pylon on Proposed Route Option A and Alternative Route Option B would have a similar low negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape compared to the steel lattice pylons. Backgrounding would be less effective for a new T-pylon overhead line and there would likely be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon. However the lower height of the T-pylon would otherwise reduce its visibility in the local landscape particularly where there is screening and filtering by trees and hedgerow.

Route Alignment North of the River Avon

- 12.64 In Section G both the steel lattice pylon overhead line and T-pylon overhead line routes generally follow the same alignment except for variations at changes in direction and pylon locations west of Avonmouth at Avonmouth Docks and at Ballast Lane north of Avonmouth substation. At each location the T-pylon would require an additional tension pylon, rather than a suspension pylon, to negotiate more gradual changes in direction compared to the steel lattice pylon alignment. Between Moorhouse Lane and Seabank substation the standard lattice pylon overhead line route and the T-pylon route would take the same alignment northwards across Hallen Marsh and northwest of Severn Road towards Seabank substation.
- 12.65 T-pylon tension pylons (with a wider central column and a horizontal beam between the conductor configurations) do not differ significantly in appearance from T-pylon suspension pylons. In comparison, the steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base and constructed from thicker gauge steel than standard steel lattice suspension pylons.

- 12.66 The existing overhead lines operating at 132kV crossing the River Avon and to the north of the River Avon to Seabank substation are suspended from lattice steel pylons. The presence of existing overhead lines with steel lattice pylons reduces the sensitivity (susceptibility to change) of the landscape in this Section to a new overhead line using steel lattice pylons, compared to the effect which would be experienced if there was no existing infrastructure.
- 12.67 A new 400kV overhead line in Section G supported by T-pylons would introduce a new and different pylon structure crossing the River Avon, running northwest north and northeast around the settlement Avonmouth and east across industry, and northeast and north of Avonmouth substation across Section G towards Seabank Power Station. This would result in a greater change than introducing a series of similar structures and may produce an incoherent appearance where the T-pylon would run close to and roughly parallel to existing 132kV overhead lines. A new 400kV overhead line in Section G supported by T-pylons crossing the River Avon and north of the River Avon to Seabank substation would not be totally uncharacteristic compared to existing 132kV overhead lines using lattice pylons. Existing overhead lines and the T-pylon share similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any discrepancy between types of support. The existing Bridgwater to Avonmouth 132kV overhead line running northeast across the River Avon and Avonmouth towards Avonmouth substation would also be removed as part of the proposal. A section of the G Route 132kV overhead line running northeast between Avonmouth substation and the disused railway in the northeast would also be removed (and replaced with underground cables) to allow the new 400kV overhead line to cross the G Route.
- 12.68 The T-pylon would tend to appear more prominent in the local landscape (and from elevated landform such as Tickenham Ridge to the south and higher ground to the east) compared to the steel lattice pylon due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of conductors and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon. However the T-pylon would be approximately 12m lower than the steel lattice pylons reducing its influence in the local landscape. The lower height of the T-pylon would reduce its visibility above hedgerows and trees along field boundaries, along roads north of Avonmouth substation, along the disused railway line running northwest southeast

across Section G, across Hallen Marsh in the northeast and along some of the roads in this area.

- 12.69 As part of a new 400kV overhead line using the T-pylon, a T-pylon „double diamond“ tension pylon would be required at each of the two sharp changes of direction necessary to take the new 400kV overhead line around the settlement of Avonmouth. A T-pylon double diamond tension pylon would vary in design to the T-pylon suspension pylon. The largest double diamond T-pylon, which takes account of the greatest line deviation of 60-90 degrees, has a height of approximately 34.5m and consists of two separate solid monopole columns, each 1.6m wide. The cross beam to each column is a diamond shape that varies between approximately 1.2m and 0.36m diameter. The two structures would be typically installed at approximately 30m centres and provide a typical overall maximum width of approximately 41m from the outer edge of each cross beam. The double diamond has an arrangement of three conductor bundles connecting through each of the three lower points of each diamond with a single earth wire strung from the highest point of the pylons.
- 12.70 The largest double diamond T-pylon is lower than the steel lattice tension pylon but is likely to be the most prominent form of support of any of the lines on the occasions it is used due to the two separate solid columns of considerable width.
- 12.71 A new 400kV overhead line north of the River Avon using the steel lattice pylon would have a low negative magnitude of effect (scale of change) on The Royal Portbury Dock and Avonmouth, in the Severn and Avon Vales landscape, which is heavily influenced by dockland cranes, 132kV overhead lines and wind turbines, as well as tall and large scale industrial buildings.
- 12.72 A new 400kV overhead line using the steel lattice pylon would have a greater effect where the 400kV overhead line runs closer to residential properties on the western edge of Avonmouth; although the magnitude of effect (scale of change) would also be low negative. A new 400kV overhead line using the steel lattice pylon would have a low to moderate negative magnitude of effect (scale of change) where it runs directly across farmland, further east of industry, in the northeast of this Section. The landscape character in this part of the Section has aspects of more rural and remote character although it is in close proximity to the M49 and existing 132kV overhead lines), compared to elsewhere in this Section for example adjacent Avonmouth Docks where industrial activity is concentrated and busier.

- 12.73 Overall a new 400kV overhead line using the T-pylon crossing the River Avon and running northwards to Seabank substation would have a similar low negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape compared to the steel lattice pylons.
- 12.74 The double diamond T-pylon would tend to appear the most prominent form of support at the two 90 degree changes of direction around Avonmouth, backgrounding would be less effective for a new T-pylon overhead line and there may be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon. However the lower height of the T-pylon would otherwise reduce its visibility in the local landscape particularly where there is screening and filtering by trees and hedgerow, for example along the M5 motorway and the A369 The Portbury Hundred, along the disused railway, and defining field boundaries across Hallen Marsh..
- 12.75 A new 400kV overhead line using the T-pylon running close to residential properties on the western edge of Avonmouth and where it runs north and northwest towards Seabank Power Station would have a similar negative magnitude of effect (scale of change) on the Severn and Avon Vales landscape compared to the steel lattice pylons; although backgrounding would be less effective for a new T-pylon overhead line and there may be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon. However the lower height of the T-pylon would otherwise reduce its visibility in the local landscape particularly where there is screening and filtering by built form, trees and hedgerow.
- 12.76 The removal of the existing Bridgwater to Avonmouth 132kV overhead line where it runs northeast to Avonmouth substation (oversailing the River Avon and residential properties at Avonmouth), would result in a positive effect on the landscape in the vicinity of the existing 132kV overhead line. The existing BW Route 132kV overhead line would remain in place in Section G except where it would be replaced with underground cables where the new 400kV overhead line would cross the BW Route in the south at the Royal Portbury Dock. The majority of the existing G Route 132kV overhead line would remain in place in Section G except for the section that would be replaced with underground cables northeast of Avonmouth substation where the 400kV overhead line would cross the G route, and a short section where the 400kV overhead line would enter Seabank substation.

Potential for Mitigation

- 12.77 It is not possible to avoid direct negative effects on the landscape of the Severn and Avon Vales landscape or indirect negative effects on higher ground in the south and east, with a new steel lattice pylon or T-pylon overhead line.
- 12.78 Pylons have been sited to maximise filtering and screening by adjacent industry and avoid or minimise sharp changes in direction in order to assist in reducing potential negative effects. The Proposed Route for the new 400kV overhead line using steel lattice pylons or the T-pylon does however include changes in direction in particular to avoid the settlement of Avonmouth.
- 12.79 Mitigation by way of additional hedgerow and tree planting for example in the vicinity of a new overhead line in the northeast of this Section, depending on land owners' consent being granted, would be in keeping with the existing landscape character and could also assist in reducing potential effects.
- 12.80 The removal of the Bridgwater to Avonmouth 132kV overhead line would result in a positive effect on the landscape in the vicinity of the 132kV overhead line and the removal of a section of the BW Route south of the River Avon (where the 400kV overhead line crosses this existing 132kV line on Proposed Route Option A) and a section of the G Route northeast of Avonmouth substation would greatly reduce the negative effects which would otherwise occur if a new 400kV overhead line was built roughly parallel to the G Route 132kV overhead line between Avonmouth substation and the disused railway in the northeast.

Summary

- 12.81 In Section G a new 400kV overhead line using the steel lattice pylon or the T-pylon would generally follow a similar alignment on Proposed Route Option A and Alternative Route Option B south of the River Avon. A new 400kV overhead line using the steel lattice pylon or the T-pylon would follow the same alignment on the route identified crossing the River Avon and running north of the River Avon, with some minor variations also occur at changes in direction and pylon locations.
- 12.82 The amenity value of the landscape in Section G is considered to be low overall due to the strong urban and industrial character of this landscape. The sensitivity of this landscape to a new 400kV overhead line is generally low, although sensitivity is slightly higher in the northeast of this Section where the area has aspects of rural

and remote character that contrast with heavily industrialised areas elsewhere in this Section.

- 12.83 Overall a new 400kV overhead line using the steel lattice pylon south of the River Avon in Section G, on both Proposed Route Option A and Alternative Route Option B would have a minor negative residual effect on the character of The Royal Portbury Dock in the Severn and Avon Vales landscape. Backgrounding would be less effective for a new T-pylon overhead line, the T-pylon would tend to appear more prominent in the local landscape and there may be greater tree loss as a result of the T-pylon route, compared to the steel lattice pylon. However the lower height of the T-pylon would otherwise reduce its visibility above intervening tree and hedgerow screening and filtering reducing its influence in the landscape.
- 12.84 A new 400kV overhead line using the steel lattice pylon crossing the River Avon and to the north of the River Avon would have a minor negative residual effect on The Royal Portbury Dock and Avonmouth in the Severn and Avon Vales landscape. A new 400kV overhead line using the steel lattice pylon would have a greater negative residual effect (although remaining minor negative) on the local landscape where it runs closer to residential properties on the western edge of Avonmouth, and a very localised minor to moderate negative residual effect where it runs across farmland, further east of industry, in the northeast of this Section where the landscape has aspects of more rural and remote character, although in close proximity to the M49 and existing 132kV overhead lines.
- 12.85 A new T-pylon overhead line on the route crossing and north of the River Avon would have similar negative residual effects on the Severn and Avon Vales landscape.
- 12.86 With regard to effects on the landscape, the T-pylon on Proposed Route Option A and on Alternative Route Option B south of the River Avon in Section G is generally preferred due to its lower height reducing its visibility above intervening hedgerow, trees and built form. A new 400kV overhead line using the steel lattice pylon crossing the River Avon and to the north of the River Avon (to Seabank substation) is generally preferred due to the presence of existing tall industrial buildings, dock cranes, wind turbines and existing lattice pylon overhead lines. The double diamond T-pylon which would be required at the two sharp changes of direction around Avonmouth would be the most prominent form of support of any of the lines.

- 12.87 If a pylon type is identified as being preferable overall in Section G south of the River Avon, and an alternative pylon type is preferred in the adjacent Section F, and vice versa, further detailed consideration would need to be given to landscape effects that would result from the transition between pylon types.

Visual Amenity

Baseline Conditions

- 12.88 Section G is a flat landscape with elevated hills and ridges in the east and south. The flat landscape is defined by Avonmouth Docks and Portbury Dock and associated industrial development, motorways, electrical infrastructure and Seabank Power Station. The elevated wooded landforms of Tickenham Ridge to the south and King Weston Hill and Spaniorum Hill to the east surround the area. The River Avon runs through Section G and its presence is generally signalled by the dockside industry with the watercourse appearing generally in views from close to the river. The Severn Estuary is visible to the west. The Royal Portbury Dock to the west of the River Avon, Avonmouth Dock to the east and the surrounding industrial complexes define the character of this area with the associated large buildings, cranes, wind turbines and industrial development. Four 132kV overhead lines and one 400kV overhead line pass through Section G.
- 12.89 To the north of Section G Seabank Power Station, Severnside Works, a gas works and Western Approach Distribution Park form a large element of views. The M5 motorway is in the east of the area and crosses the River Avon in the south on the Avonmouth Bridge. To the north the M49 motorway runs through the area and connects the M5 to the Severn Bridge. Both the M5 and M49 motorway are elevated as they pass through Avonmouth and are visible in many views.
- 12.90 There are open long distance views across Avonmouth and Portbury Docks to the Severn Estuary, Severn Bridge and Welsh Hills (5km to 15km away) beyond from the surrounding elevated landforms of Kings Weston Hill, Spaniorum Hill, Portishead Ridge (in Section F) and Tickenham Ridge (in Section E). The landscape to the west of the elevated motorways in Section G is flat with views limited by industrial buildings and dock structures. Where views are possible Tickenham Ridge, King Weston Hill and Spaniorum Hill form the background to views south and east. Views are possible in places towards Portishead Ridge and the Gordano Valley.
- 12.91 The existing Bridgwater to Avonmouth 132kV overhead line runs for 4km in an east-west direction from the boundary with Section F across the Royal Portbury Dock to the River Avon where it passes over the river on tall pylons parallel to the M5 motorway before continuing to Avonmouth substation located in an industrial estate off Avonmouth Way. These two existing tall river crossing pylons are visible to a

large number of receptors in Section G and in long distance views from 5km away on Tickenham Ridge (in Section E), Portishead and the Gordano Valley (in Section F).

- 12.92 Overhead lines cross the area and are often parallel with alignments close together. The BW Route 132kV overhead line runs approximately parallel varying from 50m to 100m south of the Bridgwater to Avonmouth 132kV overhead line between Portishead substation in Section F and Avonmouth substation in Section G. The BW Route 132kV overhead line passes over the River Avon on two tall pylons that are taller than standard suspension pylons, but not as tall as the two pylons that the Bridgwater to Avonmouth 132kV overhead line passes over the river on. From the River Avon the BW Route 132kV overhead line is parallel and adjacent to the M49 motorway for 5.5km before diverting northwest to connect to Seabank substation adjacent Seabank Power Station. The Seabank to Avonmouth 132kV (G Route) overhead line connects Avonmouth substation and Seabank substation and runs parallel varying from 40m to 300m north of the BW Route overhead line for approximately 5km.
- 12.93 In the north of Section G the Seabank to Tockington Tee 400kV overhead line runs from Seabank substation north passing over Western Approach Distribution Park. The Seabank to Almondsbury 132kV overhead line runs east from Seabank substation passing over the M5 and near properties in the settlement of Easter Compton in the east.
- 12.94 Many receptors in the settlement of Avonmouth and in the elevated settlement of Lawrence Weston to the east have views of existing overhead lines. In places built form screens views to the lower elevations of the pylons, however the tops are visible above or in gaps in development. In the north of Section G long distance views are available west along the existing overhead lines and across marshes to Seabank Power Station. Distant views of the existing Bridgwater to Avonmouth 132kV overhead line where it passes over the River Avon on tall pylons are also available across the Section and from further away in Sections E and F.

Public Views

- 12.95 The main public views of existing overhead lines and the Proposed Route of the new 400kV line are experienced by visual receptors using PRoW and cycle routes.

- 12.96 The Severn Way is a waymarked 225 mile long distance public route that follows the course of the entire River Severn from Mid Wales to Shrewsbury before heading south to Severn Beach then along the River Avon at Avonmouth into Bristol city centre. The Severn Way runs south through Section G along the coast between Severn Beach and Chittening Industrial Estate where it then turns inland southeast along Poplar Way West and Lawrence Weston Road to Lawrence Weston, before heading south west to the River Avon where it follows the northern bank east into Bristol city centre. The route passes under the existing G Route 132kV and BW Route 132kV overhead lines and the M49 and M5 motorway on Lawrence Weston Road. Long distance views to the existing overhead lines are available in numerous locations along the route in particular on Lawrence Weston Road and from the elevated landform at Lawrence Weston and Shirehampton. Views include the existing Bridgwater to Avonmouth 132kV overhead line at Avonmouth where the tall pylons pass over the River Avon and the surrounding industrial and dockland development.
- 12.97 The River Avon Trail long distance public route is a 23 miles route on the south bank of the River Avon between Pill and Bath. Users of this route have open views from Pill towards the M5 motorway and the two tall Bridgwater to Avonmouth 132kV overhead line pylons passing over the River Avon, with Avonmouth docks in the distance.
- 12.98 The Community Forest Path long distance public route is a 45 miles route around Bristol „using footpaths, tracks and some sections of rural lanes providing a variety of landscapes with views of the Mendip Hills, Severn Estuary and the Severn road bridges“ (The Long Distance Walkers Association Website: 2001-2012). In Section G the route runs through Easter Compton to the north and along the wooded peaks of Spaniorum Hill and King Weston Hill, passing close to Blaise Castle, before running southeast outside Section G towards Ashton adjacent to the River Avon. In Section G distant public views from the Community Forest Path to the existing overhead lines are generally obscured by landform and woodland on Kings Weston Hill, although some distant views towards Seabank Power Station are available in the north from Easter Compton and at the top of Spaniorum Hill through gaps in woodland. Distant views along the Seabank to Almondsbury 132kV overhead line are available, in particular where it passes over the long distance route at Easter Compton, with two other 132kV overhead lines and the 400kV overhead line also visible in the distance.

- 12.99 A public right of way runs along the south bank of the River Avon and passes under the existing Bridgwater to Avonmouth 132kV overhead line and the M5 motorway crossing, with views along the overhead line.
- 12.100 There are several PRoW close to the route of the proposed new 400kV overhead line across Hallen Marsh. Some of these rights of way pass directly beneath the existing 132kV overhead lines with long views along the BW Route 132kV and the G Route 132kV overhead lines.
- 12.101 A number of National Cycle Network Routes run through Section G. National Cycle Network Route 26 runs from Portishead to Portland Bill on the Dorset coast. The route starts in the southern part of Section G at Portbury Dock and runs parallel to the disused railway line. Users have views east towards the existing Bridgwater to Avonmouth 132kV and the BW Route 132kV overhead lines with views west largely obscured by industrial buildings.
- 12.102 National Cycle Network Route 41 connects Bristol, Gloucester, Stratford-upon-Avon and Rugby. The route starts in Bristol and runs along the south bank of the River Avon along the River Avon Trail long distance route. The route continues through Pill and then crosses the river over the M5 motorway bridge where it continues through Avonmouth and Lawrence Weston to the east of the M5 motorway. The route then diverts northwest through the industrial area to Seabank Power Station where it continues north along the coast towards Severn Beach. The route is parallel to the existing Bridgwater to Avonmouth 132kV and BW Route 132kV overhead lines at the M5 motorway bridge and passes under the G Route 132kV and BW Route 132kV overhead lines and the M49 and M5 motorway on Lawrence Weston Road. In these locations users have long distance views along the existing overhead lines with open and filtered views from other locations on the route.
- 12.103 National Cycle Network Route 4 is a long distance route between London and Fishguard in Wales via Bristol. The route passes through Easter Compton on Farm Lane and the A48 Blackhorse Lane from where there are views along the overhead lines towards Seabank Power Station. South of the M5 motorway views towards a new 400kV overhead line would be largely obscured by King Weston Hill and Spaniorum Hill. The route also passes under the Seabank to Almondsbury 132kV overhead line and the Seabank to Tockington Tee 400kV overhead line.

- 12.104 National Cycle Route 410 Avon Cycleway passes through Easton in Gordano in the south of Section G and forms part of Regional Route 10. Receptor views towards the existing overhead lines are obscured by built form, trees and the M5 motorway. The cycle route also passes through Portbury in Section E and receptors have views northeast to the M5 motorway, Portbury Docks and Avonmouth in Section G. Receptors also have views west from Caswell Lane (200m to 1km) to the W Route overhead line as it crosses Tickenham Ridge. Views north across Clapton Moor in Section F include both of the existing 132kV overhead lines above trees in the distance.
- 12.105 There would be some open views and some filtered views of a new 400kV overhead line and the existing overhead lines from recreation facilities and public open spaces in Pill, Avonmouth and Lawrence Weston including North Bristol Park, Beachley Walk and Avonmouth Old Boys Rugby Football Club. The existing Bridgwater to Avonmouth 132kV overhead line and the BW Route 132kV overhead line are close to North Bristol Park and the overhead lines are visible in foreground views. There are more distant views from other recreation facilities and public open spaces on elevated ground in Lawrence Weston. Views include the existing Bridgwater to Avonmouth 132kV, G Route 132kV and BW Route 132kV overhead lines close together and adjacent to the M5 motorway.

