



Shepherds' Rig Wind Farm

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Additional Environmental Information (AEI) II

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TABLE OF CONTENTS

| | | |
|------|---|----|
| 1. | INTRODUCTION | 1 |
| 1.2. | Overview of Shepherds' Rig Wind Farm | 1 |
| 1.3. | Structure of the AEI II Report | 2 |
| 2. | UPDATED LANDSCAPE AND VISUAL CUMULATIVE ASSESSMENT | 3 |
| 2.1. | Introduction | 3 |
| 2.2. | Updated Scenario 1 | 8 |
| 2.3. | Updated Scenario 2 | 12 |
| 3. | B729 OFFSITE ROADWORKS | 17 |
| 3.1. | Introduction | 17 |
| 3.2. | Scope of B729 Offsite Roadworks Assessment | 18 |
| 3.3. | Landscape and Visual | 23 |
| 3.4. | Ecology | 33 |
| 3.5. | Cultural Heritage | 50 |
| 3.6. | Traffic and Transport | 59 |
| 3.7. | Hydrology and Hydrogeology | 64 |
| 4. | LORG GRID CONNECTION | 76 |
| 4.1. | Introduction | 76 |
| 4.2. | Scope of the Lorg Grid Connection Cumulative Assessment | 77 |
| 4.3. | Landscape and Visual | 79 |
| 4.4. | Cultural Heritage | 88 |
| 4.5. | Traffic and Transport | 94 |

1. Introduction

- 1.1.1. SETT Wind Development Limited Ltd (the Applicant) submitted an application to the Scottish Ministers under Section 36 of the Electricity Act 1989 (as amended) to construct, operate and decommission 17 wind turbines (the **Shepherds' Rig Wind Farm**) within the Smittons and Craigengillan plantations, approximately 5 kilometres (km) east of Carsphairn in Dumfries and Galloway (AEI II Figure 1.1.1).
- 1.1.2. The application was accompanied by an Environmental Impact Assessment (EIA) Report (November 2018) for a 19 turbine layout. On receipt of EIA Report consultation responses, the Applicant considered matters raised and undertook further design and assessment work, preparing Additional Environment Information (AEI I) (October 2019), amending the wind farm layout to 17 turbines and associated infrastructure (AEI II Figure 1.1.2). The EIA Report and AEI I were prepared in line with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017¹ (the EIA Regulations).
- 1.1.3. Dumfries and Galloway Council raised an objection to the **Shepherds' Rig Wind Farm** upon landscape and visual grounds, triggering a Public Inquiry. This Additional Environmental Information II (AEI II) report has been prepared in accordance with the EIA Regulations in advance of the Public Inquiry to:
- Update the landscape and visual cumulative assessment presented in the EIA Report (November 2018) and AEI I Report (October 2019);
 - Provide an assessment of the offsite roadworks along the B729 between Carsphairn and the Site Entrance ('B729 Offsite Roadworks') required to **facilitate turbine delivery for the Shepherds' Rig Wind Farm**; and
 - Provide a cumulative assessment of the Lorg and Longburn Grid Connection ('**Lorg Grid Connection**') which is currently at scoping but is expected to traverse the narrowest central part of the Site.
- 1.1.4. This AEI II Report is an addendum to the EIA Report (November 2018) and AEI I Report (October 2019) and should be read in conjunction with these, including figures and appendices. The AEI II focusses on updating only those sections stated herein in regards to the landscape cumulative assessment (Section 2). Sections 3 and 4 are additional assessments not previously included in the EIA Report or AEI I Report but provided in advance of the Public Inquiry. Unless otherwise stated in this AEI II Report, the EIA Report and AEI I Report remain **valid and unchanged for the Shepherds' Rig Wind Farm**.

1.2. Overview of Shepherds' Rig Wind Farm

- 1.2.1. The location of **Shepherds' Rig Wind Farm** is shown in AEI II Figure 1.1.1.