Private Views

- 12.106 There are close views of existing overhead lines and the route of the proposed new 400kV overhead line from a large number of properties in Section G. The existing Bridgwater to Avonmouth 132kV overhead line oversails properties and Avonmouth CE Primary School on Catherine Street in Avonmouth and properties on Portview Road, Catherine Street, Pages Mead, A4 Portway, Leeming Way, Akeman Way and the B4054 Avonmouth Road also have close views of this existing 132kV line. In the north of Section G individual properties near the settlement of Hallen have views of the BW Route 132kV and the G Route 132kV overhead lines where they are parallel to the east of the M49 motorway. Properties include Moor House and Caravan Park, Hallen Farm and Stowick Farm.
- 12.107 The main settlements in Section G from where the existing overhead lines are visible are Easton in Gordano and Pill to the south of the River Avon; Avonmouth; the elevated settlements of Shirehampton and Lawrence Weston to the east;

- Hallen; and Easter Compton and Severn Beach to the north. Distant views are also available from Portishead in Section F and Lower Failand in Section E.
- 12.108 Easton in Gordano village, the M5 motorway services, and Pill are on the southern bank of the River Avon adjacent to the M5 motorway crossing. Properties along 1km of the northern settlement edge and from elevated land in the east of Pill have views of the top of the existing Bridgwater to Avonmouth 132kV and the W Route 132kV overhead lines above trees and the motorway, including the two tall pylons at the River Avon. Within both the settlements occasional glimpsed views of the two tall river crossing pylons are available from some receptors.
- 12.109 From Lower Failand on Tickenham Ridge in Section E some properties have long distance views from elevated ground down towards Portbury and Avonmouth Docks and Seabank Power Station, with the existing Bridgwater to Avonmouth 132kV overhead line visible crossing the River Avon on two tall pylons, backgrounded by the Severn Estuary, Severn Bridge and Wales.
- 12.110 Long distance views northeast are available from the elevated settlement of Portishead on Portishead Ridge and from Portbury Wharf on the eastern settlement edge in Section F. Properties have distant panoramic views towards Portbury and Avonmouth Docks over 3km away with the two tall pylons on the existing Bridgwater to Avonmouth 132kV overhead line passing over the River Avon visible against the skyline. The two tall pylons are also visible from properties in the Gordano Valley further west in Section F.
- 12.111 The settlements of Avonmouth, Shirehampton and Lawrence Weston are to the east of the M5 motorway on Kings Weston Hill overlooking the River Avon and Avonmouth Docks. Properties have open and filtered views from higher ground, over or between adjacent properties, towards Avonmouth and Portbury Docks and associated dock structures. Views include the existing Bridgwater to Avonmouth 132kV, BW Route 132kV and the Avonmouth to Seabank 132kV overhead lines beyond and parallel to the M5 motorway with the two tall river crossing pylons visible at the River Avon. Views from the east of Lawrence Weston and south of Shirehampton are obscured by landform and mature trees at the peak of the hill.
- 12.112 The village of Hallen is at the foot of Spaniorum Hill on level ground. Some properties have open and filtered views west towards the G Route 132kV and the

BW Route 132kV overhead lines, with views partially obscured by field trees and hedgerows. The M49 motorway and embankment restrict views further west.

- 12.113 To the north of Section G the settlements of Easter Compton and Severn Beach have distant views towards the existing 132kV overhead lines, the existing 400kV overhead line and Seabank Power Station visible above trees. The existing Seabank to Almondsbury 132kV overhead line passes the linear settlement of Easter Compton close to properties. Properties on the southern edge have long views along the overhead line with two existing 132kV overhead lines, the 400kV overhead line and Seabank Power Station visible above field trees.
- 12.114 Properties in Severn Beach on the coast generally do not have views of the existing overhead lines because trees along the settlement edge obscure longer views; however glimpsed views are available in places to the top of Seabank Power Station approximately 1.5km to the southwest. From the southwest edge near the beach long distance views are available along the coast towards Seabank Power Station and Avonmouth Docks with the 132kV overhead lines near the power station visible above trees.
- 12.115 A large number of businesses in Section G are in industrial estates in the docks and in large industrial unit buildings often with a small number of windows on a single facade. The existing 132kV overhead lines pass through industrial areas often close to units and occasionally oversailing them.
- 12.116 In Portbury the main businesses with views of the existing overhead lines are on Portbury Way, First Avenue, Royal Portbury Dock Road and Marsh Lane in Portbury Dock to the west of the River Avon. Receptors have views of the existing Bridgwater to Avonmouth 132kV overhead line and the BW Route 132kV overhead line running parallel in close proximity above industrial units.
- 12.117 In Avonmouth the main businesses with views of the existing overhead lines are on Portview Road and in industrial areas on Atlantic Way and Avonmouth Way near Avonmouth substation. Receptors have views of the existing Bridgwater to Avonmouth 132kV overhead line and the BW Route 132kV overhead line passing over or adjacent industrial units. To the west of the M49 motorway industrial units on Poplar Way East also have some close views of the G Route 132kV overhead line.

Distant Views from over 1km

- 12.118 There are distant panoramic views towards the existing overhead lines from the elevated landforms of King Weston Hill and Spaniorum Hill. Receptors have particularly expansive distant views across Avonmouth to the docks and the Severn Estuary and Welsh Hills beyond. Views include the top of pylon supports along the existing 132kV overhead lines crossing the area parallel to the M5 and M49 motorways with dock structures visible beyond, and the tall pylons crossing the River Avon; however this forms a small part of these expansive views.
- 12.119 There are also distant panoramic views from the elevated Tickenham Ridge in Section E (between 1km and 3km to the south) and Portishead Ridge in Section F (2km to the west). These receptors have distant views to Section G with the existing Bridgwater to Avonmouth 132kV overhead line visible where it passes Portbury Dock and over the River Avon on two tall pylons; however this forms a small part of these expansive views. The considered effects of the overhead line in Section G on these views are considered in the appraisal of these sections.
- 12.120 In the north of Section G there are distant views of the existing 132kV overhead lines as they pass over the open marshes and connect to Seabank substation adjacent to Seabank Power Station. Throughout Section G and as far west as the Gordano Valley (in Section F) receptors experience distant views to the two tall pylons where the Bridgwater to Avonmouth 132kV overhead line passes over the River Avon.
- 12.121 Views in Section G are locally important and generally of low value due to the industrial nature of the area with views to Kings Weston Hill and from the coast at Severn Beach locally distinctive but not of greater distinction or value.

Assessment of Effects

- 12.122 The existing Bridgwater to Avonmouth 132kV overhead line would be removed in Section G for 4km between Portbury Docks at the boundary with Section F and Avonmouth substation, including where it passes over the River Avon on two tall pylons.
- 12.123 A new 400kV overhead line in Section G would be between approximately 9.5km and 9.8km long (depending on the route alignment taken between the boundary of Section F and the River Avon, see below) and include twelve changes in direction. In the majority of Section G, including the proposed crossing of the River Avon, a

single alignment for the proposed new 400kV overhead line has been identified. However in the southwest, between the boundary with Section F and the River Avon, two alignments for a new 400kV overhead line have been identified and are referred to as Proposed Route Option A and Alternative Route Option B.

Effects of a new overhead line

- 12.124 A new overhead line in Section G on any of the Proposed Route alignments would have a negative effect on public and private visual receptors. A 400kV overhead line passing close to Portbury in Section E and Avonmouth in Section G would be visible to a large number of receptors in near distance views.
- 12.125 The greatest effects on views would be experienced by sensitive visual receptors close to the proposed 400kV overhead line and would include users of PROW, cycle routes, a play area and the nearest residential properties. For many visual receptors in the south of Section G the existing Bridgwater to Avonmouth 132kV and BW Route 132kV overhead lines are already present in views. For receptors in the north the G Route 132kV, Seabank to Almondsbury 132kV and the Seabank to Tockington Tee 400kV overhead lines are already present in views along with Seabank Power Station. There is also extensive industrial and dock development in many views.
- 12.126 There would be negative effects on distant views from receptors over 1km away on the elevated landforms of King Weston Hill and Spaniorum Hill to the east in Section G and Tickenham Ridge to the south in Section E where a 400kV overhead line would be more visible due to its greater height compared with the existing 132kV overhead lines. From the settlements of Avonmouth, Shirehampton and Lawrence Weston on King Weston Hill a 400kV overhead line would be visible to a large number of receptors.
- 12.127 The existing Bridgwater to Avonmouth 132kV overhead line would be removed from near distance views and would bring particular benefit to a school, residential properties, businesses and a sports pitch in the east of Avonmouth where it presently „oversails“ or passes close to these receptors within 250m.
- 12.128 A positive effect would also be experienced in distant views from a large number of receptors in Sections E, F and G where the two tall pylons that support the existing Bridgwater to Avonmouth 132kV overhead line over the River Avon would be removed from views. The pylon supports for a new 400kV overhead line passing

over the River Avon do not need to achieve the same clearance as the 132kV overhead line whose approximate route it would follow. Receptors would include people in the Gordano Valley and Portishead in Section F and on Tickenham Ridge in Section E.

Route Alignments South of the River Avon

12.129 *Proposed Route Option A* Proposed Route Option A is approximately 1.5km long and takes an alignment north of the M5 motorway and adjacent to industrial units and the disused railway. At Marsh Lane Proposed Route Option A changes direction and would divert northeast for 600m towards the River Avon where it joins the same alignment as Alternative Route Option B. For some receptors in Portbury, users of a footpath and cycleway along the disused railway and road users near the M5 motorway a new 400kV overhead line on the Proposed Route Option A would be introduced in near distance views within 250m where no overhead lines are presently visible.

12.130 A new 400kV overhead line on the Proposed Route Option A in Section G would have a negative effect on public and private visual receptors. The greatest effect on public views would be from eight PRoW and two national cycle routes where Proposed Route Option A takes an alignment parallel to receptors and north of the M5 motorway. A new 400kV overhead line on Proposed Route Option A would be introduced in near and middle distance views where the existing 132kV overhead line is not visible. This would occur at:

- four PRoW and National Cycle Network Route 26 that follow the disused railway between Sheepway and the M5 motorway crossing the River Avon and would have a new 400kV overhead line parallel and in near distance views 40m away for 1.5km; and
- four PRoW and National Cycle Network Route 410 (part of Regional Route 10) east of Portbury (in Section E) where a new 400kV overhead line would be visible in middle distance views 350m to 550m north of the M5 motorway and above trees in Section G and down Tickenham Ridge 1.5km away in Section E.

12.131 The greatest negative magnitude of effect (scale of change) on private views would be from approximately twenty six properties that would have views to a new 400kV overhead line on Proposed Route Option A where the existing 132kV overhead line is not visible. Court House Farm on Marsh Lane would have near distance views of

a new 400kV overhead line 200m north above mature trees along the disused railway. In Section E properties on the eastern settlement edge of Portbury would have a new 400kV overhead line on Proposed Route Option A introduced in middle distance views northeast of the M5 motorway and visible above trees between 400m and 1km away.

- 12.132 People using the M5 motorway would have a new 400kV overhead line in near and middle distance views north 200m to 400m away visible above the motorway embankment and trees. Receptors on the A369 The Portbury Hundred, Royal Portbury Dock Road and Marsh Lane would also have a new 400kV overhead line in near distance views and passing over in places.
- 12.133 Workers on land surrounding industrial units south of Portbury Way and Gordano Way would have a new 400kV overhead line in near distance and middle distance views south 75m to 300m away and obscured in places by trees and built form.
- 12.134 A positive effect on views would be experienced from workers in industrial units north of Portbury Way and Gordano Way where the existing 132kV overhead line would be removed. However the existing BW Route 132kV overhead line would remain in views.
- 12.135 Alternative Route Option B Alternative Route Option B is approximately 1.8km long and is north of Proposed Route Option A on a similar alignment to the existing Bridgwater to Avonmouth 132kV overhead line. The route alignment would be approximately parallel 100m north of the existing BW Route 132kV overhead line. Public and private receptors with views are workers in industrial units, a public right of way and a cycleway that would have middle distance views of the two existing 132kV overhead lines replaced with views of a new 400kV overhead line and the existing BW Route 132kV overhead line. They are:
- A public right of way and a section of National Cycle Network Route 26 that follow the disused railway near the M5 motorway crossing the River Avon; and
 - Workers on land surrounding industrial units north of Portbury Way and Gordano Way and receptors using Royal Portbury Dock Road and Marsh Lane.

Route alignment North of the River Avon

- 12.136 Between the River Avon and Seabank substation a single alignment is identified that passes over the River Avon and then continues close to the west and north of Avonmouth and then parallel to the M49 motorway and existing 132kV overhead lines to Seabank substation.
- 12.137 A new 400kV overhead line in Section G north of the River Avon would have a negative effect on public and private visual receptors. The greatest negative magnitude of effect (scale of change) on public views would be from a long distance route, ten other PRoW, a cycle route and a play area where a new 400kV overhead line would pass over and be in near distance views. This would occur at:
- the Severn Way long distance route on Lawrence Weston Road between Poplar Park industrial park and Lawrence Weston where the route passes under the M49 motorway and over the M5 motorway in near distance views, crossing the existing BW Route 132kV and G Route 132kV overhead lines. A section of the existing G Route 132kV overhead line would be removed and replaced with underground cables where a new 400kV overhead line would cross. Users of the Severn Way would pass under and have near distance views along a new 400kV overhead line and the existing BW Route 132kV overhead line southwest and northeast;
 - ten other PRoW across Hallen Marsh and Crook's Marsh where a new 400kV overhead line would pass over or be in near distance views along the line within 250m. Some of the footpaths pass under the existing G Route 132kV and the BW Route 132kV overhead lines and have near distance views along the lines within 250m;
 - National Cycle Network Route 41 The Avon Cycleway would pass under a new 400kV overhead line on Lawrence Weston Road and Moorhouse Lane near the M49 motorway. The cycle route presently passes under the existing BW Route 132kV and G Route 132kV overhead lines and users would have near distance views along overhead lines northeast and southwest. On Moorhouse Lane on the bridge over the M49 views would include Seabank Power Station; and
 - a play area off King Street and Clayton Street in Avonmouth where a new 400kV overhead line would be introduced in near distance views 50m west

beyond boundary trees backgrounded by dock industry and buildings where no overhead lines are presently visible.

- 12.138 The greatest negative magnitude of effect (scale of change) on private views would be from over one hundred properties where a new 400kV overhead line would be close in views or visible where no existing overhead lines are presently visible. These properties are in the settlement of Avonmouth, in particular on the southern and western settlement edge with near distance views within 200m towards the River Avon and Avonmouth Docks from Portview Road, Gloucester Road, Clayton Street, Napier Square, Queen Street and King Street. Properties would have a 400kV overhead line 50m to 200m away and visible above built form and trees that line the Avonmouth railway line. Boundary trees and dock structures would filter and obscure views in places along Avonmouth Docks. The existing Bridgwater to Avonmouth 132kV overhead line which presently appears in oblique views would be removed.
- 12.139 On the northern boundary of Avonmouth, properties on Richmond Villas, Jutland Road, McLaren Road and Avonmouth Road would have near and middle distance views towards a new 400kV overhead line 200m to 700m away visible above industrial development. Properties further back in the settlement would have oblique glimpsed views of a new 400kV overhead line visible above buildings and at gaps between properties.
- 12.140 Properties and PRow along 3.5km of settlement edge and elevated land in Shirehampton and Lawrence Weston would have a 400kV overhead line introduced in middle and distant views across Avonmouth 800m to 1.5km away. A new 400kV overhead line would be visible above and parallel to the raised M5 and M49 motorways and the existing BW Route 132kV and G Route 132kV overhead lines. The new line would be viewed against a background of industrial units, dock structures and wind turbines.
- 12.141 Over thirty properties, PRow and sports pitches in the settlement of Hallen would have open and filtered middle distance views of a new 400kV overhead line visible 900m away above the M49 motorway and trees. The bottom half of pylon supports would be screened and a new 400kV overhead line would be visible beyond the existing BW Route 132kV and G Route 132kV overhead lines.
- 12.142 The greatest negative magnitude of effect (scale of change) on views from private businesses would be where a new 400kV overhead line would be close in near

distance views within 250m or pass over industrial units. Many of these receptors have views of industry although presently many do not have views of an overhead line. These receptors would have near distance views of a new 400kV overhead line however workers are considered to have a lower sensitivity than public right of way and cycleway users and receptors in residential properties. Workers most affected are those at:

- The Royal Portbury Dock and Avonmouth Docks;
- industrial units on Portbury Way, Bradley Road, Gordano Way and Marsh Lane south of the River Avon;
- Bristol Port Co offices on King Road Avenue in Avonmouth;
- industrial units on Avonmouth Way and Third Way north of Avonmouth;
- industrial units to the southeast of Poplar Park and St Martins Industrial Estate on Lawrence Weston Road and Moorhouse Lane; and
- industrial units in Hallen Industrial Estate on Severn Road.

12.143 A positive effect on views would be experienced by over one hundred receptors where the existing 132kV overhead line would be removed where it „oversails“ and is in near distance views from properties within 250m. These receptors are in Avonmouth and include Avonmouth CE Primary School and properties on Portview Road, Catherine Street, Pages Mead, A4 Portway, Leeming Way, Akeman Way and the B4054 Avonmouth Road. These receptors would have the existing 132kV overhead line removed from near distance views within 250m and replaced with a 400kV overhead line further west along the River Avon and Avonmouth Docks, visible above trees in places.

12.144 A 400kV overhead line in Section G would have an overall residual negative effect on views. Some receptors would have the new 400kV overhead line closer than the existing 132kV overhead lines (which would be removed) and in near distance views within 250m of receptors. South of the River Avon on the Proposed Route Option A alignment private receptors include Court House Farm on Marsh Lane and properties on the settlement edge of Portbury (in Section E). North of the River Avon where a single alignment is proposed includes receptors in Avonmouth where the route alignment deviates from the existing 132kV overhead line along the M5 motorway, River Avon and Avonmouth Docks.

- 12.145 Public receptors include users of the Severn Way long distance route along Lawrence Weston Road, PRow east of Portbury and across Hallen Marsh and Crook's Marsh, users of National Cycle Network Route 41 on Lawrence Weston Road and Moorhouse Lane, and users of National Cycle Network Route 26 that runs along Drove Rhyne between the former railway line and industrial units in Portbury Docks. Receptors using National Cycle Route 410 near Portbury in Section E would also be affected.

Comparison between the steel lattice pylon and the T-pylon

- 12.146 This part of the appraisal considers effects that would arise from a new 400kV overhead line using the steel lattice pylon compared to a new 400kV overhead line using the T-pylon.
- 12.147 In Section G both the steel lattice pylon overhead line and T-pylon overhead line routes follow the same alignment except for variations at changes in direction and pylon locations south of the River Avon (on both Proposed Route Option A and Alternative Route Option B), west of Avonmouth at Avonmouth Docks and at Ballast Lane north of Avonmouth substation. At each location where the route changes direction the T-pylon would require an additional tension pylon, rather than a suspension pylon, to negotiate more gradual changes in direction compared to the steel lattice pylon alignment.
- 12.148 The proposed T-pylon tension pylons do not differ significantly in appearance from T-pylon suspension pylons except at two locations in Avonmouth Docks where a sharp change in direction is required, north of the River Avon at Victoria Road and west of Napier Square. In these two locations it is anticipated that a T-pylon double diamond tension pylon would be required and would vary in design to the standard suspension and tension T-pylons. The double diamond is likely to be the most prominent form of support due to the two separate solid columns of considerable width positioned at approximately 30m centres. The steel lattice tension pylons are slightly shorter than the steel lattice suspension pylons but wider at the base than the steel lattice suspension pylon and constructed from thicker gauge steel.
- 12.149 For the majority of visual receptors some of the existing 132kV and 400kV overhead lines on steel lattice pylons are already present in views above trees and hedges and built form and the motorways with industrial units, dock structures, wind turbines and elevated land forms the background to views. In the south of Section G a new 400kV overhead line would generally be introduced in receptor views

where no overhead lines are presently visible. However it would replace some views of the existing Bridgwater to Avonmouth 132kV overhead line at the River Avon crossing and Portbury Docks where the existing BW Route is parallel adjacent. North of Avonmouth a new 400kV overhead line would be introduced parallel and 100m from the existing G Route and BW Route 132kV overhead lines on steel lattice pylons. Near Seabank substation the existing Seabank to Almondsbury 132kV overhead line and the existing 400kV overhead line would also be present in views.

- 12.150 The presence of four existing 132kV overhead lines and an existing 400kV overhead line with steel lattice pylons generally would reduce the magnitude of effect (scale of change) on views resulting from a new overhead line using steel lattice pylons compared to the effect experienced using T-pylons.. Lattice pylons are existing structures within the landscape and a new 400kV overhead line would be parallel and adjacent to existing overhead lines for a considerable distance through Section G. Where existing overhead lines are within a view the steel lattice pylon tends to have a lower effect. The T-pylon would be a new landscape feature and introduce a different pylon type in views compared to the steel lattice pylon; however the T-pylon is not totally uncharacteristic compared to existing overhead lines.
- 12.151 A new 400kV overhead line would be visible in most views above trees and hedges, built form and the raised motorway where visibility of the T-pylon would be less and for a shorter extent compared to the steel lattice pylon, due to their lower heights (12m lower than the steel lattice pylon but between 8m and 10m higher than the existing 132kV pylons) combined with screening by intervening trees and built form. The T-pylon would be more readily screened entirely than the taller steel lattice pylon where the same amount of cover would only partially screen the steel lattice pylon.
- 12.152 In near distance views within 250m of a new overhead line, where several pylons are visible in views along the line, the T-pylon is considered to be more prominent than the steel lattice pylon. This is due to the T-pylon's solid central column and cross beam, the „diamond“ configuration of conductors suspended from the pylon and because the conductors are closer together and form a larger element in the view than the separate bundles suspended from the steel lattice pylon.

- 12.153 In distant views from over 1km looking down from the elevated landforms of King Weston Hill and Spaniorum Hill to the east and Tickenham Ridge (in Section E) to the south a new 400kV overhead line would be more visible due to its greater height compared with the existing 132kV overhead lines. From the settlements of Avonmouth, Shirehampton and Lawrence Weston on King Weston Hill a new 400kV overhead line would be visible parallel adjacent to the existing 132kV overhead lines from a large number of receptors. A new overhead line using a T-pylon would tend to be less visible than the steel lattice pylon due to its lower height and the more effective screening by intervening tree, built form and motorway screening, meaning a shorter length of overhead line would be visible if the T-pylon was used. However a new 400kV overhead line using the steel lattice pylon would have a reduced effect on views due to the existing 132kV overhead lines adjacent on steel lattice pylons.

Route Alignments South of the River Avon

- 12.154 *Proposed Route Option A* Ten public receptors would experience the greatest negative effect from a new 400kV overhead line on Proposed Route Option A south of the River Avon. These include four PRoW and National Cycle Route 26 that follow the disused railway parallel to a new overhead line, and four PRoW and National Cycle Route 410 near Portbury. In views from public receptors on the disused railway a new overhead line would be in near distance views 50m away. The steel lattice pylon would appear less prominent in views than the T-pylon due to the solid central column and cross beam and the closer „diamond“ configuration of the conductors on the T-pylon. However in middle distance views within 500m from public receptors near Portbury the T-pylon would be less visible above screening by trees, hedges and built form compared to the steel lattice pylon due to its lower height.
- 12.155 The greatest negative magnitude of effect (scale of change) on private views to a new 400kV overhead line on Proposed Route Option A would be from Court House Farm on Marsh Lane and twenty five properties on the eastern settlement edge of Portbury. Receptors would have near distance views to a new 400kV overhead line visible above trees, built form and the M5 motorway within 250m. It is considered that the T-pylon would have a reduced effect as it would be visible for a shorter extent above screening than the steel lattice pylon due to the T-pylon being 12m lower, compared to the steel lattice pylon that would have a greater extent of support visible above screening.

- 12.156 A new 400kV overhead line on Proposed Route Option A would have a positive effect on views from workers in industrial units north of Portbury Way and Gordano Way where the existing 132kV overhead line would be removed. However the existing BW Route 132kV overhead line adjacent and parallel would remain in views.
- 12.157 Alternative Route Option B The greatest negative magnitude of effect (scale of change) on public views of a new 400kV overhead line on Alternative Route Option B would be from a public right of way and a section of National Cycle Network Route 26. The greatest negative magnitude of effect on private views would be from workers of industrial units north of Portbury Way and Gordano Way and receptors using Royal Portbury Dock Road and Marsh Lane, these receptors are of low sensitivity. A new 400kV overhead line on Alternative Route Option B would be adjacent and parallel to the existing BW Route 132kV overhead line on steel lattice pylons and on a similar alignment to the 132kV overhead line removed.
- 12.158 A new overhead line using a T-pylon would tend to be less visible than the steel lattice pylon due to its lower height and the more effective screening by intervening tree and built form, meaning a shorter length of overhead line would be visible if the T-pylon was used. This would be evident in middle distance views from a number of receptors further east, west and south. However a new 400kV overhead line using the steel lattice pylon would have a reduced effect on views due to the existing BW Route 132kV overhead line adjacent and parallel on steel lattice pylons. The T-pylon would be a new landscape feature; however an overhead line using the T-pylon is not totally uncharacteristic compared to existing overhead lines.
- 12.159 If a new 400kV overhead line using a differing pylon type is identified as being preferable overall in Section F it is considered that changing between pylon types at the boundary of Sections F and G would not be desirable due to a large number of receptor views from Portbury Wharf and Portbury. A transition point in the industrial landscape closer to the River Avon would have a reduced effect on receptors.

Route Alignment North of the River Avon

- 12.160 Twelve public receptors would experience the greatest negative effect from a new 400kV overhead line north of the River Avon. In views the T-pylon would be less visible above trees, hedges and built form compared to the steel lattice pylon due to its lower height. These include the Severn Way long distance route, ten PRoW across Hallen Marsh and Crook's Marsh and National Cycle Network Route 41 The

Avon Cycleway. However a new 400kV overhead line would be in near distance views within 250m of many of these public receptors where the T-pylon would be more prominent and benefit less from backgrounding by trees but would be lower with less pylon support visible against the sky above backgrounding.

- 12.161 The greatest negative effect of a new 400kV overhead line on private views would be from over one hundred and twenty five properties between 50m and 1km away and properties along 3.5km of settlement edge and elevated land with middle distance and distant views from 800m to 1.5km away. These receptors are, on the settlement edge of Avonmouth, and in Hallen, Shirehampton and Lawrence Weston where a new 400kV overhead line would generally be visible above trees, built form and the M5 or M49 motorway. Most receptors have middle and distant views and it is considered that the T-pylon would be visible for a shorter extent above screening than the steel lattice pylon due to the T-pylon being 12m lower, compared to the steel lattice pylon that would have a greater extent of support visible above screening. Some receptors on the settlement edge of Avonmouth would have near distance views and it is considered that although the T-pylon would be more prominent in views due to the extent of screening a shorter extent of pylon would be visible.
- 12.162 However from receptors in Hallen, Shirehampton and Lawrence Weston the existing 132kV overhead lines are already present in views and it is considered that a new 400kV overhead line using the steel lattice pylon would have lower negative effects on views compared to the T-pylon.

Potential for Mitigation

- 12.163 Removal of the existing Bridgwater to Avonmouth 132kV overhead line would have a positive effect and reduce the negative cumulative effects on views from receptors of over one hundred properties and a school in Avonmouth where the existing 132kV overhead line is in the foreground in near distance views. These receptors would have a new 400kV overhead line further west along the River Avon and Avonmouth Docks, visible above trees from some receptors.
- 12.164 Undergrounding a section of the G Route 132kV overhead line, between Avonmouth substation and Moorhouse Lane, to allow a new 400kV overhead line to cross the existing alignment would reduce the negative cumulative effects on views from receptors. Public receptors would include people using the Severn Way long distance route, two PRow and National Cycle Network Route 41 near Lawrence

Weston Road and Moorhouse Lane. Private receptors would include properties in Lawrence Weston and users of the M5 and M49 motorways. Receptors would have views of two existing 132kV overhead lines parallel replaced with views of a new 400kV overhead line parallel adjacent an existing 132kV overhead line.

- 12.165 A positive effect on views would also be experienced in distant views from a large number of receptors in Sections E, F and G where the two tall pylons that support the existing Bridgwater to Avonmouth 132kV overhead line over the River Avon would be removed from views and replaced with pylons of a reduced height.

Summary

- 12.166 Four kilometres of the existing Bridgwater to Avonmouth 132kV overhead line would be removed in Section G. A new 400kV overhead line in Section G would be approximately 9.8km and 10.1km long (depending on the route alignment selected). In the southwest, between the boundary with Section F and the River Avon, two alignments for a new 400kV overhead line have been identified. At the River Avon and across most of Section G a single alignment is identified. A T-pylon overhead line would require either fourteen or fifteen tension pylons (depending on the route alignment selected) to negotiate a more gradual change in direction compared to twelve tension pylons (changes in direction) proposed on the steel lattice pylon alignment.
- 12.167 A new 400kV overhead line would pass over the River Avon on lower pylons than those which support the existing 132kV overhead line over the river. At Avonmouth Docks a new 400kV overhead line would require two sharp changes in direction at Victoria Road and west of Napier Square. A new overhead line using a T-pylon would require double diamond tension pylons at these locations. The double diamond is likely to be the most prominent form of support due to the two separate solid columns of considerable width positioned at approximately 30m centres.
- 12.168 In Section G a new 400kV overhead line using the steel lattice pylon or the T-pylon would follow the same alignment on all routes except for some minor variations at changes in direction and pylon locations.
- 12.169 For both overhead line route options there would generally be low to moderate negative effects on views due to the existing overhead lines, expansive industrial areas, large dock buildings and associated structures, wind turbines and Seabank

Power Station which are already present in views. This would further reduce to low negative in more distant views.

- 12.170 The greatest negative effect would be experienced by receptors where a new 400kV overhead line would be in near distance views within 250 from receptors and where a new overhead line would deviate from the route of the existing 132kV overhead lines and would be introduced closer in direct views. These receptors include PRow , cycle routes, a play area and properties, in particular in Avonmouth, where a new 400kV overhead line route takes an alternative route (Alternative Route Option B) to the existing 132kV overhead lines. These receptors would have a 400kV overhead line introduced in foreground near distance views within 250m or crossing over where the existing 132kV overhead line is presently not visible or visible further away.
- 12.171 Twenty two public receptors would experience the greatest negative effect from a new 400kV overhead line. In views the T-pylon would be less visible above trees, hedges and built form compared to the steel lattice pylon due to its lower height. These include the Severn Way long distance route, four PRow and National Cycle Network Route 26 that follow the disused railway between Sheepway and the M5 motorway, four PRow and National Cycle Network Route 410 east of Portbury in Section E, ten PRow across Hallen Marsh and Crook's Marsh and National Cycle Network Route 41 The Avon Cycleway. However a new 400kV overhead line would be close in near distance views within 250m of many of these public receptors where the T-pylon would be more prominent and benefit less from backgrounding by trees but would be lower with less pylon support visible against the sky above backgrounding.
- 12.172 The greatest negative effect of a new 400kV overhead line on private views would be from over one hundred and fifty properties with near, middle and distant views between 50m and 1km away and properties along 3.5km of settlement edge and elevated land with middle distance and distant views from 800m to 1.5km away. These receptors are at Court House Farm on Marsh Lane, on the east settlement edge of Portbury in Section E, on the settlement edge of Avonmouth, and in Hallen, Shirehampton and Lawrence Weston where a new 400kV overhead line would generally be visible above trees, built form and the M5 or M49 motorway. It is considered that the T-pylon would have a reduced effect in middle and distant views as it would be visible for a shorter extent above screening than the steel lattice pylon due to the T-pylon being 12m lower, compared to the steel lattice pylon that

would have a greater extent of support visible above screening. However on the settlement edge of Avonmouth where receptors have near distance views the steel lattice pylon would be less prominent due to the lattice structure compared to the solid central column and cross beam of the T-ylon and close conductor bundle.

12.173 However receptors in Hallen, Shirehampton and Lawrence Weston already have the existing 132kV overhead lines present in views and it is considered that a new 400kV overhead line using the steel lattice pylon would give rise to lower negative effects on views compared to the T-ylon.

12.174 A new 400kV overhead line would have low negative effects on distant views over 1km away from the surrounding elevated landforms due to the existing overhead lines, surrounding industrial developments and docklands with associated structures and wind turbines which are also present in views. These include PRoW , cycle routes, public open spaces and properties on the elevated landforms of Kings Weston Hill, Spaniorum Hill, Tickenham Ridge and Portishead. A new overhead line using a T-ylon would tend to be less visible than the steel lattice pylon due to its lower height and the effect of intervening tree, built form and motorway screening, meaning a shorter length of overhead line would be visible if the T-ylon was used. However a new 400kV overhead line using the steel lattice pylon would have a lower effect on views due to its similarity to the existing 132kV overhead lines adjacent on steel lattice pylons.

12.175 A positive effect on views would be experienced by receptors of over one hundred properties and a school in Avonmouth where the existing 132kV overhead line would be removed from passing over or in foreground near distance views within 250m of receptors and replaced with a 400kV overhead line further west.

12.176 Negative cumulative effects would be reduced by undergrounding a section of the G Route 132kV overhead line, between Avonmouth substation and Moorhouse Lane, to allow a new 400kV overhead line to cross the existing alignment. This would affect receptors using the Severn Way long distance route, two PRoW , National Cycle Network Route 41, properties in Lawrence Weston and users of the M5 and M49 motorways.

Proposed Route Option A and Alternative Route Option B South of the River Avon

12.177 In Section G Alternative Route Option B would have a negative effect on fewer sensitive receptors compared to the Proposed Route Option A . However the

removal of part of the existing 132kV overhead line would mean that a new 400kV overhead line on the Proposed Route Option A in Section F would have a much greater positive effect on a large number of receptors. The new 400kV overhead line with a T-pylon support on either alignment would have greater positive effects on sensitive receptors in Section F at Portbury Wharf and Portbury due to screening from trees across Portbury Wharf Nature Reserve and along the A369 The Portbury Hundred and the disused railway where the steel lattice pylon would have a greater extent of pylon support visible above trees in middle distance and distant views.

- 12.178 Overall from a visual amenity perspective the T-pylon is preferred south of the River Avon on Proposed Route Option A and Alternative Route Option B in Section G and the steel lattice pylon is preferred passing over the River Avon and continuing to the northern part of Section G. On Proposed Route Option A and Alternative Route Option B south of the River Avon the T-pylon would tend to be less visible than the equivalent line built using steel lattice pylons due to it being 12m shorter with less of the structure visible above trees, built form and the motorway. This would have a greater benefit on views south of the river in Section G and Section F.
- 12.179 North of the River Avon the presence of five existing overhead lines with steel lattice pylons, with two adjacent and parallel to a new 400kV overhead line for a considerable distance, generally would reduce the magnitude of effect (scale of change) on views resulting from a new overhead line using steel lattice pylons as the lattice structures are already present in views. The T-pylon would be a new landscape feature and introduce a different pylon type in views compared to the steel lattice pylon. The T-pylon would also be visible above trees and built form in close near distance views within 250m from a large number of receptors in Avonmouth where it would be more prominent than the steel lattice pylon due to the solid column and cross beam and the close conductor configuration.

Historic Environment

Baseline Conditions

- 12.180 Three Grade I Listed Buildings have settings that include the Proposed Route. Kings Weston House is approximately 75m above Ordnance Datum (AOD) and approximately 1.25km from the Proposed Route, with views across Bristol to the east and Avonmouth to the west, as far as the Severn Bridge. Kings Weston House is also a Registered Park and Garden and a Conservation Area, and is part of a group with two other Grade I Listed Buildings (a loggia and brew house) and five Grade II Listed Buildings (an icehouse, Home Lodge, two gas lamps, Napier Cottages, and 4-8 Kings Weston Lane), all of which have no direct relationship with the Proposed Route. These Grade I Listed Buildings are of very high sensitivity.
- 12.181 In addition to those discussed for the Proposed Route, one further Grade I Listed Building has a setting that includes both Proposed Route Option A and Alternative Route Option B, on the southern side of the River Avon. St Mary's Church is in fields to the east of Portbury, set in a churchyard containing moderate vegetation screening, but with views north towards the M5 100m away and a modern industrial landscape beyond it. This receptor is of very high sensitivity.
- 12.182 One Grade II* Listed building has a setting that includes the Proposed Route. Blaise Castle is an C18th mansion set within extensive grounds on a ridge approximately 88m AOD and 2km from the Proposed Route. This receptor is of very high sensitivity. It is also on the same site as a Scheduled Monument, a Registered Park and Garden and a Conservation Area, and is associated with two other Grade II* Listed Buildings (Timber Lodge and Castle Lodge) and four Grade II Listed Buildings/structures (a cottage, a cave and two bridges) that have no direct relationship with the Proposed Route.
- 12.183 There is one Listed Building within 100m of the Proposed Route that has a setting that would be affected by it. This is a Grade II Listed terrace of properties, comprising the Royal Hotel and adjacent numbers 7-26 on Gloucester Rd; its setting comprises a Victorian streetscape but with C20th development and, to the front, modern industrial buildings. This receptor is of high sensitivity.
- 12.184 A further two Grade II Listed Buildings within 500m of the Proposed Route have settings that would be affected by it. These are a Georgian terrace: numbers 1, 3 and 5 on Poole Street, and the Bristol Tramway Company Depot. Both of these are

set within Victorian suburban development with C20th additions. These receptors are of high sensitivity.

- 12.185 In addition to those discussed for the Proposed Route, three further Grade II Listed Buildings/structures have a setting that includes both Proposed Route Option A and Alternative Route Option B, on the southern side of the River Avon. Grade II Listed Court House Farmhouse, near Easton-in-Gordano, is set within a group of modern farm buildings with high hedges, within approximately 70m of a road crossing over the M5 (which is in a cutting) and approximately 450m from the Proposed Route. The industrial zone of Avonmouth is within 180m of Court House Farmhouse, although it is completely screened by vegetation and buildings. In addition, two monuments in the churchyard of St Mary's Church, Portbury (see above) are Grade II Listed. These receptors are of high sensitivity.
- 12.186 There is one Scheduled Monument within 100m of the Proposed Route, which includes it in its setting. This is Mere Bank, a flood defence believed to be of medieval date. The setting of this earthwork (1.15km long) incorporates elements of both past and modern water-management landscapes (including a modern sewage works), post-medieval field systems, and small and large roads (including the M5). The setting also links this area to historic activity further inland, at Lawrence Weston. Two existing 132kV overhead lines pass Mere Bank near its eastern end, one crossing it and one running adjacent to it. This Scheduled Monument is of very high sensitivity.
- 12.187 One further Scheduled Monument within 10km of the Proposed Route has a setting that would be affected by the proposals. Blaise Castle is an Iron Age hillfort, which has also yielded Roman and medieval remains, and is the site of an C18th mansion and gardens. This receptor is of very high sensitivity.
- 12.188 There are two receptors that are designated as both Conservation Areas and Registered Parks and Gardens, which include parts of the Proposed Route in their settings. These receptors are the grounds of Kings Weston House and the estate of Blaise Castle (above). Kings Weston House's grounds (above) cover much of a high ridge between Bristol and Avonmouth. The northern part of this ridge comprises the estate of Blaise Castle. Both receptors are heavily wooded but from some points have views across much of the surrounding landscape, including the Proposed Route to the north-west. These receptors are of medium sensitivity.

- 12.189 No Registered Battlefields would be affected by the proposals.
- 12.190 Baseline data relating to known non-designated heritage receptors has been collected for a study area extending to 100m around the Proposed Route, Proposed Route Option A and Alternative Route Option B. This study area contains 56 other known non-designated heritage receptors. These are: 2 Iron Age settlements, 3 Roman settlements, 1 Roman findspot, 2 Roman ditches, 2 areas of medieval ridge and furrow, 3 possible medieval farm/house sites, 2 post-medieval farmhouse sites, 9 C19th farm/cottage sites, 6 C19th/20th buildings, 4 sea defences, 3 pier sites, 1 lighthouse site, 1 railway station, 1 railway turntable, 3 railways, 1 C20th shipwreck site, 1 Second World War site, 7 undated enclosures, 1 possible cropmark, 1 pond, and 2 palaeochannels. A few of these receptors are of moderate sensitivity, and the rest are of low or negligible sensitivity. The potential of this study area for encountering previously unknown archaeological remains is variable. There is high potential for remains between Avonmouth and Shirehampton, near Avonmouth Substation, from Seabank Substation to the gas works on Third Way, near Mere Bank, and at Smoke Lane. The rest of the study area is of moderate or low potential for encountering previously unknown archaeological remains.
- 12.191 The historic landscape character of Proposed Route Option A and Alternative Route Option B south of the River Avon falls within zones of „large scale utility landscape“ and then of „post-medieval (C15- 17th) organised enclosure of anciently reclaimed inland moors“. There is no published Historic Landscape Characterisation for the City of Bristol; in that area the Proposed Route passes through a modern industrial zone, Victorian suburb, and some post-medieval enclosure. The northern part of the Proposed Route (in South Gloucestershire) comprises parts of zones of the following three historic landscape characters: „ancient unenclosed coastal „Warths“, beaches and cliffs“, „medieval and post-medieval enclosure of the coastal clay belt“ and “post-medieval (C15-17th) irregular fields enclosed from anciently reclaimed inland moors“. These historic landscape zones are all of low or negligible sensitivity.
- 12.192 Hedgerows associated with sea defences, parish boundaries, or any historic buildings and archaeological sites described in the City of Bristol or South Gloucestershire Historic Environment Records may all be regarded as „important“ (cf. Hedgerow Act, 1997). „Important“ hedgerows are receptors of low sensitivity.

Assessment of Effects (Proposed Route)

Effects equal for both Options (Proposed Route)

- 12.193 For both the steel lattice and T-pylon overhead line options the potential effects of the Proposed Route on all historic environment receptors would be the same and would therefore not help to differentiate between the options.
- 12.194 Both options would have an overall neutral effect on the Kings Weston House group of receptors (three Grade I Listed and five Grade II Listed Buildings, Conservation Area and Grade II Registered Park and Garden) and on the Blaise Castle group of receptors (Scheduled Monument, three Grade II* and four Grade II Listed Buildings/structures, Grade II* Registered Park and Garden, and Conservation Area), as a result of changes to their settings. Two existing 132kV overhead lines, approximately 1.2km and 1.6km away, would be replaced by one larger overhead line approximately 1.6km away. The group of receptors is on an elevated position above the existing overhead lines and the Proposed Route, which pass through an industrial landscape and on the far side of the M5. The two groups of receptors are on a ridge containing patches of woodland in most areas to the west, although in places there are open views west towards Avonmouth and Proposed Route Option A. For both options, the magnitude of effect would be reduced by the distance of separation, the presence closer in the foreground of the M5, the industrialised character of the Avonmouth landscape, and the presence of vegetation screening through much of the receptors' settings. The steel lattice pylon option would benefit more from backgrounding. The steel lattice pylon would be more prominent due to its greater height. Due to the elevation of the receptors, neither option would break the skyline and the effects of screening would be equal for both options.
- 12.195 Both options would result in a moderate magnitude negative effect on Grade II Listed Royal Hotel and 7-26, Gloucester Rd, due to changes to its setting. The overhead line and the closest pylon would be visible approximately 100m away, beside the railway line. Other pylons would be partly visible above buildings to the south. For both options, the magnitude of effect would be reduced somewhat by the distance of separation, the modern industrial character of the setting, and the fact that the Proposed Route passes in the periphery of the view. The magnitude of effect of the T-pylon option would be less because its shorter pylons would be less visible behind screening from buildings, and because the closest pylon would be viewed in side elevation, at which it is less prominent. However, the lack of

backgrounding would increase the prominence of the T-pylon option to a greater extent than for the steel lattice pylon option.