¹ The Scottish Government (2017). Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
http://www.legislation.gov.uk/ssi/2017/101/pdfs/ssi_20170101_en.pdf

1.2.2. The main components of the **Shepherds' Rig Wind Farm** have not changed since the preparation of the AEI I (October 2019) with the layout shown in AEI II Figure 1.1.2 which includes:

- 17 wind turbines, 15 with a maximum blade tip height of 149.9 metres (m) and 2 wind turbines with a maximum blade tip height of 125 m, together with associated turbine foundations, wind turbine hard-standings, and crane pads;
- a series of onsite access tracks connecting each of the turbine locations;
- a network of underground cables linking the turbines to an onsite electricity substation and control/maintenance building;
- a battery energy storage array located within the onsite electricity substation;
- two temporary borrow working areas;
- an access junction at the existing forestry track into the plantation from the B729 between Muirdrochwood and Smittons;
- a temporary construction compound; and
- a permanent anemometer mast to measure wind speed and wind direction.

1.3. Structure of the AEI II Report

1.3.1. The AEI II Report comprises four parts:

- Volume 1: AEI II Written Statement;
- Volume 2a: AEI II Figures (excluding Visualisations);
- Volume 2b: AEI II Landscape and Visual Visualisations; and
- Volume 3: AEI II Appendices.

1.3.2. This volume of the AEI II Report is organised as follows:

- Chapter 1: Introduction – provides an overview of the AEI II and the **proposed Shepherds' Rig** Wind Farm.
- Chapter 2: Updated Landscape and Visual Cumulative Assessment - updates the landscape and visual assessment to consider changes to the cumulative baseline in advance of the Public Inquiry.
- Chapter 3: B729 Offsite Roadworks – consists of a focused assessment of the potential significant effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance.
- Chapter 4: Lorg Grid Connection - Assessment of Potential Cumulative Effects of Shepherds' Rig Wind Farm in conjunction with the Lorg Grid Connection Scoping Layout.

2. Updated Landscape and Visual Cumulative Assessment

2.1. Introduction

- 2.1.1. All wind energy developments that were operational, under construction, consented, or subject to a valid full planning application, up to a cut-off date of 1st July 2018, within 35 km of the **Shepherds' Rig Wind Farm**, were identified and reviewed as part of the cumulative assessment in the EIA Report (November 2018).
- 2.1.2. Between November 2018 and September 2019, there were changes to the status of cumulative sites; these were assessed as part of the updated cumulative assessment set out in the AEI I Report (October 2019), based on a new cut-off date of 12th September 2019.
- 2.1.3. Since September 2019, there have been further changes to the cumulative situation and these have been reviewed as part of an additional update to the cumulative assessment set out in this AEI II Report in advance of the Public Inquiry, based on a new cut-off date of 8th February 2021.
- 2.1.4. The Applicant has received requests from a Third Party, Ms Fiona Clubb which relate to cumulative matters. Within her letter dated 18th March 2021, Ms Clubb requested various items of additional information to be included by the Applicant. A response has been provided in acknowledgment of these requests and many of the cumulative developments to which Ms Clubb refers have been addressed in this latest update to the cumulative assessment. However, it is not considered that the remaining elements of the requested information are required to be included in the updated cumulative assessment in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
- 2.1.5. Some figures contained within the AEI I Report have been superseded and replaced by new AEI II Figures. Those superseded are as follows:
- AEI I Figures 8.3 and 8.37 – 8.64 (replaced by AEI II Figures 2.1 – 2.23);
 - AEI I Figures 8.64, 8.68, 8.71, 8.72, 8.74 and 8.79 (replaced by AEI II Figures 2.24 – 2.29).
- 2.1.6. This AEI II chapter is supported by all remaining figures listed at paragraph 8.1.2 of the AEI I Report and the following new figures:
- AEI II Figure 2.1 Other Wind Farms within 15 km;
 - AEI II Figure 2.2 Viewpoint 1: Stroanfreggan Bridge;
 - AEI II Figure 2.3 Viewpoint 2: Stroanfreggan Craig;
 - AEI II Figure 2.4 Viewpoint 3: Guttery Glen;
 - AEI II Figure 2.5 Viewpoint 4: Smittons Bridge;
 - AEI II Figure 2.6 Viewpoint 5: Stroanfreggan Cairn;
 - AEI II Figure 2.7 Viewpoint 6: Head of Ken Valley;
 - AEI II Figure 2.8 Viewpoint 7: Southern Upland Way at Culmark Hill;
 - AEI II Figure 2.9 Viewpoint 8: Minor Road South of B729;
 - AEI II Figure 2.10 Viewpoint 9: High Bridge of Ken (B7000);