- 12.196 Both options would have a low magnitude negative effect on a Grade II Listed terrace: numbers 1, 3 and 5 Poole Street. The Proposed Route would pass approximately 220m from these receptors. The nearest pylon would be visible from in front of the receptor (in views south down Poole Street) and from the back gardens, rising above screening from intervening buildings. For both options, the magnitude of effect would be reduced by the distance of separation and screening from buildings. The magnitude of effect of the steel lattice pylon would be greater than the T-pylon due to its greater height and less benefit from screening. However, the magnitude of effect of the T-pylon would be greater due to the solid mass of the central column and cross beams, particularly as the closest pylon is of a large type constructed at a change in direction.
- 12.197 Both options would result in a low magnitude negative effect on Mere Bank Scheduled Monument, as a result of changes to its setting. Two 132kV overhead lines near the south-eastern end of the receptor would be removed; one of these oversails the receptor 200m from the end while the second passes 30m away. A new, larger overhead line would be constructed that would oversail this receptor approximately 100m from the same end; the closest pylon would be approximately 100m away. For both options, the magnitude of effect would be reduced by the industrialised character of the setting and because only a small proportion of this very large receptor would be affected. The magnitude of effect is also reduced for both options due to the presence of the M5 and a sewage plant adjacent to the receptor where the Proposed Route passes. The magnitude of effect of the T-pylons would be less than that of the steel lattice pylons because the shorter T-pylons would be visible from a much smaller area of the receptor's setting (e.g. when travelling along the receptor), due to the flat landscape. At short distances, particularly adjacent to the Proposed Route, the magnitude of effect of the T-pylons would be increased due to the greater prominence of their solid central columns and cross beams, especially where their front elevation is viewed, for example from the M5.
- 12.198 While both options would have an overall negligible negative magnitude of effect on the historic landscape, variations in how the two options relate to several factors (including topography, screening and backgrounding) mean that each option would have lower magnitude of effect in certain localised areas. Both options would result

in improvements to the historic landscape character as a result of removal of the two existing 132kV overhead lines, but a negative effect on the historic landscape due to the construction of the new, larger overhead line. For both options, the magnitude of effect would be reduced where the landscape is experienced at greater distance and with greater screening by topography, buildings and vegetation. The magnitude of effect would also be reduced for both options because much of the landscape through which the Proposed Route passes is of a modern, industrialised character, and because parts of the new infrastructure would follow the route of the M5 motorway, which forms a boundary between historic landscape character areas. For the T-pylon, the magnitude of effect would not reduce at increasing distance as rapidly as for the steel lattice pylons, due to its solid central column and cross beam as opposed to the more open steel lattice design. However, due to their reduced height, the total area where any effect would be experienced would be less for the T-pylons. There is limited backgrounding against hills to the east from parts of the Proposed Route (e.g. near Mere Bank, and Hallen Moor) that would reduce the magnitude of effect; this reduction in magnitude of effect would be more marked for the steel lattice pylon option because it lacks the solid central columns and cross beams of the T-pylon option. Similarly, the T-pylon would be more prominent in views of the Proposed Route from elevated positions to the west.

- 12.199 For both options, there is potential for negative effects on buried archaeological remains at ancillary work locations (including access tracks) and at pylon locations. While the area affected by pylons is small, they may be placed in three areas of high potential (near Avonmouth Substation, near Mere Bank, and from Seabank Substation to the gas works on Third Way). The magnitude of effect would be high - low on receptors of moderate - negligible sensitivity.
- 12.200 For both options, improvements to the road network necessary for construction activities could cause negative effects to historic landscape elements such as „important“ hedgerows and historic lanes. The magnitude of these effects would be low on receptors of low sensitivity.

Assessment of Effects (Proposed Route Option A)

- 12.201 Proposed Route Option A crosses from Section F into Section G along the M5 corridor, and re-joins the Proposed Route south of the River Avon.

Effects equal for both Options (Proposed Route Option A)

- 12.202 All of the effects on historic environment receptors would differ depending whether the steel lattice pylon or T-ylon option was used.

Effects that differ between Options (Proposed Route Option A)

- 12.203 The steel lattice pylon option would result in a low magnitude negative effect on Grade I Listed St. Mary's Church, Portbury, and a negligible effect on two Grade II Listed monuments in its churchyard as a result of changes to their setting, whereas the T-ylon option would result in a negligible negative effect on all three receptors. One existing 132kV overhead line approximately 1.2km to the north would be removed, and new, larger infrastructure would be constructed approximately 350m to the north. The magnitude of effect would be reduced by vegetation screening (both adjacent to the receptors and further away), the noise and visual intrusion from the M5, and because the new infrastructure would be aligned with the edge of an industrial zone. The magnitude of effect of the steel lattice pylon option would be greater than that of the T-ylon due to its greater height and their greater prominence in side elevation, as the nearest pylon would be. Other, more distant pylons along the Proposed Route would be more prominent if the T-ylon option were used due to their more solid mass.
- 12.204 The steel lattice pylon option would result in a low magnitude negative effect on Grade II Listed Court House Farmhouse as a result of changes to its setting, whereas the T-ylon option would result in a negligible negative effect. Two existing 132kV overhead lines approximately 430m and 550m away would be removed, and new, larger 400kV overhead lines would be constructed approximately 175m from this receptor. The magnitude of effect would be reduced by the distance of separation, and screening from buildings and vegetation adjacent to the receptor. The T-ylon option would be more effectively screened by intervening vegetation and buildings than the steel lattice pylon option because of the steel lattice pylons' greater height. Where visible within the setting, the closest pylon would appear more prominent as a T-ylon due to its solid column, but less so due to its narrower side elevation, compared with the steel lattice pylon option.

Assessment of Effects (Alternative Route Option B)

- 12.205 Alternative Route Option B crosses from Section F into Section G via Portishead, and re-joins the Proposed Route south of the River Avon.

Effects equal for both Options (Alternative Route Option B)

- 12.206 In the area where Alternative Route Option B differs from Proposed Route Option A, all of the effects on designated historic environment receptors would differ depending whether the steel lattice pylon or T-pylon option was used.

Effects that differ between Options (Alternative Route Option B)

- 12.207 Both options would result in negligible magnitude negative effects on Grade I Listed St. Mary's Church, Portbury, although the steel lattice pylon option would be slightly more prominent in views than the T-pylon option. Two existing 132kV lines would be removed approximately 1.2km to the north and new larger infrastructure would be constructed on the same approximate alignment. The magnitude of effect would be reduced by the distance of separation, vegetation screening (both adjacent to the receptors and further away) and the noise and visual intrusion from the M5. The magnitude of effect of the T-pylon option would be reduced further in comparison to the steel lattice pylon as it is smaller, would break the skyline less than the steel lattice pylon and would benefit more from screening in the vicinity of the receptor.
- 12.208 Both options would result in a negligible magnitude negative effect on Grade II Listed Court House Farmhouse as a result of changes to its setting, although the steel lattice pylon option would be slightly more prominent in views than the T-pylon option. Two existing 132kV overhead lines approximately 430m and 550m away would be removed, and new, larger overhead lines would be constructed approximately 500m from this receptor. The magnitude of effect would be reduced by the distance of separation, and screening from buildings and vegetation adjacent to the receptor. The T-pylon option would be more effectively screened by intervening vegetation and buildings than the steel lattice pylon option because of the steel lattice pylons' greater height.

Potential for Mitigation

- 12.209 Scope to mitigate effects on the setting of heritage receptors is limited. The feasibility of measures to reduce visual effects (off-site landscape planting being the primary measure) cannot be guaranteed at this stage of the appraisal. The scale of effect does not therefore take mitigation into account.
- 12.210 For all routes, a programme of archaeological monitoring and investigation would be required to mitigate effects on buried archaeological remains. The programme

would be proportionate to the level of ground disturbance and the archaeological potential of the areas where work is taking place.

- 12.211 For all routes, physical effects on historic landscape elements (i.e. physical features) could be avoided, or mitigated through archaeological recording, careful reinstatement and, in the case of some hedgerow loss, translocation or replanting (note that some hedgerow loss may be unmitigable).

Summary

- 12.212 For the Proposed Route (crossing and north of the River Avon), either pylon option would result in an overall moderate negative scale of effect on the historic environment. The T-pylon is preferred for both Proposed Route Option A and Alternative Route Option B (i.e. from Section F to immediately south of the River Avon) as it would result in a minor negative scale of effect rather than a moderate negative scale of effect if the steel lattice pylon option is used. If Alternative Route Option B is adopted, the T-pylon option would be preferred from a historic environment perspective, this combination of route and design options would marginally have the lowest negative scale of effect on the historic environment.
- 12.213 South of the River Avon, the steel lattice pylon option on Proposed Route Option A would result in a greater negative scale of effect on Listed Buildings than other routes or options, which would be broadly equal. Proposed Route Option A, steel lattice pylon option would result in a moderate negative scale of effect on Listed Buildings, compared with a minor negative scale of effect for the T-pylon option. This is due principally to effects on one Grade I Listed Building. For Alternative Route Option B, either option would result a minor negative scale of effect on Listed Buildings.
- 12.214 The Proposed Route (crossing and north of the River Avon) would result in an overall moderate negative scale of effect on Scheduled Monuments if either option were used. This would result from effects on two receptors, which would receive effects of low and negligible magnitude. South of the River Avon, Proposed Route Option A and Alternative Route Option B would have no effect on Scheduled Monuments.
- 12.215 The Proposed Route (crossing and north of the River Avon) would result in an overall neutral effect on Conservation Areas if either option were used. Two of

these receptors would be affected. Proposed Route Option A and Alternative Route Option B do not affect Conservation Areas.

- 12.216 The Proposed Route (crossing and north of the River Avon) would result in an overall neutral effect on Registered Parks and Gardens if either option were used. One receptor of Grade II* and one of Grade II would be affected. Proposed Route Option A and Alternative Route Option B do not affect Registered Parks and Gardens.
- 12.217 Both options, on either route, would have an overall minor negative scale of effect on the historic landscape. For both options, replacement of one existing 132kV overhead line with new, larger infrastructure would negatively affect the comprehensibility and appreciability of historic landscape character zones. Both options would also have direct negative physical effects on historic landscape elements as a result of hedgerow removal, etc.
- 12.218 The steel lattice pylon and T-ylon options on either route would, overall, have equal effects on buried archaeological remains as a result of similar foundation footprints and pylon numbers. The overall scale of effect would be minor negative. The potential for as-yet undiscovered archaeological remains to be present along the Proposed Route and Alternative Route Option B is high.
- 12.219 Mitigation of the indirect visual effects of the overhead routes cannot be guaranteed at this stage of the appraisal, but these effects are reversible (lasting the lifetime of the infrastructure). While mitigation of negative effects on buried archaeological remains and historic landscape elements is achievable, preservation in situ is preferred. This is because they are permanent effects on a finite, non-renewable resource, and because investigation and recording can never capture the entire „significance“ (i.e. research value) of archaeological receptors.

Ecology

Baseline Conditions

- 12.220 Within Section G, south of the River Avon there are two alignment options. National Grid's Proposed Route Option A follows the disused railway line, Alternative Route Option B is further north and crosses the industrial development associated with the docks, parallel to the existing WPD 132kV overhead line. At the crossing of the River Avon and for the remainder of Section G, there is only one route.
- 12.221 The route crosses the Severn Estuary SPA/Ramsar/SAC/SSSI at the River Avon and runs alongside the designation on the northwest shore of Avonmouth. The Severn Estuary is designated for a range of factors including coastal and intertidal habitats, migratory fish, invertebrates and internationally important populations of Annex 1 bird species, spring and autumn migratory bird species and wader and waterfowl assemblages. Overall the Severn Estuary site is valued at the international level.
- 12.222 South of the River Avon Proposed Route Option A crosses the fields between the railway line and A369, Portbury SNCI which contains grassland and reedbed habitat and supports passerines and a diverse flora. It also, together with Alternative Route Option B, route crosses the Drove Rhyne and Adjacent Fields SNCI which contains swamp, ditches and semi-improved neutral grassland habitats. Alternative Route Option B also crosses the Portbury Dock Wood SNCI which contains semi-natural broad-leaved woodland with a diverse ground flora and notable bird community. All of these SNCIs and are valued at the county level.
- 12.223 From the crossing of the River Avon and northwards there is a single route and it crosses the following SNCIs:
- Severn Estuary SNCI which supports intertidal mudflats, sand banks, rocky platforms and saltmarsh and is important for plants, waterfowl, invertebrates and migratory fish. This falls within the boundaries of the national and international designations of the Severn Estuary;
 - Gloucester Road Railway Sidings SNCI which contains grassland and dense scrub habitats and supports interesting floral, invertebrate and bird communities;

- Kings Weston Lane Rhine SNCI which contains a range of aquatic and marginal vegetation and supports water vole and a diverse dragonfly population;
- Lawrence Weston Road Rhines SNCI which contains „rhines“ and unimproved calcareous grassland and supports water vole and interesting floral and dragonfly communities;
- Salt Rhine and Moorhouse Rhine SNCI which contains brackish „rhine“ and bankside habitats and supports water vole and interesting floral and invertebrate communities;
- Moorhouse Farm and Stuppill Rhines SNCI which contains „rhines“ with interesting floral and dragonfly communities.

12.224 The following SNCIs are present within a 1km radius of the Proposed and Alternative Route Option B:

- Fields Between Railway Line and A369, Portbury SNCI which contains grassland and reedbed habitat and supports passerines and a diverse flora (crossed by Proposed Route Option A and approximately 500m south of Alternative Route Option B, T-pylon option, and 520m south of Alternative Route Option B, lattice pylon option);
- Portbury Dock Wood SNCI which contains semi-natural broad-leaved woodland with a diverse ground flora and notable bird community (approximately 840m north of Proposed Route Option A and crossed by Alternative Route Option B);
- Fields Between A396 and M5 Motorway, Portbury SNCI which contains marshy grassland and reedbed habitat and supports a diverse flora (approximately 80m south of Proposed Route Option A and 810m south of Alternative Route Option B);
- Field East of Court House SNCI (approximately 160m southeast of Proposed Route Option A and 350m south of the alternative route lattice pylon option and 370m south for Alternative Route Option B, T-pylon option) contains unimproved neutral grassland with a diverse flora;
- Field East of M5 Motorway Lodway SNCI (approximately 300m southeast of Proposed Route Option A and 350m southeast of Alternative Route Option B) contains marshy grassland and semi-improved neutral grassland;

- Lamplighter"s Marsh SNCI (approximately 400m east) which contains a mix of previously developed land and saltmarsh influenced grassland with scrub and secondary woodland. It supports interesting floral, invertebrate and breeding bird communities;
- St Andrews Road Rhine SNCI (approximately 410m north) which contains open water with reeds, scrub and planted shrubs and supports an interesting flora and water vole;
- Barracks Lane Rhine Complex SNCI (approximately 620m south) contains „rhines" supporting an interesting range of aquatic and marginal vegetation and water voles;
- Lawrence Weston Bowl SNCI (approximately 390m south of the T-pylon option and 410m south of the lattice pylon option) which contains semi-improved neutral grassland (coastal and floodplain grazing marsh) surrounding a linear lake and ditch which support water vole;
- Long Cross Tip SNCI (approximately 360m south) which supports water vole, slow worm and breeding birds;
- Avonmouth Sewage Works and Hoar Gout SNCI (approximately 710m north) which contains lagoons (ranging from open water to willow scrub), „rhines" and old meadows. It supports water vole, invertebrates and waders and wildfowl;
- Fields Along M5, Hallen SNCI (approximately 270m east) which contains semi-improved neutral grassland and marshy grassland with „rhines" and hedgerows. It supports water vole and an interesting flora;
- Lawrence Weston Moor SNCI (approximately 540m south east) which contains a range of unimproved neutral to acid grassland with „rhines" and reedbeds. It supports an interesting floral, amphibian, invertebrate and bird communities;
- Hallen Marsh Junction SNCI (approximately 990m west) which contains grassland, scrub, pools and reedbed habitats which support water vole and an interesting flora; and
- Severn Estuary SSSI (part of) New Passage to Chittening Warth SNCI (approximately 650m west) which contains saltmarsh, with mudflats and cliffs that is of botanical and ornithological interest

- 12.225 Section G encompasses the land between the M5 and M49 Motorways and the Severn Estuary. It includes Avonmouth and areas of industrial development north and south of the River Avon. In the far north of the Section, the industrial land gives way to farmland.
- 12.226 The area is largely devoid of woodland except for small areas within Portbury Dock Wood SNCI and Avonmouth Sewage Works and Hoar Gout SNCI, the value of these habitats is considered under these designations. There is also a strip of plantation woodland along the edge of the coal stockyard south of the River Avon, small strips of plantation bordering some of the industrial units and roads and scattered trees within the farmland in the north of the Section. These are valued at the local level.
- 12.227 The field boundaries surrounding the farmland in the north of Section G are a mix of hedgerow and ditches, many comprising both. The hedgerows range from species-poor to species-rich and are likely to have a connective function within the local landscape. Bats have been recorded in the wider area and could use these habitats along with a range of farmland birds. The network of hedgerows is valued at the district level, but the value of individual hedgerows will vary depending on composition and association with other species.
- 12.228 There are a range of wetland habitats within Section G including swamp, marshy grassland, small reservoirs, field ditches and ditches throughout the developed areas of the corridor. A number of species have been recorded in the wider area which may use these habitats and they include otter, water vole, eel, great crested newt and good assemblages of wetland breeding and wintering birds. Many of the wetland habitats fall within SNCI designations, and as such are valued at the county level. Wetland habitats outside these designations are likely to be hydrologically linked to SNCI designations and are collectively valued at the district level, although the value of individual wetland areas will vary depending on composition and association with other species.
- 12.229 Section G is dominated by developed land but farmland is present in the north of the corridor and is a mix of semi-improved pasture and arable fields. The intrinsic value of this habitat is generally low but could be increased if they comprise valued faunal species. Within the Section, this habitat (in association with the hedgerows, ditches and areas of scrub and bare ground) is likely to support a range of species that have been recorded in the wider area. These include breeding birds, brown

hare, badger, harvest mouse and reptiles. Although breeding birds were recorded in the farmland area in Section G, there was little use by birds in winter and the Avonmouth Sewage Works and Hour Gout SNCI was the most notable area for birds including SPA/Ramsar birds. These grassland habitats are valued at the local level.

Assessment of Effects

- 12.230 To the south of the River Avon, Proposed Route Option A cuts through the southern extent of Drove Rhyne and Adjacent Fields SNCI. Within Section G no pylons fall within this designation. The route also crosses the fields between railway line and A369, Portbury SNCI and a single pylon (with either design) would be situated on the boundary of this designation. Even where pylons are outside the designations, there is still potential for impacts to occur during the construction period through a reduction in the quality of the marshy grassland, reedbed and aquatic habitats (from run-off and pollution events) and disturbance (from construction activities) to breeding birds. Such impacts are likely to result in a moderate negative, short-term magnitude of effect on the designated sites for both pylon design options.
- 12.231 Alternative Route Option B to the south of the River Avon would also pass through Drove Rhyne and adjacent field SNCI and the Portbury Wood SNCI. A single T-pylon is located on the boundary of these two designations, but the lattice pylons are just outside these sites. However, as the route (both pylon designs) oversails the southern edge of Portbury Wood there may be the requirement for some tree loss, or pollarding, in order to achieve electrical safety clearances. The SNCI is therefore likely to experience a moderate negative, permanent magnitude of effect from habitat loss. There is also potential for impacts to occur on the adjacent Drove Rhyne SNCI during the construction period through a reduction in quality of the aquatic habitats (from run-off and pollution events). Such impacts are likely to result in a moderate negative, short-term magnitude of effect on the designated sites for both pylon design options.
- 12.232 Outside of the designations, both Proposed Route Option A and Alternative Route Option B to the south of the River Avon would pass through land predominantly comprised of hardstanding and industrial development.
- 12.233 There is only one option for crossing the River Avon. Pylons are outside of the designations associated with the Severn Estuary and no direct habitat loss is predicted. However, there is potential for impacts to occur on Severn Estuary sites

during the construction period through a reduction in water quality (from run-off and pollution events) and disturbance (from construction activities) to birds feeding on the salt marsh and exposed mudflats of the River Avon. There is also a collision risk for SPA/Ramsar bird species flying along the River Avon. However, along this section of the River Avon the M5 Motorway and two 132kV overhead lines already cross the river. Relatively few bird flights were observed along the River Avon during vantage point surveys undertaken by TEP and those that did take place recorded birds flying either over or under these features. With the removal of a 132kV line, the new 400kV line, with the use of either T-pylons or lattice pylons, would not significantly change current conditions. Although there may be a change in the character of the risk of collision as the new line is further west of the M5 Motorway bridge than the existing 132kV and a different design. Overall, such impacts are likely to result in a moderate negative, short-term magnitude of effect for both pylon design options.

- 12.234 North of the River Avon the Proposed Route crosses the Gloucester Road Railway Sidings SNCI and two pylons are required within the designation. This would result in a small loss of scrub habitats, which may impact invertebrates, birds and badgers which use the site. This SNCI is likely to experience a moderate negative, medium-term magnitude of effect from ground disturbance during works for both pylon design options.
- 12.235 As the route travels eastwards it then oversails four SNCIs (Kings Weston Lane Rhine, Lawrence Weston Road Rhines, Salt Rhine and Moorhouse Rhine and the Moorhouse Farm and Stuppill Rhines). All these sites are „rhines“ which are known to support a range of wetland flora and fauna including water vole, dragonflies and other invertebrates. No pylons are located within these designations but some are adjacent the rhines. There is potential during the construction period for habitat loss (from temporary ditch crossing points), a reduction in water quality (from run-off and pollution events) and disturbance to species using the wetland habitats (from construction activities). There is a slight risk that any reduction in water quality could travel to the Severn Estuary site or hydrologically linked SNCIs. Such impacts are likely to result in a moderate negative, medium-term magnitude of effect for both pylon design options. Similar impacts would be experienced by ditch habitats outside these designations.
- 12.236 No hedgerow losses are predicted although the permanent loss of individual trees (including scattered trees outside the hedgerow network) to achieve electrical safety

clearances cannot be ruled out. The T-pylon design option may require a greater extent of tree removal, due to the greater width of the pylon. Such losses would result in a low negative, medium-term magnitude of effect.

12.237 Outside of the SNCI designations, grassland habitats and their associated flora and fauna are likely to experience a low negative, temporary magnitude of effect during construction from ground disturbance and disturbance from construction activities for both pylon design options, although it is considered that the T-pylon would have a shorter construction period.

12.238 In combination the low to moderate magnitude of effects on receptors of local to European value would lead to an overall moderate negative effect on ecology as a result of any of the overhead line options prior to mitigation.

Potential for Mitigation

12.239 For all of the route and pylon design options, existing field access points and watercourse crossings would be used for works traffic wherever possible and standard environmental protection measures implemented including the timing of works to avoid sensitive periods, the prevention of encroachment of traffic onto retained habitats and implementation of pollution control methods. This is particularly important for construction works within the SNCI designations, but also for any works affecting habitats that are hydrologically linked to these sites or the Severn Estuary.

12.240 Where appropriate, prior to habitat clearance works, licensed temporary exclusion methods would be used to prevent death or injury to protected species such as water vole or great crested newt, if present.

12.241 All overhead line options may result in the loss of a low number of individual trees. Replacement tree planting outside the overhead line easements could be used to mitigate effects, although any mature tree loss cannot be mitigated within a reasonable timeframe and replacement planting would be considered as compensation. However, due to the uncertainty of securing landowner agreement for works outside the easement, this form of mitigation or compensation has not been taken into account.

12.242 If necessary, a reduction in disturbance/displacement of SPA/Ramsar bird species during construction works along the crossing of the River Severn could be achieved

by ensuring the pylon construction works in these areas are undertaken outside the most sensitive season and kept to the shortest timescale.

- 12.243 Where tree loss is required to achieve electrical safety clearances, pollarding or coppicing could be used to avoid total loss of habitat. Alternatively, where complete tree removal is required, replacement tree planting could be undertaken outside the overhead line easement subject to landowner agreement. However, due to the uncertainty of securing landowner agreement for works outside the easement, this form of mitigation has not been taken into account in the appraisal of effects.
- 12.244 Impacts on terrestrial habitats within the SNCIs could be minimised through the use of artificial tracks to reduce ground disturbance during pylon construction works.
- 12.245 Irrespective of the pylon design option, bird deflectors could be adopted if necessary to mitigate bird strike.

Summary

- 12.246 Unlike other Sections, the existing development within Section G has meant that avoidance of SNCIs is more difficult to achieve. A number of pylons are located either within, on the boundary of, or adjacent to SNCI designations. Furthermore, the presence of the River Avon cutting across Section G means that the route must oversail the Severn Estuary designations, although it has been possible to locate pylons outside the designation and infrastructure crossings of this designation (M5 motorway and two 132kV overhead lines) are already present.
- 12.247 South of the River Avon, more pylons are required for Alternative Route Option B compared to the Proposed Route Option A. However, both routes and both pylon designs are likely to result in some effects on SNCIs.
- 12.248 Overall, on balance, the scale of residual ecological impact would not differ between the pylon options in Section G. The construction of T-pylon may require a greater extent of hedgerow tree removal due to its greater width.
- 12.249 The route options, including Alternative Route Option B, for both the T-pylon and steel lattice pylon design in Section G would avoid substantial impacts on designated sites and the species which they support. They will result in small habitat losses within SNCIs and may retain a low risk of collision for SPA/Ramsar species, however this is unlikely to affect the integrity of the designated sites. Mitigation including the use of wildlife friendly working methods, habitat

reinstatement within SNCIs and bird deflectors if required would in the long-term reduce impacts on ecology from both pylon design options from moderate to minor negative.

Section G: Summary of Preferred Pylon Option

Section G Avonmouth (Proposed Route Option A South of the River Avon): Summary of Effects from Pylon Options

- 12.250 Whilst the T-pylon would benefit less from backgrounding and would be more prominent in the local **landscape** because of its solid central column, cross beam and the configuration of the insulators and conductors, it would be less visible overall due to its reduced height.
- 12.251 From a **visual** perspective, the T-pylon is preferred as it would be less visible than steel lattice pylons due to it being 12m shorter with less of the structure visible above trees, built form and the motorway.
- 12.252 From an **historic environment** perspective the T-pylon would reduce the impacts on the Grade I listed church at Portbury, from moderate negative to minor negative.
- 12.253 From an **ecological** perspective, there is little to differentiate between options in this Section.
- 12.254 For Proposed Route Option A, to the south of the River Avon in Section G, the environmental appraisals have identified that the T-Pylon would be preferable to steel lattice pylons in terms of effects on landscape, views and historic environment. The T-pylon would be less prominent in views near Portbury and less visible from Grade I and Grade II listed features, from Court House Farm on Marsh Lane and from twenty five properties on the eastern settlement edge of Portbury.

Section G Avonmouth (Alternative Route Option B South of the River Avon): Summary of Effects from Pylon Options

- 12.255 Whilst the T-pylon would benefit less from backgrounding and would be more prominent in the local **landscape** because of its solid central column, cross beam and the configuration of the insulators and conductors, it would be less visible overall due to its reduced height.
- 12.256 From a **visual** perspective the T-pylon is preferred as it would be less visible in views from the east, west and south than steel lattice pylons due to it being 12m shorter. Although the T-pylon would introduce a new and different pylon structure alongside existing adjacent 132kV steel lattice pylons, changing between pylon types at the boundary of Sections F and G would not be desirable due to a large number of receptor views from Portbury Wharf and Portbury. A transition point in

the industrial landscape closer to the River Avon would have a reduced effect on receptors.

- 12.257 From an **historic environment** perspective the T-pylon would reduce the impacts on the Grade I listed church at Portbury although both options are still considered to result in negative effects of negligible magnitude.
- 12.258 From an **ecological** perspective, there is little to differentiate between options in this Section. There are more pylons required for the T-pylon design, but this does not affect designated sites or habitats of high biodiversity value.
- 12.259 For Alternative Route Option B, to the south of the River Avon in Section G, the environmental appraisals have identified that the T-Pylon would be preferable to steel lattice pylons in terms of effects on landscape, views and historic environment. The T-pylon would reduce visual effects at Portbury Wharf, be less prominent in views from Portbury and Grade I and Grade II listed features, less of the pylon structure would be visible from the Portbury Hundred and the disused railway, and would be less visible in the wider landscape due to its lower height.

Section G Avonmouth (Proposed Route Crossing Over and Running to the North of the River Avon): Summary of Effects from Pylon Options

- 12.260 With regard to the part of Section G crossing over, and running to the north of the River Avon, whilst the T-pylon would benefit from its lower height, it would be more prominent in the local **landscape** than the steel lattice pylon because of its solid central column, cross beam and the configuration of the insulators and conductors. The steel lattice pylon is also preferred due to the presence of existing steel lattice overhead lines and tall existing buildings, dock cranes and wind turbines.
- 12.261 From a **visual** perspective, the steel lattice pylon is preferred due to the presence of five existing overhead lines with steel lattice pylons, with two adjacent and parallel to a new 400kV overhead line for a considerable distance. The steel lattice pylon on a new overhead line would have a reduced effect on views as the existing lattice structures are already present in views. The T-pylon would be a new landscape feature and introduce a different pylon type in views compared to the steel lattice pylon. The T-pylon would also be visible above trees and built form in close views from a large number of receptors in Avonmouth where it would be more prominent than the steel lattice pylon due to the solid central column and cross beam and the close conductor configuration. In addition the T-pylon double diamond tension

pylons that would be required north of the River Avon would be the most prominent form of supports and would have a greater adverse effect on views compared to steel lattice pylon tension pylon.

12.262 From an **historic environment** and **ecological** perspective, there is little to differentiate between options in this Section.

12.263 With regard to the part of Section G crossing over, and running to the north of the River Avon, the environmental appraisals have identified that the lattice steel pylon would be preferable overall in terms of effects on the landscape and visual amenity. Importantly, the lattice pylon would minimise the negative effects on a large number of public and private receptors in close proximity to the route in the Avonmouth area from which multiple T-pylon structures would be visible and would be backgrounded to a lesser extent than the steel lattice pylons. Whilst there are advantages and disadvantages of both pylon designs the use of steel lattice pylons would be less prominent and would minimise effects on views from public and private receptors.

Overall Conclusion for Section G

12.264 Based on the findings of the appraisals, it is therefore recommended that, within Section G the T-pylon is taken forward to consultation for the overhead line on both Proposed Route Option A and Alternative Route Option B south of the River Avon. For the overhead line that crosses the River Avon and heads north to the connection at Seabank substation it is recommended that the steel lattice pylon option is taken forward to consultation. Further consideration should be given to an appropriate transition point between the two pylon types within the industrialised Portishead docks area.

13 CONCLUSION AND NEXT STEPS

Conclusions by Sections

- 13.1 Having considered the main issues for each Section this appraisal recommends that for consultation, the T-pylon is adopted in preference to the steel lattice pylon along much of the overall route where overhead lines are proposed.
- 13.2 Whilst there are differences between the T-pylon and steel lattice options, both designs share similar characteristics, i.e.:
- They are above ground structures capable of carrying high voltage electricity;
 - They are capable of carrying three sets of twin conductor bundles on each side of the supporting structure;
 - There is a standard span of 360m between each of the structures;
 - All structures would have similar finishes; and
 - All structures would need to maintain statutory safety clearances.
- 13.3 The similarity in physical characteristics is reflected in the environmental appraisals that have been undertaken, where the assessed effects are considered to be largely similar. This is particularly so for ecology, and to some extent historic environment, where no real preference was determined throughout the majority of the overall proposed route. The T-pylon design was found to be marginally preferable in terms of landscape and visual amenity appraisals for the majority of the Sections.
- 13.4 The following pylon options are therefore recommended to be taken forward for consultation for each of the route Sections:
- *Route Section A - Puriton Ridge:* steel lattice pylons on lower, flatter ground and consideration of low height steel lattice pylons across Puriton Ridge;
 - *Route Section B - Somerset Levels and Moors South:* steel lattice from Section A boundary heading north as far as the connection with the Hinkley to Melksham 400kV (ZG Route) overhead line. T-pylon from ZG Route connection heading north for the remainder of this Section to the connection at the CSE compound;

- *Route Section C – Mendip Hills AONB*: not considered in this assessment as underground cables are proposed;
- *Route Section D - Somerset Levels and Moors North*: T-pylon throughout this Section;
- *Route Section E - Tickenham Ridge*: T-pylon throughout this Section;
- *Route Section F- Portishead/Portbury*: T-pylon throughout this Section, for both Proposed Route Option A and Alternative Route Option B;
- *Route Section G – Avonmouth*: T-pylon south of the River Avon and the steel lattice pylon crossing the River Avon and heading north to the connection at Seabank substation.

Next Steps

- 13.5 Taking all of this into account, National Grid is proposing to consult further on the above combination of pylon designs. The decision to move forward with this option is based on our view that it best balances all of the information available to us at this time. This view will be reviewed throughout the development of the project and following consultation with statutory consultees and local communities. During consultation statutory consultees and local communities will have the opportunity to comment upon all the options considered in this Report and have these views taken into account as part of the formal consultation under sections 42 and 47 of the Planning Act 2008 in September 2013.

APPENDIX A - Holford Rules

1. **Rule 1:** Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the first line in the first place, even if the total mileage is somewhat increased in consequence.
2. **Rule 2:** Avoid smaller areas of high amenity value, or scientific interests by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction.
3. **Rule 3:** Other things being equal, choose the most direct line, with no sharp changes of direction and thus with fewer angle towers.
4. **Rule 4:** Choose tree and hill backgrounds in preference to sky backgrounds wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.
5. **Rule 5:** Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.
6. **Rule 6:** In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration or „wirescape“.
7. **Rule 7:** Approach urban area through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of the undergrounding, for lines other than those of the highest voltage.

SUPPLEMENTARY NOTES

8. **Residential Areas** - Avoid routeing close to residential areas as far as possible on grounds of general amenity.
9. **Designations of County, District and Local Value** - Where possible choose routes which minimise the effect on Special Landscape Areas, areas of Great Landscape Value and other similar designations of County, District or Local value.
10. **Alternative Tower Designs** - In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative tower designs now available where these would be advantageous visually, and where the extra cost can be justified.

APPENDIX B – LANDSCAPE AND VISUAL AMENITY PRINCIPLES

Hinkley Point C Connection Project – Pylon Design Options Report

Pylon Design – Landscape and Visual Amenity Principles

1. This note sets out some principles relevant to considering the potential effects of three transmission pylon designs that may be used for the Hinkley Point C Connection Project: the standard steel lattice pylon; the low height steel lattice pylon; and the T-ylon. These principles consider the effects on landscape and visual amenity that may arise if each pylon type is used in different landscape types and where there are different receptors along the route of the proposed 400kV overhead line.

Description of pylons

2. The T-ylon is a monopole support whereas the standard and low-height steel lattice pylons are constructed from steel members bolted together in a „lattice“ design.

Materials and Colour

3. The standard and low-height steel lattice pylons are painted light grey. For the purpose of these principles it has been presumed the T-ylon would be of a similar painted finish.

Suspension Pylons

4. Suspension pylons are used when an overhead line is running in a straight line. Table B1 below compares the main dimensions and characteristics of each pylon type.

Table B1

Suspension Pylon Type	Height	Base at Widest Point	Number of Cross Arms	Width of Widest Cross Arm	Number of Earth Wires
Standard steel lattice pylon	46.5m	7.5m	3	18.2m	1
Low-height steel lattice pylon	35.3m	7m	2	29.2m	1
T-ylon	34.5m	2m	1	22.4m	2

5. The monopole T-pylon has a solid central column with an approximate diameter of 2m and a cross beam with an approximate diameter of 1m. Standard steel lattice pylons are constructed with three cross arms at vertical intervals and the low-height pylons with two cross arms. The low-height pylon is constructed using steel members of a thicker gauge than the standard steel lattice pylon and has more reinforcing members.
6. The T-pylon has a height of 34.5m and a cross beam width of 22.4m. The standard steel lattice pylon has a height of 46.5m and a maximum cross arm width of 18.2m. The low-height steel lattice pylon has a height of 35.3m and a maximum cross arm width of 29.2m.
7. The insulators and conductors suspended from the T-pylon are arranged in a compact „diamond“ configuration on both sides of the cross beam and are different from and more prominent than the standard steel lattice pylon’s conductor arrangement due to the compact configuration. Each of the conductor configurations on the T-pylon, which include a separate earth wire above the conductors on each side of the pylon (see paragraph 15), are approximately 12m high and 8m wide. These extend beyond the cross beam by 4.3m on each side with the widest horizontal dimension of the pylon and conductors being 31m.
8. The standard steel lattice pylon has three cross arms with the lowest at 24.1m from the ground; the middle cross arm at 38.5m from the ground and the tallest at 42.2m from the ground. The low-height steel lattice pylon has two cross arms with the lowest at 22m from the ground and the highest at 31m from the ground. The standard steel lattice and the low-height steel lattice pylon designs have a single earth wire strung from the peak of each pylon.
9. The conductors suspended from the standard and low-height steel lattice pylons do not extend materially from the edge of the widest cross arm described in paragraph 4 above.
10. The typical span distance between suspension pylons for each of the designs is approximately 360m (the span between low height steel lattice pylons is typically 310m).
11. The low-height steel lattice pylon can present less visual impact than the standard steel lattice design because it may avoid breaking the skyline, for example in views of valleys and also in elevated locations where there is little backgrounding and screening. For the Hinkley Point C Connection Project the low-height steel lattice pylon is only compared against the T-pylon and standard steel lattice pylon where it

would be used in an elevated landscape such as Puriton Ridge in Section A and Tickenham Ridge in Section E. Whilst low height steel lattice pylons are shorter and wider than traditional standard height steel lattice pylons, the standard conductor span between these pylons is typically 310m. Low height steel lattice pylons are also not designed to be used for sharp deviations (angles greater than 30 degrees) and would require a bespoke pylon design to be developed for use on this project. As a result of these constraints, low height steel lattice pylons are not considered appropriate for use on the route as a whole and are only considered in discrete areas.

Tension Pylons

12. Where an overhead line changes direction, tension pylons (or angle pylons) are used. Tension pylons may also be needed at intervals in a straight section of steel lattice pylon overhead line. Standard steel lattice tension pylons and low-height steel lattice tension pylons are similar in design to suspension pylons but have a wider steel lattice structure constructed of steel members of thicker gauge than used in a suspension pylon. The size of the pylon, particularly its width, increases as the angle of the overhead line deviation increases to a maximum of approximately 60 degrees.
13. The T-ylon's „flying T tension pylon“ is similar in design to the T-ylon but with a thicker central column and cross beam, and an additional narrow cross beam support that spans between the insulator and conductor bundles. The size of the flying T tension pylon, particularly the central column and cross beam and its width, increases as the angle of the overhead line deviation increases.
14. The „double diamond“ T-ylon configuration is the T-ylon equivalent of a terminal pylon (used where an overhead line ends) but can be used for large angle deviations. For the purposes of this assessment the double diamond T-ylon considered allows for the greatest line deviation of 60-90 degrees. This double diamond arrangement has a height of 27.4m and consists of two separate solid monopole columns, 2.4m width each. The cross beam to each column is a diamond shape that varies between approximately 1.2m and 0.55m diameter and is approximately 10.7m wide. The two structures are positioned at approximately 30m centres providing an overall maximum width of approximately 41m from the outer edge of each cross beam.

15. The double diamond has an arrangement of three conductor bundles connecting through each of the three lower points of each diamond with a single earth wire strung from the highest point of the pylons.
16. The supports for the double diamond described are lower than the standard steel lattice tension pylon but this is likely to be the most prominent form of support on the occasions it is used due to the two separate solid columns of considerable width positioned at approximately 30m centres.
17. The section below considers the pylon designs in the context of the Hinkley Point C Connection Options Report appraisal topics of landscape and visual amenity, but first considers the Holford Rules relevant to landscape and views.

The Holford Rules

18. The Holford Rules as set out in National Grid's „Approach to the design and routing of new electricity lines“ provide guidance on selecting and assessing potential route corridor options and alignments. The seven rules seek to minimise landscape and visual amenity effects in routeing overhead lines and are applicable whatever pylon type is used. Rules 4, 5 and 6 are particularly relevant to considering the possible landscape and visual effects that may arise from using the standard steel lattice, low-height steel lattice or the T-pylon. Rules 4 and 5 consider working with the characteristics of the landscape to minimise landscape and visual amenity effects. Rule 6 considers the approach to planning new routes near to existing overhead line infrastructure. The relevance of these rules is detailed under each section below. The other rules consider more strategic issues regarding route corridor planning.

Principles

19. A taller object is more visible than a shorter object. The effect of the earth's curvature in a completely flat and open landscape would mean that a taller object would be visible over a greater distance than a shorter object. Vast, flat and completely open landscapes are very rare and shorter objects are more effectively screened or obscured completely or partly (filtered) by intervening vegetation, built form and other structures. It is this effect which tends to limit the visibility of vertical objects in the landscape.
20. The bulking or „mass“ of an object also affects the extent to which it is visible with wider and solid objects being more visible than those which are narrower or of a more open construction.

21. These matters influence the extent to which different pylon designs „fit“ or are accommodated in a landscape and how they affect views. Other factors related to the character of landscape, features present, topography and the relationship of the viewer are also influences.
22. The principles below consider these matters in regard to the proposed route alignment for the Hinkley C Connection Project.
23. The principles are intended to assist in forming and explaining judgements regarding how different pylon designs may affect landscape and views.
24. Principles for considering the potential effects of different solutions and informing the choice between the standard steel lattice pylon, low-height steel lattice pylon (considered for Section A and E) and the T-ylon have been based on six criteria used in assessing effects on landscape and views. These include:
 - Landscape type;
 - Filtering and screening of views;
 - Backgrounding;
 - Visibility of other overhead lines
 - Distance from visual receptor; and
 - Angle of view and elevation.
25. Each of these criteria is discussed below.

Landscape type

26. When considering the potential effects of different pylon designs in the landscape the characteristics of the landscape type should be considered. This includes the scale of the landscape, particularly in relation to vertical features; degree of openness or enclosure; nature of the skyline; and the level, nature and pattern of tree, hedge and woodland cover.

Flat landscape

27. In a large-scale flat landscape, such as the Somerset Levels and Moors, it is considered that the T-ylon would tend to be visible for a shorter distance than the standard steel lattice pylon due to the T-ylon being 12m lower combined with screening by intervening hedgerow and trees.

Ridge/hill landscape (looking up to)

28. On ridge slopes, it is considered that the T-pylon would tend to be more dominant than the standard steel lattice pylon due to it having a solid central column and cross beam as opposed to the more open lattice steel design, which benefits more from ridge backgrounding.
29. On and near the top of a ridge, the low-height steel lattice pylon and T-pylon would tend to be less visible than the steel lattice pylon due to their lower height.

Ridge/hill landscape (looking down from)

30. Looking down from a ridge landscape towards an overhead line it is considered that in near distance views the T-pylon would tend to appear more prominent due to it having a solid central column and cross beam as compared to steel lattice designs. Steel lattice pylons would potentially benefit more from backgrounding by, for example, the Somerset Levels and Moors, when looking down from a ridge landscape such as Puriton Ridge, Tickenham Ridge or the Mendip Hills, however the standard steel lattice pylon would be 12m taller.
31. In distant views, the low-height steel lattice pylon and T-pylon would tend to be less visible and for a shorter distance than the standard steel lattice pylon due to their lower height and the effect of intervening hedgerow and tree screening.