- AEI II Figure 2.11 Viewpoint 10: Southern Upland Way, Benbrack (Striding Arch);
- AEI II Figure 2.12 Viewpoint 11: B7000 north of East Arndarroch;
- AEI II Figure 2.13 Viewpoint 12: Dundough Hill;
- AEI II Figure 2.14 Viewpoint 13: Beninner;
- AEI II Figure 2.15 Viewpoint 14: Cairnsmore of Carsphairn;
- AEI II Figure 2.16 Viewpoint 15: Craig of Knockgray;
- AEI II Figure 2.17 Viewpoint 16: Alhang;
- AEI II Figure 2.18 Viewpoint 17: Southern Upland Way at Waterside Hill;
- AEI II Figure 2.19 Viewpoint 18: A713 north of Stroansgassel;
- AEI II Figure 2.20 Viewpoint 19: A713 south of Carsphairn;
- AEI II Figure 2.21 Viewpoint 20: Woodhead Mines;
- AEI II Figure 2.22 Viewpoint 21: **Corserine (Hennessy's Shelter)**;
- AEI II Figure 2.23 Viewpoint 22: Carsphairn War Memorial;
- AEI II Figure 2.24 360 Degree Cumulative Wireframes - Viewpoint 6: Head of Ken Valley;
- AEI II Figure 2.25 360 Degree Cumulative Wireframes - Viewpoint 10: Southern Upland Way, Benbrack (Striding Arch);
- AEI II Figure 2.26 360 Degree Cumulative Wireframes - Viewpoint 13: Beninner;
- AEI II Figure 2.27 360 Degree Cumulative Wireframes - Viewpoint 14: Cairnsmore of Carsphairn;
- AEI II Figure 2.28 360 Degree Cumulative Wireframes - Viewpoint 16: Alhang;
- AEI II Figure 2.29 360 Degree Cumulative Wireframes - Viewpoint **21: Corserine (Hennessy's Shelter)**;
- AEI II Figure 2.30 Cumulative ZTV (CZTV) with Margree;
- AEI II Figure 2.31 CZTV with Eucharhead;
- AEI II Figure 2.32 CZTV with Fell; and
- AEI II Figure 2.33 CZTV with Cornharrow.

Methodology

- 2.1.7. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and AEI (October 2019), updated as follows:
- Dumfries and Galloway Wind Farm Landscape Capacity Study (2020);
 - Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations (2020);
 - Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations - **Appendix 'C' Wind Farm Landscape Capacity Study** (2020); and
 - Dumfries and Galloway Dark Skies Friendly Lighting Supplementary Guidance (2020).
- 2.1.8. The same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed with an updated cumulative assessment presented below.

Changes to the Cumulative Baseline

- 2.1.9. The original assessment focused on a detailed study area of 15 km, which **was illustrated on EIA Report Figure 8.3 'Other Wind Farms within 15 km'**, with those schemes towards the north and north-east beyond 10 km being discounted due to a general lack of intervisibility. In turn, the updated assessment in the AEI I Report considered those schemes now within the same detailed 15 km study area, as illustrated on AEI I **Figure 8.3 'Other Wind Farms within 15 km'**.
- 2.1.10. The current cumulative status of wind farm developments within the 15 km detailed study area is illustrated on AEI II Figure 2.1 '**Other** Wind Farms within 15 **km'** of this AEI II Report, and key changes are summarised as follows:
- Afton – Previously shown as consented and is now operational;
 - Troston Loch – Previously shown as in planning and is now consented;
 - Enoch Hill - Previously shown as in planning and is now consented; and
 - Margree – now superseded by a new revised tip height scheme.
- 2.1.11. New schemes not previously shown on AEI I Figure 8.3 and which are now included on AEI II Figure 2.1 as sites in planning, include:
- Cornharrow (resubmission) (AEI II Figure 2.33);
 - Eucharhead (AEI II Figure 2.31);
 - Fell (AEI II Figure 2.32); and
 - Margree (revised tip height scheme) (AEI II Figure 2.30).
- 2.1.12. In addition, it is understood that there are two further schemes within 10km of the site, where either a Scoping Request has been made, or there is information **on the developer's website that a scheme is at** an early stage:
- Quantans Hill; and
 - Glenshimmeroch (Revised Tip Height).
- 2.1.13. AEI II Table 2.1 and AEI II Figure 2.1 summarises the updated cumulative scenario and confirms those schemes which are now considered in detail in the updated cumulative assessment, in light of the information set out above. As per the EIA Report and AEI I, again noting that schemes towards the north and north-east beyond 10 km have been discounted due to a general lack of intervisibility. In the case of the Quantans Hill and Glenshimmeroch (Revised Tip Height) schemes, these are addressed separately in Appendix A.2.1 to this AEI, as was the adopted approach within the EIA Report, for early stage schemes such as these.

AEI II Table 2.1: Other Wind Farms Considered in Detail in the Cumulative LVIA

| Site | Blade Tip height of turbines | Number of turbines |
|-------------------|------------------------------|--------------------|
| Operational | | |
| Windy Standard I | 92.5m | 36 |
| Windy Standard II | 100 - 120m | 30 |

| Site | Blade Tip height of turbines | Number of turbines |
|--|------------------------------|--------------------|
| Wether Hill | 91m | 14 |
| Blackcraig Hill | 110m | 23 |
| Afton | 120m | 27 |
| Consented | | |
| Lorg | 130m - 150m | 9 |
| South Kyle | 149.5m | 50 |
| Knockman Hill | 81m | 5 |
| Benbrack | 130m | 18 |
| Torrs Hill | 100m | 2 |
| Windy Rig | 125m | 12 |
| Glenshimmeroch | 149.9m | 10 |
| Troston Loch | 149.9m | 14 |
| In Planning | | |
| Windy Standard III | 120m - 177.5m | 20 |
| Margree | 200m | 9 |
| Cornharrow (resubmission) | 149.9m | 8 |
| Euchanhead | 230m | 21 |
| Fell | 180m – 200m | 9 |
| Scoping / Pre-Submission | | |
| Quantans Hill | 200m - 250m | 21 |
| Glenshimmeroch (Revised Tip Height) | 160m – 180m | 10 |

2.1.14. Two scenarios were considered in the most recent version of the cumulative assessment set out in the AEI I Report, which reflected the different degrees of certainty that these schemes would be constructed:

- Scenario 1 - assumed that other consented (but as yet unbuilt) wind farms were operational; and
- Scenario 2 - extended this further to assume that all schemes in planning were also operational.

2.1.15. In light of the above information, the following updates to the cumulative assessment can be considered to apply:

- Scenario 1 –the Troston Loch scheme is now consented and also to be considered as part of the detailed assessment of this scenario.
- Scenario 2 –There are four further schemes which are now also to be considered as part of this scenario: Cornharrow (resubmission); Euchanhead; Fell; Margree (revised tip height scheme).
- Scenario 3 – This scenario considers the addition of the Quantans Hill and Glenshimmeroch (Revised Tip Height) schemes to the landscape, in addition to the schemes set out in Scenarios 1 and 2. This Scenario is addressed separately in Appendix A2.1 to this AEI.

2.1.16. AEI II Table 2.2 provides an updated summary of cumulative effects at each of the 22 assessment viewpoints for the four new application stage schemes (Scenario 2) not previously considered.

AEI II Table 2.2: Summary of Cumulative Effects at Assessment Viewpoints for Additional Application Stage Schemes

| | | Visibility of Wind Farms at Each Viewpoint Location Key: X = In Combination, O = In Succession, [] = theoretically visible only (i.e. not actually visible) | | | |
|-----------|---|---|------------|------|-------------------------------------|
| Viewpoint | | Cornharrow (resubmission) | Euchanhead | Fell | Margree (revised tip height scheme) |
| 1 | Stroanfreggan Bridge (B729) | O | O | | |
| 2 | Stroanfreggan Craig | | O | | O |
| 3 | Guttery Glen (B729) | O | O | | |
| 4 | Smittons Bridge | | O | | |
| 5 | Stroanfreggan Cairn | O | O | | |
| 6 | Head of Ken Valley | | O | | |
| 7 | Southern Upland Way at Culmark Hill | O | X | O | O |
| 8 | Minor Road south of B729 | X | X | | O |
| 9 | High Bridge of Ken | | X | | |
| 10 | Southern Upland Way, Benbrack (Striding Arch) | O | O | O | O |
| 11 | B7000 at East Arndarroch | O | X | | O |

| | | Visibility of Wind Farms at Each Viewpoint Location | | | |
|----|---------------------------------------|--|---|---|---|
| | | Key: X = In Combination, O = In Succession, [] = theoretically visible only (i.e. not actually visible) | | | |
| 12 | Dundeugh Hill | X | X | | O |
| 13 | Beninner | X | O | X | X |
| 14 | Cairnsmore of Carsphairn | X | O | X | X |
| 15 | Craig of Knockgray | X | | X | X |
| 16 | Alhang | X | O | X | X |
| 17 | Southern Upland Way at Waterside Hill | X | X | O | O |
| 18 | A713 at Stroangassel | O | O | | |
| 19 | A713 south of Carsphairn | | X | | X |
| 20 | Woodhead Mines | X | | X | X |
| 21 | Corserine (Hennessey's shelter) | X | X | X | X |
| 22 | Carsphairn War Memorial | | | X | X |