Filtering and screening

32. Rule 5 of the Holford Rules advises that when routeing an overhead line moderately open valleys with woods are preferred where the apparent height of pylons will be reduced and views of the line will be broken by trees. Background and foreground features should be utilised to reduce the apparent height and domination of pylons in views and to minimise the exposure of numbers of pylons on prominent ridges and skylines. The opportunities for topography and trees to reduce the apparent height of an overhead line need to be considered along with how each pylon appears in the landscape and views.

No filtering or screening

33. Where no filtering or screening is available, preference between pylon types is largely dependent on other factors such as topography and distances from receptors, however the standard steel lattice pylon would tend to be visible for a greater distance due to increased height, compared to the T-pylon, although the standard steel lattice pylon's conductors would become more recessive at shorter distances than for the T-pylon.

Partially filtered or screened

34. Where there is partial screening or filtering in views by for example hedgerow and trees, landform or built form, visibility of the T-pylon (and the low-height steel lattice pylon) would be less compared to the standard steel lattice pylon, due to their lower heights.

Filtered or screened

35. Generally, the T-pylon and the low-height steel lattice pylon will be more readily screened entirely than the taller standard steel lattice pylon where the same amount of cover would lead to only partial screening of the standard steel lattice pylon (see paragraph 36 below).
36. Where the 26.4m high steel lattice pylons of the existing 132kV overhead line on the proposed route are completely filtered or screened, for example by hedgerow and trees, built form or landform, the T-pylon (or where relevant the low-height steel lattice pylon) is considered to be less visible (if at all), compared to the standard steel lattice pylon which would be more visible in certain circumstances.

Backgrounding

37. Rules 4 and 5 of The Holford Rules are particularly relevant regarding „backgrounding“, meaning the effect of landform or other features behind a pylon meaning that none or only part of it appears against the sky.
38. Rule 4 considers using tree and hill backgrounds as a means of reducing the visual effects of pylons in the landscape, in preference to sky backgrounds. The opportunities for backgrounding need to be considered when planning the route of an overhead line and selecting the type of pylon to be used in the landscape. In particular when the line has to cross a ridge, backgrounding should be secured as long as possible through utilising landform and trees.
39. As outlined above Rule 5 highlights the importance of utilising background and foreground features to reduce the apparent height and domination of pylons in views and to minimise the exposure of numbers of pylons on prominent ridges and skylines.

No backgrounding

40. In general pylons are more prominent where there is no backgrounding and they are viewed against sky backgrounds. The T-pylon (and where relevant the low-

height steel lattice pylon) would tend to be more prominent than the standard steel lattice pylon where there is no backgrounding. This is a result of the thicker steel, solid central column and cross beam making them more visible against the sky.

Partial backgrounding

41. Steel lattice pylons benefit from backgrounding because the thin steel members in an open structure make background features visible beyond. The T-pylon would tend to benefit less from backgrounding due to the solid central column being considerably thicker and visually impermeable compared to the steel lattice. Effects of partial backgrounding depend on the extent of backgrounding and the extent of pylon visible above against the sky. Although the T-pylon would tend to benefit less from backgrounding, the low-height steel lattice pylon compared to the standard steel lattice pylon means there would be a smaller extent visible against the sky.

Full backgrounding

42. Full backgrounding reduces visibility of the steel lattice pylon designs. The T-pylon does not benefit from backgrounding to the same extent as the lattice pylons due to its solid massing.

Other overhead lines visible

43. Other steel lattice overhead lines cross the selected route corridor and are visible including 132kV, 275kV and 400kV overhead lines.
44. Rule 6 of the Holford Rules considers that where land is flat and sparsely planted, a new high voltage line should be kept as far independent as possible from other smaller lines to avoid the clutter of „wirescape“. The Supplementary Note to Rule 6 refers to planning wherever practicable parallel or closely related routes with pylon types, spans and conductors forming a coherent appearance. This rule has particular application when considering the introduction of a T-pylon where existing high voltage steel lattice pylons are close to and visible within and near the route corridor. Introducing a different pylon structure near an existing steel lattice pylon would be a greater change than introducing a series of similar structures and may produce an incoherent appearance. However each overhead line shares similar characteristics of being a linear development comprising conductors suspended from arms on supports, notwithstanding any differences between types of support.
45. The presence of existing overhead lines with steel lattice pylons generally would reduce the significance of effect resulting from a new overhead line using steel

lattice pylons because although the magnitude of effect is similar, the landscape is likely to have lower sensitivity to a new steel lattice pylon overhead line, compared to the effect experienced if there was no existing infrastructure. Steel lattice pylons are existing structures in the landscape. Where existing steel lattice overhead lines are in a view a new steel lattice pylon overhead line may result in an overall lower scale of change. The T-pylon would be a new landscape feature; however the T-pylon is not totally uncharacteristic compared to existing overhead lines. Where there would be steel lattice pylons remaining in the landscape, there may be a preference to use a steel lattice pylon design for the new overhead line.

Distance from receptor (person(s) having a view)

46. distance in a receptor view should be considered. The proximity of an object to a receptor influences the extent to which an object will be visible. In a completely flat and open landscape the closer a receptor is to an object the more visually prominent an object will be and the greater visual effect it will have on a receptor's view. However vast, flat and completely open landscapes are very rare. A solid structure would be more prominent than a lattice structure of the same size and constructed of the same material when viewed from the same distance.
47. The following distances outline typical effects a new overhead line would have on receptors. These typical distances should be used to help determine visual effects of different pylon types. When making a judgement on visual effects a pylon design would have on receptor views distance should be considered alongside landscape type, filtering and screening of views, and backgrounding.

Near distance views

48. In near distance views of an overhead line (typically less than approximately 250m) where pylons are visible in views along the line the T-pylon is considered to be more prominent than the standard steel lattice pylon. This is due to the T-pylon's solid central column and cross beam and because the „diamond“ configuration of conductors are closer together, form a larger element in the view and would tend to be visible over a greater distance than the separate bundles suspended from the standard steel lattice pylon. However the T-pylon is of lower height and is considered to be visible for a shorter distance than a standard steel lattice pylon due to the potential for screening by intervening features such as hedgerows, trees and built form.

Middle Distance Views

49. Overhead line routeing seeks to maximise separation from sensitive receptors such as dwellings on the grounds of amenity. Many visual receptors have views of an overhead line from beyond 250m. In middle distance views from the proposed overhead line (typically between approximately 250m and 1km), the T-pylon is considered to become less visible than the standard steel lattice pylon due to the lower height of the pylon and the effects of filtering, screening and backgrounding. At these distances the difference in conductor configurations would be less perceptible.

Distant Views

50. In more distant views from an overhead line (typically over approximately 1km) the T-pylon would tend to be visible for a shorter distance and benefit more readily from complete screening and backgrounding compared to the standard steel lattice pylon due to the T-pylon support being 12m lower. At this distance the different conductor configurations would not be visible on any of the pylon supports.

Angle of view and elevation

Front elevation

51. The front elevation of the T-pylon would tend to be more dominant than the standard steel lattice pylon and the low-height steel lattice pylon due to the solid central column and cross beam and its greater overall width of 11.4m. However, the lower height of the T-pylon reduces its dominance to some extent, particularly at greater distances.

Side elevation

52. The side elevation of the T-pylon would tend to be less dominant (despite the solid mass of the central column) than the standard and low-height steel lattice pylons as the width is no greater than 2m, being 5.1m narrower than the standard steel lattice pylon at the widest point.

Conclusion

53. There are principles which can be considered when assessing and describing the comparative effects of different pylon designs on landscape character and on views. National Grid's eventual expression of preference for one type of overhead line support over another in each circumstance generally will be influenced by the results of engagement and consultation with interested parties including local

planning authorities where a line is proposed. The considerations above can be used as the basis for judgements to express reasons for preferring one pylon type over another (in each section of the proposed connection) with regard to effects on landscape and on views and visual amenity. Other factors, including those arising from engagement and consultation, will also be relevant and used as part of a comprehensive assessment process in line with EIA and National Grid's Options Appraisal process, in reaching a conclusion.

APPENDIX C – OUTLINE ENVIRONMENTAL METHODOLOGIES

Landscape

1. The assessment of landscape character commenced with a review of existing landscape designations and county and district level landscape character assessments. Desk based studies have been supplemented by field assessment of landscape character.
2. The landscape appraisal starts by considering the baseline conditions of the landscape within each study area with reference to the relative value that is attached to the landscape. Highly valued landscapes are typically identified by national level designations, such as National Parks and Areas of Outstanding Natural Beauty. Recent government guidance advocates an approach to landscape protection and enhancement which avoids designation at the local planning authority level, but rather favours an approach where local landscape character assessments identify value and where pertinent this is referred to. Reference will be made to the National Landscape Character Assessment, produced by the former Countryside Agency (now Natural England) in 2005. Natural England is in the process of updating its National Character Areas (NCA) however for the purposes of this assessment the 2005 Landscape Character Assessment has been used.
3. The baseline conditions also make reference to landscape condition or quality; that is a factual description is provided of the physical state of the landscape and how intact it is from visual and functional perspectives. The baseline conditions also consider landscape sensitivity, which considers the susceptibility to change of the landscape from the proposed development without suffering detrimental effects on its character. This can vary depending on the existing land use, pattern and scale of the landscape, visual enclosure or openness and the landscape's value. A landscape's sensitivity (susceptibility to change) to a proposed development is dependent on the characteristics of the receiving landscape and the type and nature of the proposed development. For example, a large scale landscape with blocks of woodland may be more able to accommodate a large building without detrimentally affecting its character, compared to a smaller scale or more intimate landscape, such as a narrow river valley. A judgement on the sensitivity of the landscape (in each study area) to a 400kV overhead line is provided with the landscape baseline.

4. Within the assessment of landscape effects, reference is made to magnitude of effect or scale of change. Magnitude considers the scale of change that would arise through the proposed development compared to the baseline landscape (i.e. whether it is high, moderate or low), its nature (negative or positive) and its duration (short, medium, long term or temporary). These considerations result in a judgement of high, moderate, low or negligible scale of change and the typical criteria of each judgement is identified below:
 - High - major alteration to key features or characteristics in the existing landscape and/or the introduction of elements considered totally uncharacteristic. Typically this would be where there would be a great scale of change to the character of a landscape;
 - Moderate - partial alteration to key features or characteristics of the existing landscape and/or the introduction of prominent elements. Typically this would be where there would be a perceivable scale of change to the character of a landscape;
 - Low - minor alteration to key features and characteristics of the existing landscape and/or the introduction of features which may already be present in the landscape. Typically this would be where there is a low scale of change to the character of a landscape; and
 - Negligible - a very minor alteration to key features or characteristics of the existing landscape. Typically this would be where the scale of change on the baseline landscape character would be barely perceptible.
5. In the assessment of landscape effects a judgement is made on the likely effect of the option on the landscape and the nature of the effect (positive, negative or neutral). This is not an absolute scale but is a judgement based on the magnitude of the considered effect (or scale of change), the value and condition of the landscape and the sensitivity of the landscape to the particular development. The scale which has been adopted for this report is given in paragraph 30 below. The assessment of effects on landscape considers these effects prior to mitigation. Mitigation measures are then described and the effects are reassessed in the summary, taking mitigation into account.

Visual amenity

6. The visual amenity appraisal starts by considering the baseline views. That is the extent and nature of existing views within each study area. Visual assessment has been carried out on the ground from publicly accessible locations.
7. The baseline and assessment of visual effects also makes reference to the sensitivity of visual receptors and the general importance of views. The sensitivity of visual receptors depends upon the location of the viewpoint, the activity of the receptor and expectations of the view. For example a walker using a public footpath for the purposes of recreation and the enjoyment of the countryside is likely to be of higher sensitivity than a worker in their workplace, where the key focus is on work rather than views out from the workplace. The land use planning system considers that public views are of greater importance than private views from private property. In this assessment, users of PRoW , and particularly long distance footpath routes, and public open spaces are considered to be of high sensitivity. Private residents are also considered to be of high sensitivity. Workers, motorists, rail passengers and people playing outdoor sports are generally considered to be of lower sensitivity.
8. A judgement is made as to the importance and value of views, in general, in each study area. The importance of views is considered in the context of the value placed on the scene, alternatives available and relative scenic quality of the view. Reference to a view in a guidebook or in a tourist map indicates a view of greater importance which can be experienced by many people.
9. Within the assessment of visual effects reference is made to magnitude of effect or scale of change. Magnitude considers the scale of change to the view that would arise through the proposed development compared to the baseline view (i.e. whether it is high, moderate or low), its nature (negative or positive) and its duration (short, medium, long term or temporary). Magnitude of effect takes into account factors such as distance, angle of view, proportion of view affected, filtering effects, backgrounding effects and the degree of change compared with the baseline. These considerations result in a magnitude of effect judgement of high, moderate, low or negligible scale of change and the typical criteria of each judgement is identified below:
 - High alteration to the existing view and/or the introduction of elements considered totally uncharacteristic in the view. Typically this would be where a development would be seen in close proximity with a large proportion of the

view affected with no/minimal filtering or backgrounding and there would be a great scale of change from the present situation;

- Moderate - partial alteration to the existing view and/or the introduction of prominent elements in the view. Typically this would be where a development would be seen in views where a moderate proportion of the view is affected. There may be some screening or backgrounding which minimise the scale of change from the present situation;
 - Low - low alteration to the existing view and/or the introduction of features which may already be present in views. Typically this would be where a development would be seen in distant views; where only a small proportion of the view is affected; where the effect is reduced due to a high degree of filtering or backgrounding or where there is a low scale of change from the existing view; and
 - Negligible - very low alteration to the existing view. Typically this would be where a development would be barely perceptible within a long distance panoramic view and or where a very small proportion of the view is affected. The scale of change from the existing view would be barely perceptible.
10. In the assessment of visual effects a judgement is made on the likely effect of the option on visual amenity and the nature of the effect (positive, negative or neutral). This is not an absolute scale but is a judgement based on the magnitude of the considered effect (or scale of change), the sensitivity of visual receptors and the importance of views. The scale which has been adopted for this report is given in paragraph 30 below. The assessment of effects on visual amenity considers these effects prior to mitigation. Mitigation measures are then described and the effects are reassessed in the summary taking mitigation into account.
11. Hedges of value are protected under Hedgerows Regulations; woodlands are often protected by legislation; and trees and tree groups of amenity value can be protected by Tree Preservation Orders. Accordingly, where reference is made to vegetation in views, these are considered to be relatively long-standing features in the landscape which will continue to perform a similar function for the majority of the lifetime of the proposed connection.
12. Effects on trees and woodland have been considered in the landscape and visual amenity appraisal, and reference to those trees and woodlands protected by Tree Preservation Orders is made in the ecology appraisal.

13. There is potential for mitigating the effects on landscape and visual amenity of an overhead line connection by way of planting. However, this would be subject to the agreement of landowners and would need to be carefully managed and monitored to ensure successful establishment. Given the lack of certainty that such measures will be feasible in every instance, the assessment of effects on views has been judged without these mitigation measures in place.
14. In the design of overhead line connections it can be assumed that pylon positions will seek to minimise overall the landscape and visual effects. This has been taken into account in the assessment of effects, as part of „embedded mitigation“, rather than as an additional mitigation measure.

Historic Environment

15. The historic environment appraisal has obtained information from all of the relevant Historic Environment Records, the National Monuments Record, English Heritage and local authority records. In addition selected historic mapping was consulted and a review of LIDAR survey data was undertaken. Site survey work was undertaken from publicly accessible vantage points. The archaeology and history criteria for determining „important“ hedgerows (Schedule 1, Part II of the Hedgerows Regulations 1997) were also used to provisionally quantify the likely occurrence of „important“ hedgerows.
16. The known heritage assets have been broadly classified as those which are „designated“ and those which are not. Designated heritage assets in this case are listed buildings, conservation areas and scheduled monuments, as no registered battlefields, registered parks and gardens, world heritage sites, protected wrecks or military remains are recorded within or adjacent to the Route Corridor.
17. The National Planning Policy Statement for Energy (EN-1) acknowledges that *“the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be”*. All listed buildings are of national importance, but in line with guidance and policy, the assessment of effects treats Grade I and II* listed buildings as having greater significance than Grade II listed buildings.
18. Non-designated heritage assets are, in this case, primarily archaeological and historic landscape remains or features included in the local or national monuments record. The non-designated heritage assets within the Route Corridor are currently determined to be of local or regional importance. In the case of buried archaeological remains, any rating of importance is very provisional, given the difficulties in characterising such assets, common to any assessment of this type.

Also, the assessment of effects has taken into account the probability of encountering previously unrecorded buried archaeology. Non-designated heritage assets of demonstrably equivalent significance to a designated heritage asset will be subject to the same considerations.

19. In order to determine the likely and relative effects of the connection options on historic environment assets, and in line with the above, the relative sensitivity of the various heritage assets has been categorised as follows:
 - Very high sensitivity: Grade I and II* listed buildings, and some Scheduled Monuments;
 - High sensitivity: Grade II listed buildings, Conservation Areas, some Scheduled Monuments, Registered Parks and Gardens, Registered Battlefields and some known non-designated heritage assets;
 - Moderate/ low sensitivity: Non-designated heritage assets and landscape features; and
 - Negligible sensitivity: Historic Environment and National Monument Record entries of limited or no archaeological or historic environment value.
20. It is Government policy that decision makers (EN-1) should “*seek to preserve those elements of the setting of a designated heritage asset that make a positive contribution to, or better reveal the significance of, the asset*”. In the case of listed buildings this is a statutory requirement under Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990.
21. The effects of the pylon options on historic environment receptors will therefore be either direct or indirect. Direct effects are any physical change to any archaeological or historic environment site. Indirect effects relate to any change or effect of the proposed development on the setting of, or important views to or from, a designated heritage asset.
22. In either case, the magnitude of effect can be high (resulting in a major negative change to most or all key elements of historic environment interest, or total loss of character or substantial alteration to setting), moderate (resulting in negative change to many key elements of historic environment interest, or less than substantial alteration to setting) or low (minor negative changes to key elements of historic environment interest, or slight alteration to setting).
23. In establishing the indirect effect of the pylon options on the setting of a designated heritage asset, the existing 400kV and 132kV overhead lines are included as part

of the baseline, as is the extent of existing screening. It has been assumed that pylons would be positioned to avoid important views to or from a designated heritage asset, or any moderate or high sensitivity buried archaeology.

24. Buried archaeological remains are a non-renewable resource and sustaining their significance is best achieved through preservation in situ. Avoidance is the preferred option for mitigating effects on buried archaeology. Where this is not possible, mitigation can be achieved through a programme of archaeological recording. Similarly, avoidance is the preferred option for mitigating indirect effects on designated heritage assets. Where this is not possible, reducing the indirect effects may be achieved by landscape planting. However, as described above, due to the lack of certainty that such measures will be feasible the indirect effects have been judged without any mitigation measures in place.
25. The overall scale of effect of each of the pylon options has been assessed by comparing the relative significance of the heritage assets against the magnitude of effect. The vast majority of the effects on heritage assets are negative and are described as major, moderate or minor (as described in paragraph 38 below). The assessment of effects on the historic environment considers these effects prior to mitigation. Mitigation measures are then described and the effects are reassessed in the summary taking mitigation into account.

Ecology

26. The ecological appraisal of the pylon options has been carried out using desktop records including wildlife site designations, TPO data, species records and habitat inventory data, in combination with Phase 1 habitat survey data gathered in the field and supplemented with mapping data and satellite imagery.
27. The ecology appraisal starts by considering the baseline conditions within each study area with reference to the relative value attributed to ecological receptors. A receptor can refer to a habitat type, a species, a wildlife site or can be a combination of these. The value of certain receptors can be determined by associated legislation or policy. For example Sites of Special Scientific Interest (SSSI) are designated nationally and are valued at the national level, whereas Local Wildlife Sites or County Wildlife Sites (CWS or LWS) are designated by the County Council and are valued at the county level. However, this is not always the case, for example while badgers are protected under national legislation, they are relatively abundant in many areas and a badger sett would not be valued at the national level. Similarly while great crested newts are a European protected

species, a population within the Route Corridor is not automatically of European importance. Its value takes account of factors such as status, rarity, uniqueness, quality and abundance, considering these factors in relation to local, district, county, regional, national and international conditions. Relevant published evaluation criteria form an important basis for determining value for sites, species and habitats. Value can be intrinsic but can also be linked to the function of a receptor. For example, a species-poor hedgerow may have a high value due to its role in connecting two important dormouse woodlands or providing a commuting route between a rare bat roost and bat foraging grounds. The ecological appraisal takes a broad and precautionary approach to considering the value of receptors.

28. Within the assessment of ecology effects, reference is made to magnitude of effect. This considers the scale of the change that would arise through the proposed development compared to the baseline (i.e. whether low, moderate or high), its nature (negative or positive) and its duration (temporary, short, medium or long term). This information on magnitude is combined with the value of receptor to determine the overall impact on the receptor. Impacts upon receptors of higher value are given greater weight than impacts upon receptors with a lower value. These considerations result in an overall judgement of either minor, moderate or major scale of effect on ecology for each option. The assessment of effects on ecology considers these effects prior to mitigation. Mitigation measures are then described and the effects are reassessed in the summary taking mitigation into account.
29. In some instances, mitigation in the form of planting or habitat creation outside the permanent easement of the connection is described in the mitigation section. Securing this mitigation would be subject to landowner agreement. Given the lack of certainty that such measures would be feasible in every instance, the summary assessment of effects on ecology has not included these measures.

Determining the scale of effects

30. In reporting the effects associated with an option, a scale has been used which differentiates between positive and negative effects and, in each case, the degree of effect. For negative effects, the following scale has generally been used as a guide:
- Major negative effects could arise as a result of a high magnitude of effect (scale of change) to receptors, or effects on receptors of national and/or

international importance, for which reliable and effective mitigation cannot be guaranteed;

- Moderate negative effects could arise as a result of a moderate magnitude of effect (scale of change) to receptors, or effects on receptors of regional importance. Potential negative effects remain for some sensitive receptors despite mitigation;
- Minor negative effects could arise as a result of a low magnitude of effect (scale of change) to receptors or effects on receptors of local importance. Potential negative effects remain for some sensitive receptors despite mitigation.

Figure 1: Section Boundaries

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

SECTION BOUNDARIES



Key

Preferred Route Corridor

- Preferred Route Corridor

Existing Infrastructure

- Existing Substation
- Existing Cable Sealing End Compound
- Existing 400kV Overhead Line
- Existing 275kV Overhead Line
- Existing Western Power Distribution Overhead Line on Pylons

Section Boundary

- Section Boundary

Notes

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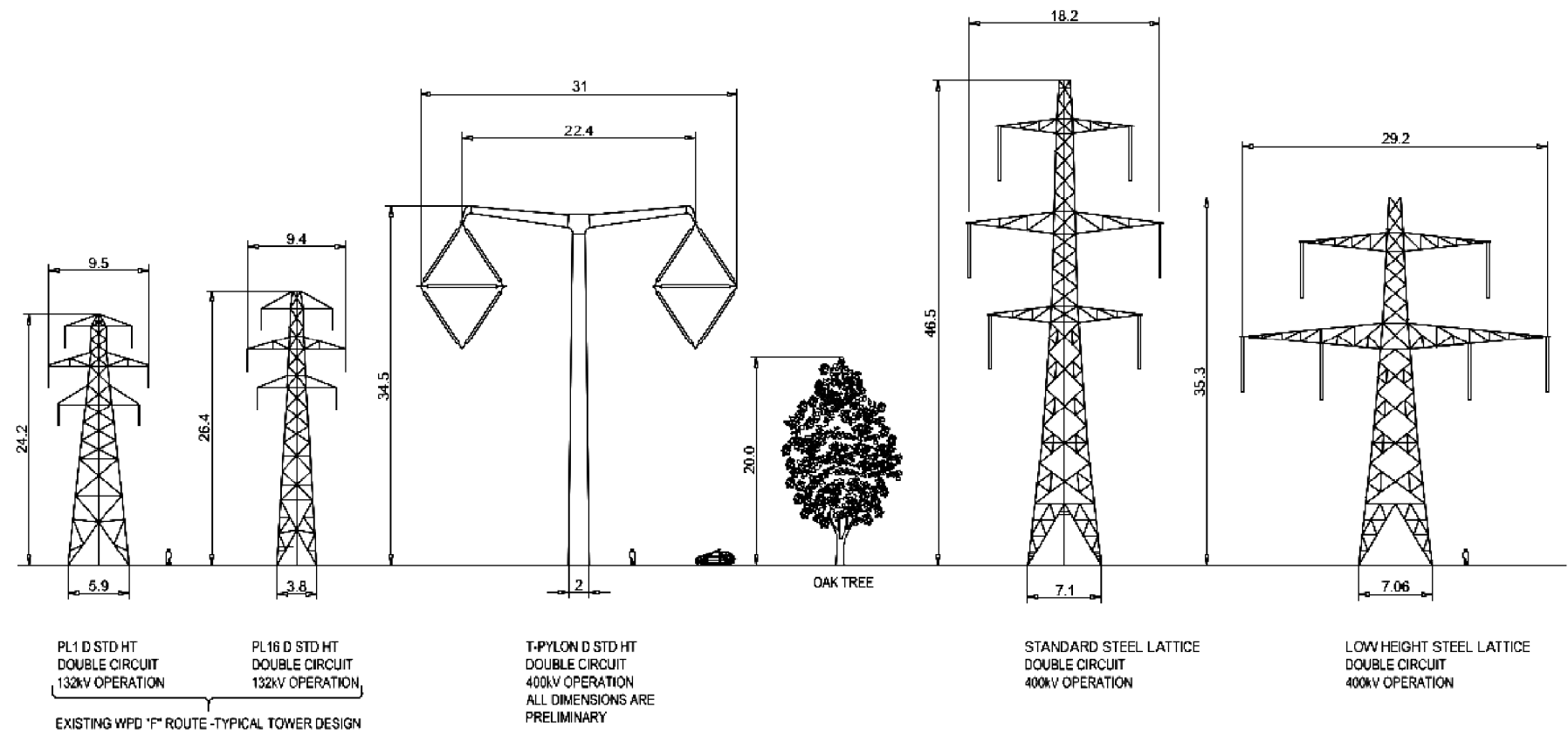
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SECTION BOUNDARIES

				
National Grid plc, Warwick Technology Park, Galsworthy Hill, Warwick, CV34 6GA				
NG INVESTMENT No.	FIGURE No.		GIS	
20897	1.0		A3	
DRAWING No.	G1979.1521A		SCALE	
			1:175,000	
SHEET 1 OF 1			ISSUE	
			A	

Figure 2: Dimensions of the standard/ low height lattice and T-pylon suspension pylons



ALL DIMENSIONS IN METRES UNLESS STATED

B	18/07/2013	TITLE CHANGE / PLAN AMENDMENTS	CB	BC	BC
A	30/05/2013	INITIAL ISSUE	CB	BC	BC
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Title
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CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

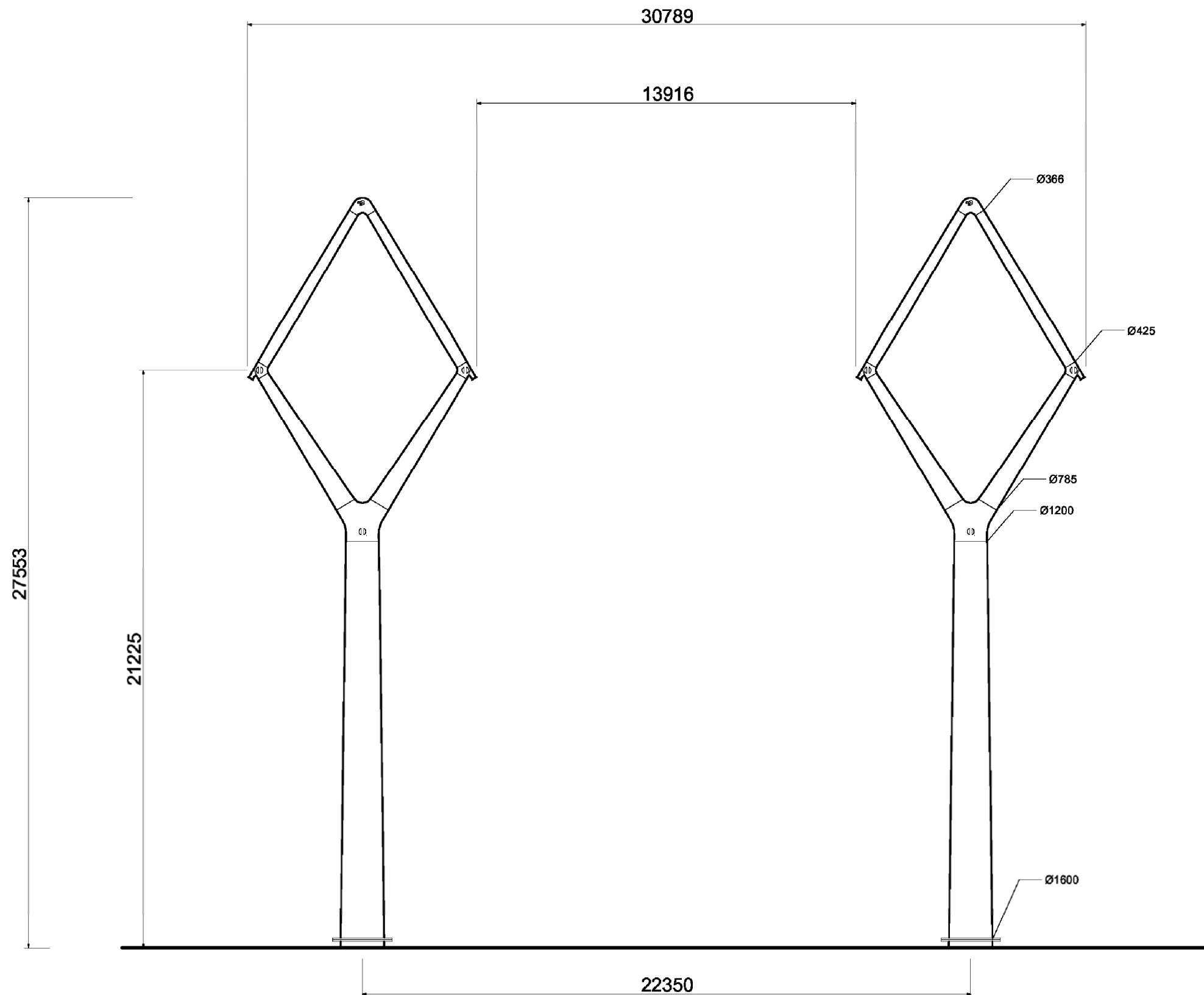
DIMENSIONS OF THE STANDARD/
LOW HEIGHT LATTICE AND T-PYLON
SUSPENSION TOWERS

nationalgrid

National Grid plc, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA

NG INVESTMENT No. 20897	FIGURE No. Fig 2.0		GIS A3
DRAWING No. G1979.1522B			SCALE NTS
SHEET 1 of 1			ISSUE A

Figure 3: Typical dimensions of the terminal Double Diamond T-pylon



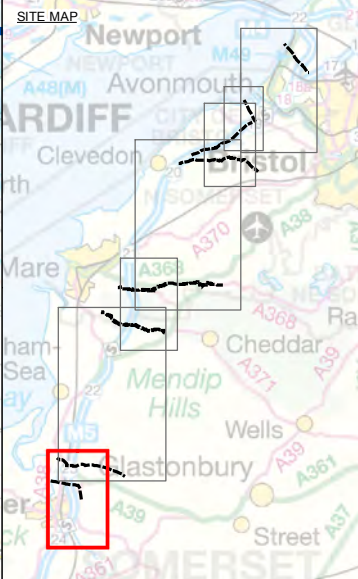
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ISSUE	DATE	COMMENTS	DRAW	CHK'D	APP'D

<u>Title</u>					
NATIONAL GRID (HINKLEY POINT C CONNECTION PROJECT) PYLON DESIGN OPTIONS REPORT					
TYPICAL DIMENSIONS OF THE TERMINAL DOUBLE DIAMOND T-PYLON					

nationalgrid National Grid plc, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA					
NG INVESTMENT No. 20897		FIGURE No. Fig 3.0		TEP	GIS A3
DRAWING No. G1979.1523B			SCALE NTS		
SHEET 1 of 1				ISSUE B	

Figure 4.1: Lattice and T pylon route alignments – Section A

LATTICE AND T-PYLON ROUTE ALIGNMENTS SECTION A



SECTION A - PURITON RIDGE

Key

Proposed Infrastructure

- Existing Infrastructure**
- Existing Substation
 - Existing 400kV Overhead Line
 - Existing 275kV Overhead Line
 - Existing Western Power Distribution 132kV Overhead Line on Pylons
 - Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- ■ Section Boundary

Notes

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A	31/05/2013	INITIAL REVISION	CB	CC	CC
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NATIONAL GRID (HINKLEY POINT C
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PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE
ALIGNMENTS
SECTION A

nationalgrid

NG INVESTMENT No.	FIGURE No.		GIS
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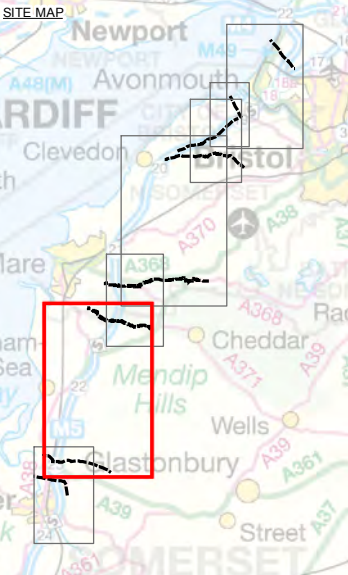
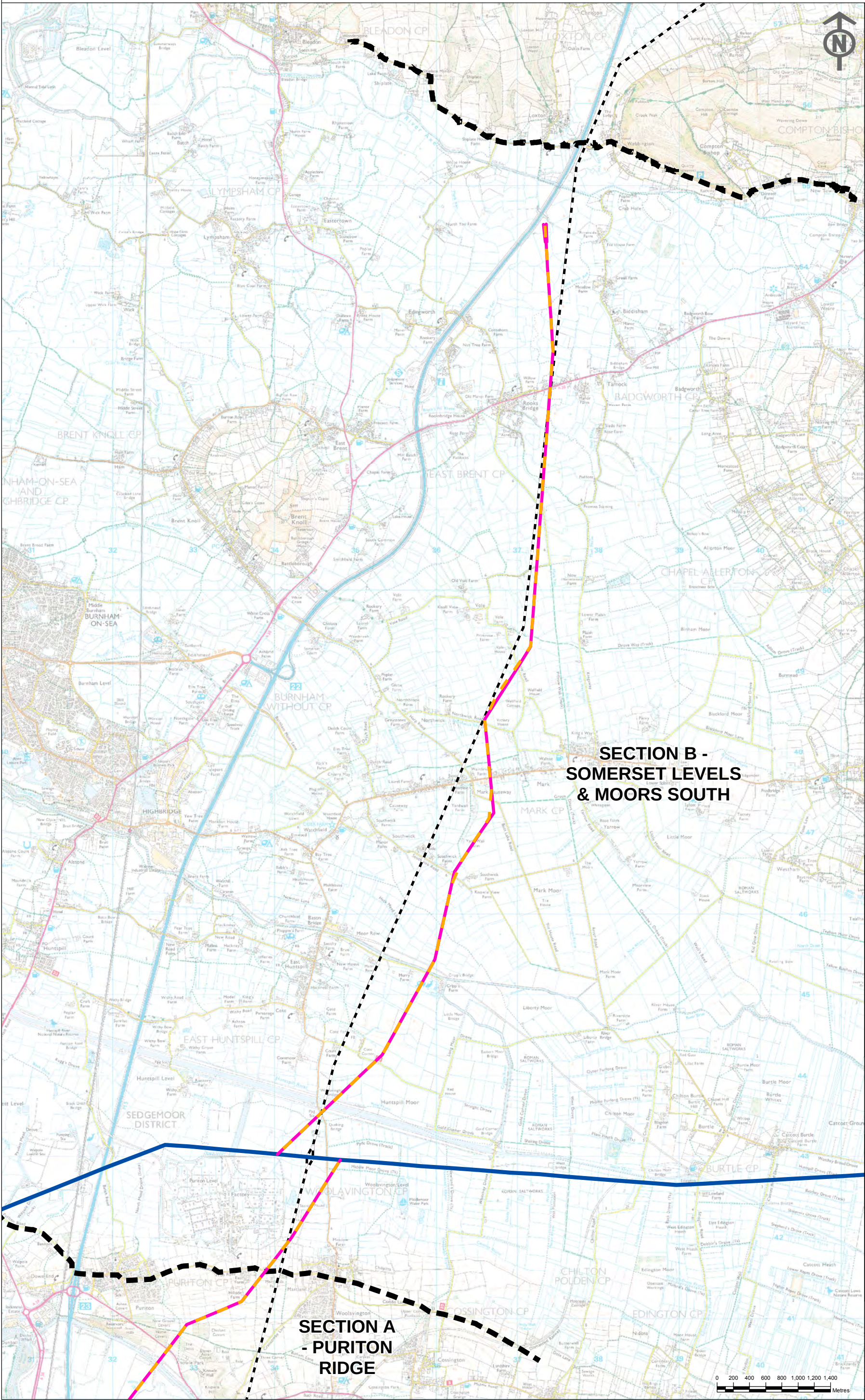
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G1979.1525.1D	1:25,000

SHEET 1 of 7		ISSUE

Figure 4.2: Lattice and T pylon route alignments – Section B

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION B



Key

—	Proposed Route for 400kV Overhead Line (Steel Lattice)
—	Proposed Route for 400kV Overhead Line (T-pylon)
—	Existing 400kV Overhead Line
—	Existing Western Power Distribution 132kV Overhead Line on Pylons
---	Existing Western Power Distribution 132kV Overhead Line for Removal
---	Section Boundary

Notes

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Title

NATIONAL GRID (HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

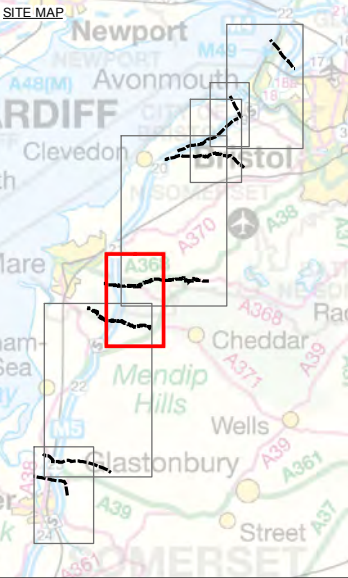
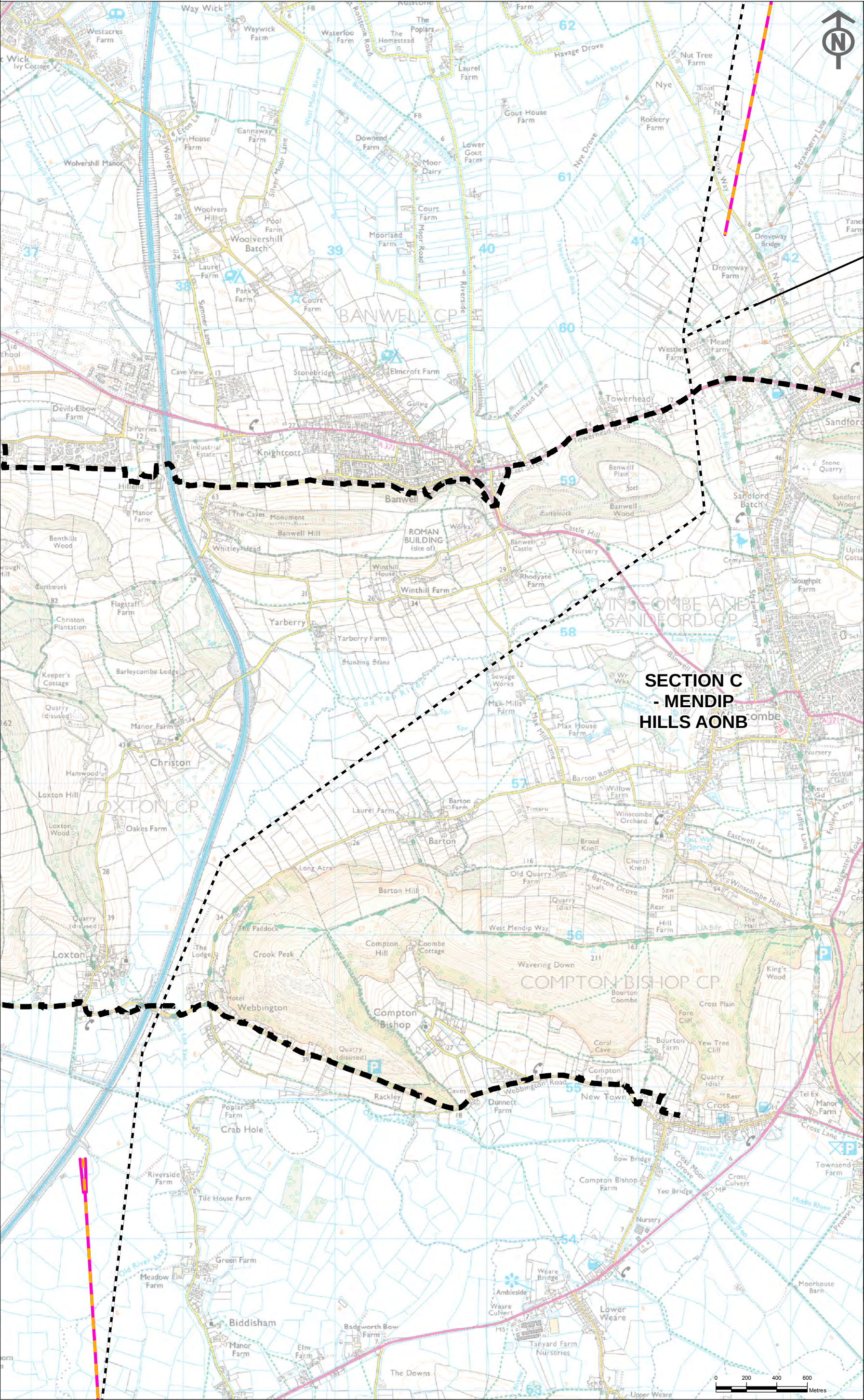
LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION B

nationalgrid		National Grid plc, Warwick Technology Park, Galsborough Hill, Warwick, CV34 6DA	
NG INVESTMENT No. 20897	FIGURE No. Fig 4.2		GIS A3
DRAWING No. G1979.1525.2D		SCALE 1:45,000	
SHEET 2 of 7		ISSUE D	

Figure 4.3: Lattice and T pylon route alignments – Section C

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION C



Key

Proposed Infrastructure

- Proposed Route for 400kV Overhead Line (Steel Lattice)
- Proposed Route for 400kV Overhead Line (T-pylon)

Existing Infrastructure

- Existing Western Power Distribution 132kV Overhead Line on Pylons
- Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- Section Boundary

Notes

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PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION C

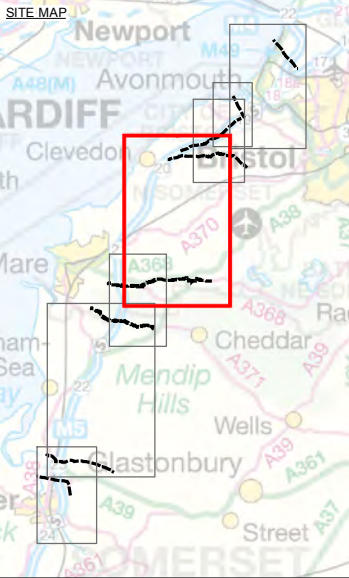
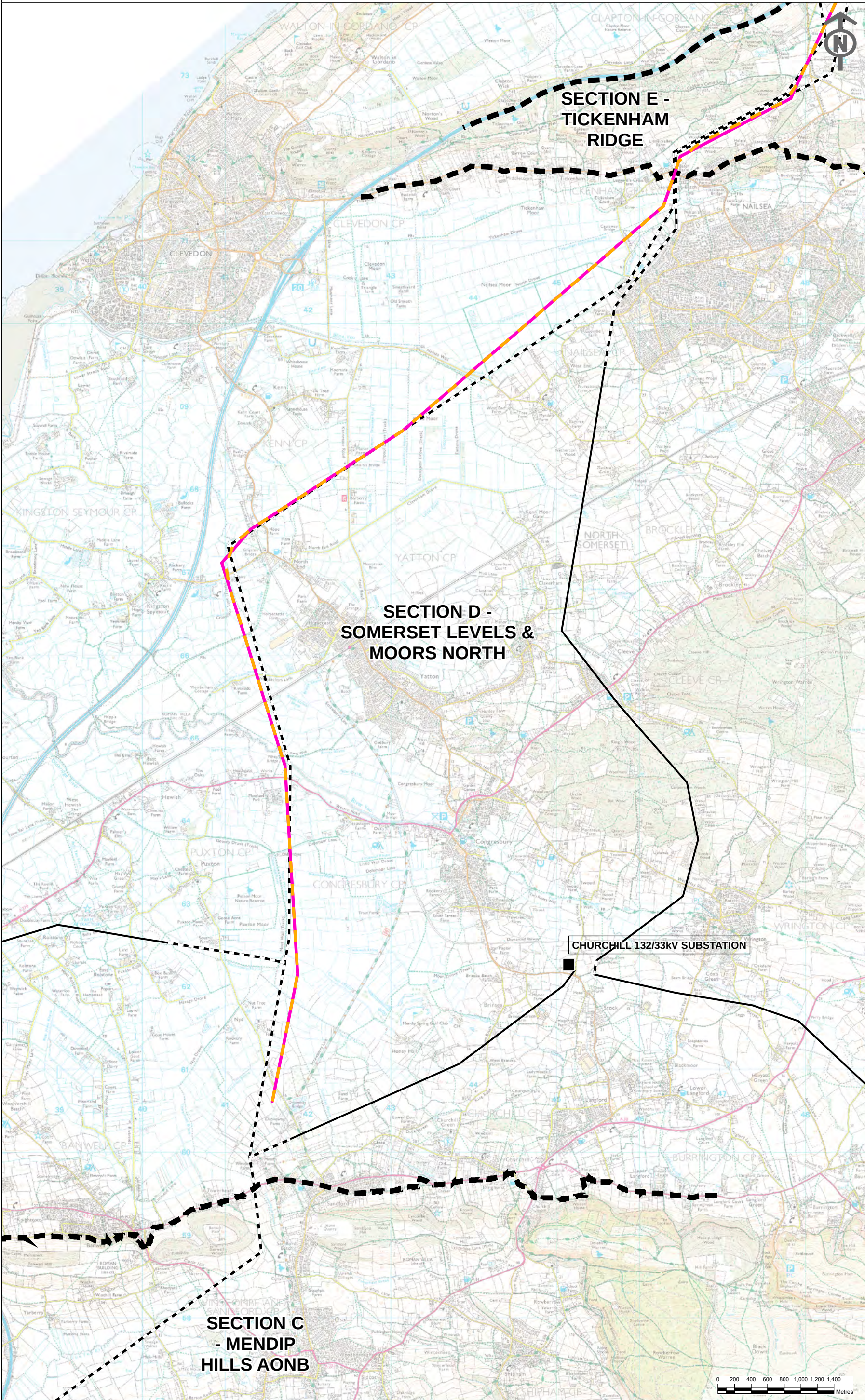
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National Grid plc, Warwick Technology Park, Galsborough Way, Warwick, CV34 6DA

NG INVESTMENT No. 20897	FIGURE No. Fig 4.3	GIS A3
DRAWING No. G1979.1525.3D		SCALE 1:24,000
SHEET 3 of 7		ISSUE D

Figure 4.4: Lattice and T pylon route alignments – Section D

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION D



Key

Proposed Infrastructure

- Proposed Route for 400kV Overhead Line (Steel Lattice)
- Proposed Route for 400kV Overhead Line (T-pylon)

Existing Infrastructure

- Existing Substation
- Existing Western Power Distribution 132kV Overhead Line on Pylons
- Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- Section Boundary

Notes

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PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION D

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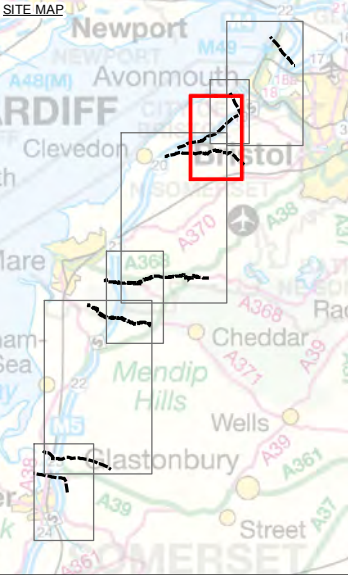
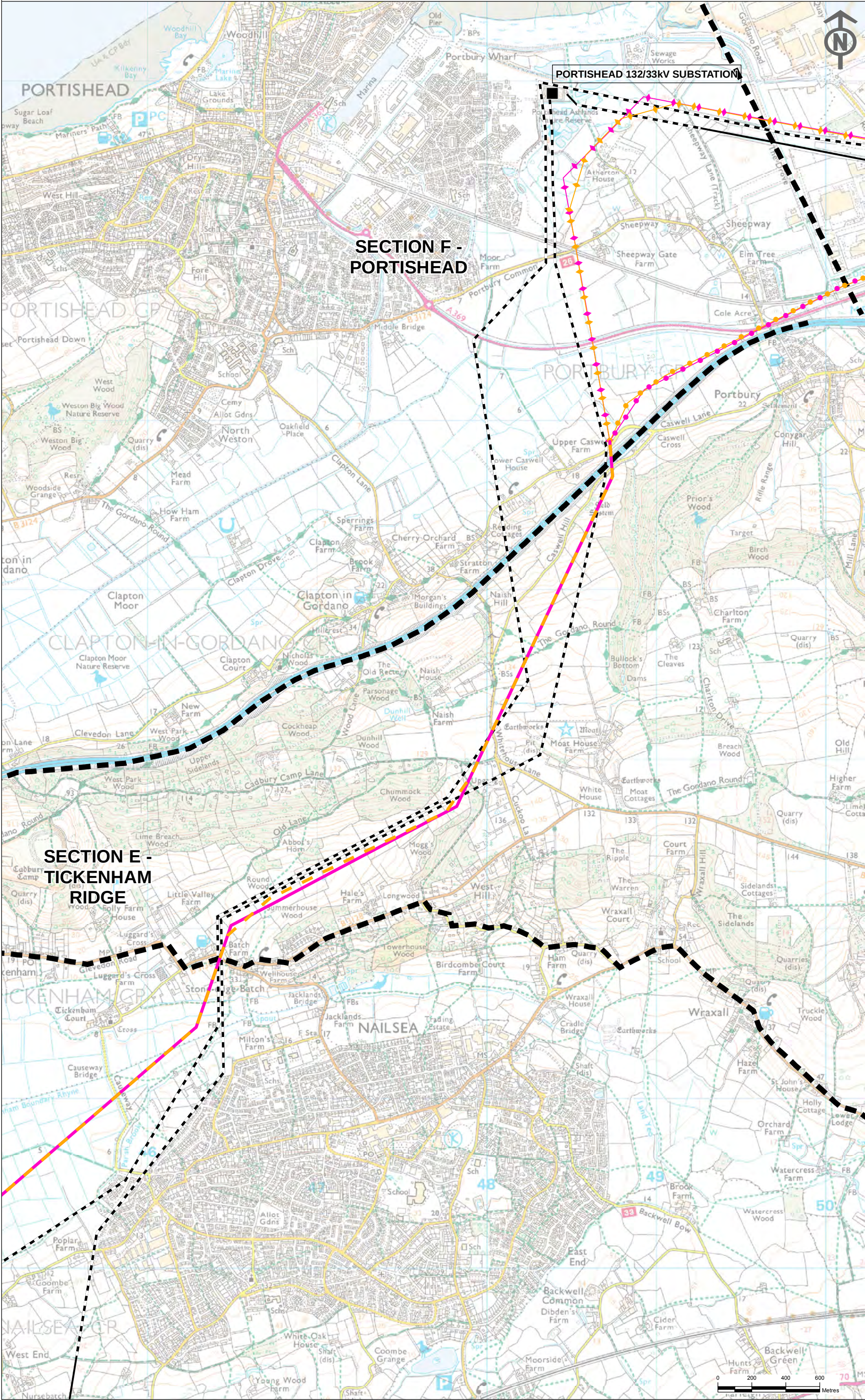
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NG INVESTMENT No. 20897	FIGURE No. Fig 4.4	GIS A3
DRAWING No. G1979.1525.4D		SCALE 1:44,000
SHEET 4 of 7		ISSUE D

Figure 4.5: Lattice and T pylon route alignments – Section E

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION E



Key

Proposed Infrastructure

- Proposed Route for 400kV Overhead Line (Steel Lattice)
- Proposed Route for 400kV Overhead Line (T-pylon)
- Proposed Route Option A for 400kV Overhead Line (Steel Lattice)
- Proposed Route Option A for 400kV Overhead Line (T-pylon)
- Alternative Route Option B for 400kV Overhead Line (Steel Lattice)
- Alternative Route Option B for 400kV Overhead Line (T-Pylon)

Existing Infrastructure

- Existing Substation
- Existing Western Power Distribution 132kV Overhead Line on Pylons
- Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- Section Boundary

Notes

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Title
NATIONAL GRID (HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION E

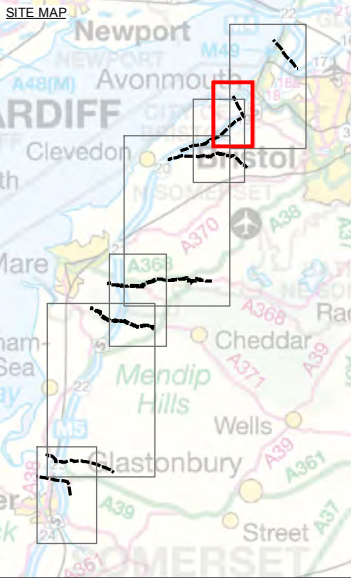
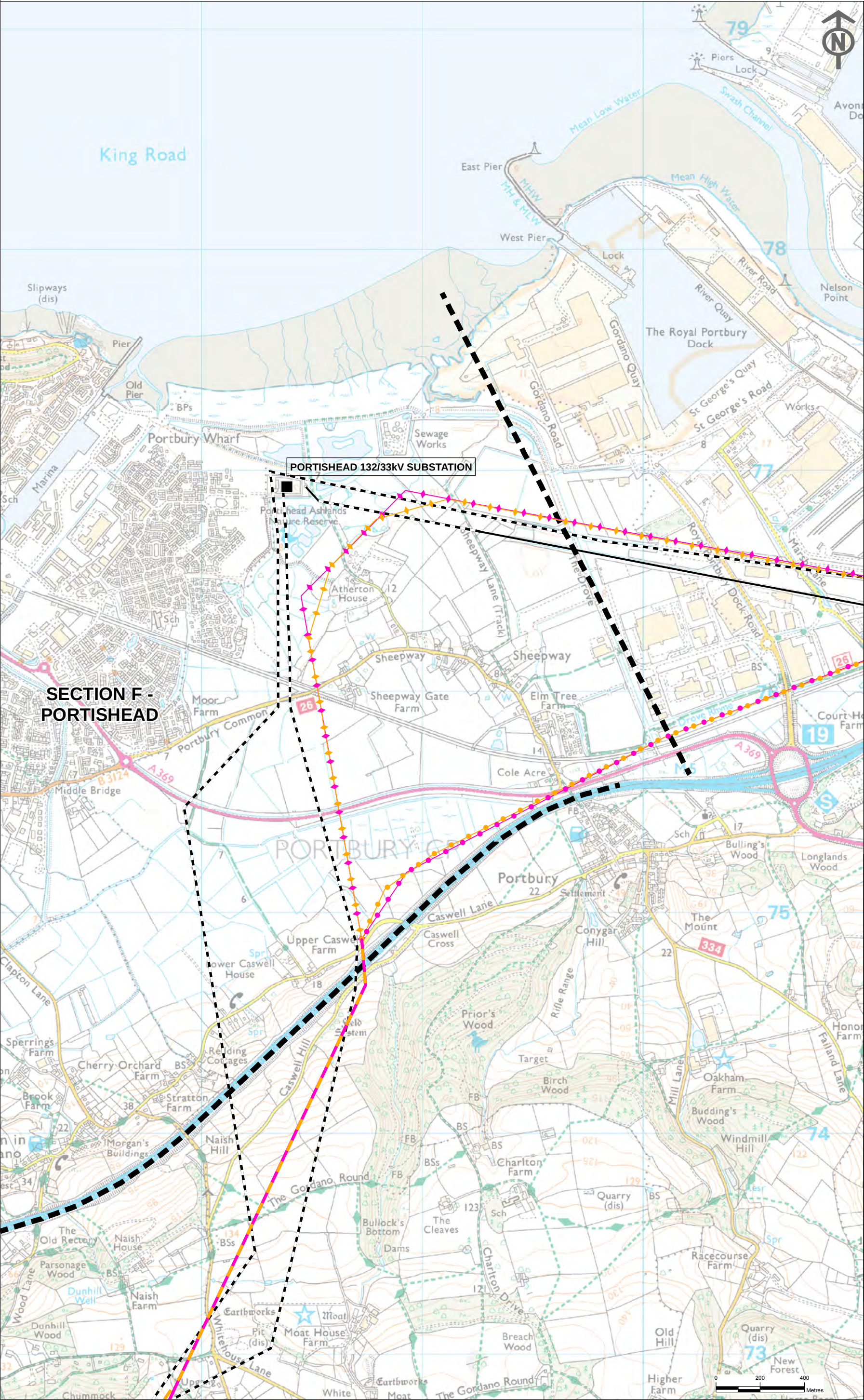
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National Grid plc, Warwick Technology Park, Galsborough Way, Warwick, CV34 6DA

NG INVESTMENT No. 20897	FIGURE No. Fig 4.5	GIS A3
DRAWING No. G1979.1525.5D		SCALE 1:21,500
SHEET 5 of 7		ISSUE D

Figure 4.6: Lattice and T pylon route alignments – Section F

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION F



Key

Proposed Infrastructure

- Proposed Route for 400kV Overhead Line (Steel Lattice)
- Proposed Route for 400kV Overhead Line (T-pylon)
- Proposed Route Option A for 400kV Overhead Line (Steel Lattice)
- Proposed Route Option A for 400kV Overhead Line (T-pylon)
- Alternative Route Option B for 400kV Overhead Line (Steel Lattice)
- Alternative Route Option B for 400kV Overhead Line (T-Pylon)

Existing Infrastructure

- Existing Substation
- Existing Western Power Distribution 132kV Overhead Line on Pylons
- Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- Section Boundary

Notes

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PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION F

nationalgrid

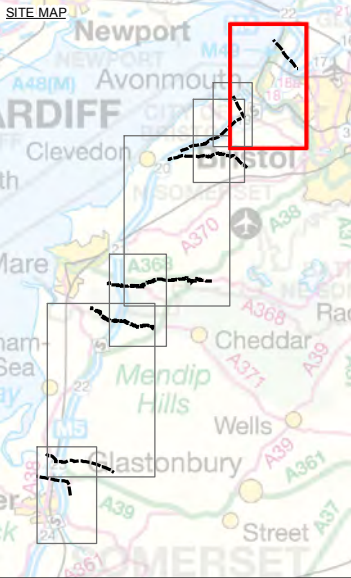
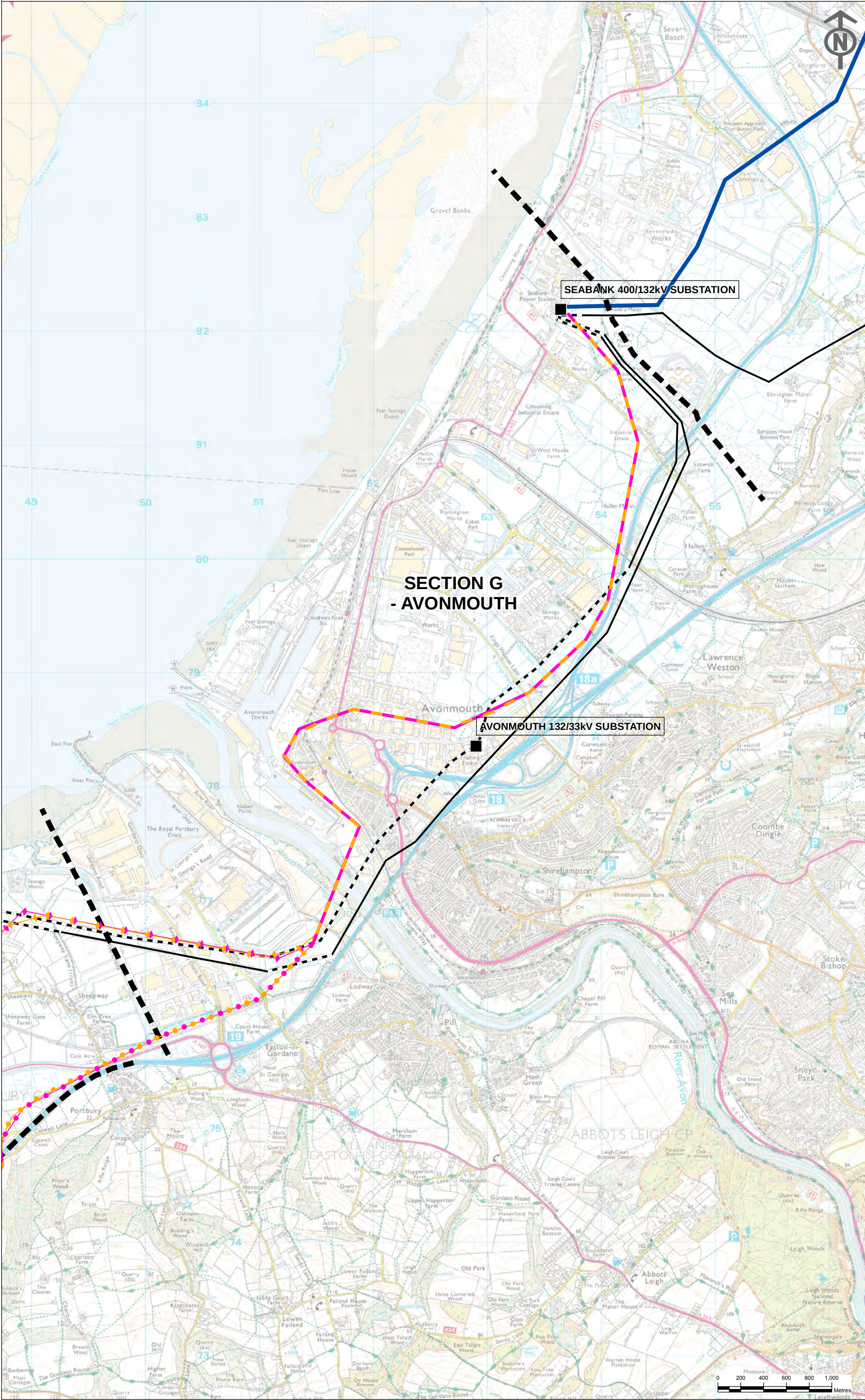
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NG INVESTMENT No. 20897	FIGURE No. Fig 4.6	GIS A3
DRAWING No. G1979.1525.6D		SCALE 1:16,500
SHEET 6 of 7		ISSUE D

Figure 4.7: Lattice and T pylon route alignments – Section G

NATIONAL GRID
(HINKLEY POINT C CONNECTION PROJECT)
PYLON DESIGN OPTIONS REPORT

LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION G



Key

Proposed Infrastructure

- Proposed Route for 400kV Overhead Line (Steel Lattice)
- Proposed Route for 400kV Overhead Line (T-pylon)
- Proposed Route Option A for 400kV Overhead Line (Steel Lattice)
- Proposed Route Option A for 400kV Overhead Line (T-pylon)
- Alternative Route Option B for 400kV Overhead Line (Steel Lattice)
- Alternative Route Option B for 400kV Overhead Line (T-pylon)

Existing Infrastructure

- Existing Substation
- Existing 400kV Overhead Line
- Existing Western Power Distribution 132kV Overhead Line on Pylons
- Existing Western Power Distribution 132kV Overhead Line for Removal

Section Boundary

- Section Boundary

Notes

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LATTICE AND T-PYLON ROUTE ALIGNMENTS
SECTION G

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NG INVESTMENT No. 20897	FIGURE No. Fig 4.7	GIS A3
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SHEET 7 of 7		ISSUE D