2.2. Updated Scenario 1

2.2.1. The following section considers the updated Scenario 1, which assumes that all other consented (but as yet unbuilt) wind farms are operational. In this case, for the detailed assessment, this relates specifically to the inclusion of the now consented Troston Loch scheme. A cumulative ZTV (CZTV) was previously produced as part of the AEI I Report to illustrate the theoretical visibility between Troston Loch and the **Shepherds' Rig Wind Farm** layout (AEI Figure 8.34) and remains applicable to this assessment. The Troston Loch scheme is also illustrated in the updated visualisations (AEI II Figures 2.2. to 2.23) and cumulative 360 degree wireframes (AEI II Figures 2.24 to 2.29) included with this AEI II Report.

Cumulative Effects on Landscape Features and Character

2.2.2. The Troston Loch Wind Farm was previously considered as part of Scenario 2 and is located adjacent to the Glenshimmeroch scheme as shown at AEI II Figure 2.1, which is also consented, at a distance of around 7 km to the south-east of the **Shepherds' Rig Wind Farm**. It was previously identified

within the AEI I Report, in the assessment of Scenario 2 that the combined visibility of **both Shepherds' Rig and Troston Loch Wind Farm is less than** that with Glenshimmeroch Wind Farm, meaning that there are fewer locations **from where both Shepherds' Rig and Troston Loch are theoretically visible than from where both Shepherds' Rig and Glenshimmeroch** are theoretically visible and have already been considered in this Scenario. Troston Loch Wind Farm would appear to extend the Glenshimmeroch Wind Farm to the north-east, reducing the gap between Wether Hill and Glenshimmeroch, particularly when viewed from the west. The inclusion of Troston Loch Wind Farm within the baseline would further reinforce the presence of Wind Farms within the 18A - Foothills with Forest landscape. It would serve to expand the number of turbines in that part of the landscape which would appear as a larger group when seen within views from areas of higher ground in the wider landscape, yet a group which would remain visually separate from that of the **Shepherds' Rig Wind Farm**.

- 2.2.3. In light of the additional visibility of Troston Loch in the Scenario 1 baseline, alongside Glenshimmeroch, it is considered that the combined high magnitude of change on part of the 18A - Foothills with Forest landscape, which was previously identified for Scenario 1, would be further reinforced, with these effects occurring irrespective of the addition of the **Shepherds' Rig Wind Farm**.
- 2.2.4. When the totality of landscape effect is considered, there would be localised significant effects on character type 18A, with some localised significant indirect effects upon character type 19A, from which wind development would be visible within the wider landscape to the south-east, south and west. However, these effects would occur in any event in the absence of the **Shepherds' Rig Wind Farm** given that the other schemes have been granted consent. The effects identified for the **Shepherds' Rig Wind Farm**, which are identified for the scheme in its own right, do not increase when set within the revised Scenario 1 baseline.

Cumulative Effects on the Galloway Hills RSA

- 2.2.5. The previous assessment in relation to landscape character has determined that the extent of visible wind energy development within the landscape beyond the RSA boundary in Scenario 1 would be extended with the introduction of Troston Loch. This would be perceived from the RSA, particularly from the higher ground within the Rhinns of Kells and from Cairnmore of Carsphairn, as was shown on the cumulative ZTV at AEI I Figure 8.34 of the AEI I Report.
- 2.2.6. Nevertheless, the Scenario 1 schemes, alongside the **Shepherds' Rig Wind Farm** would be seen and perceived in the context of existing wind energy development already present in the wider landscape.
- 2.2.7. Within the EIA Report and AEI I Report, it was noted that that there would be no additional significant cumulative effects upon the RSA in cumulative Scenario 1, as wind energy development is already a characteristic of the landscape beyond the RSA. With the addition of Troston Loch Wind Farm

within the Scenario 1 baseline, there would be an increased potential for overall cumulative effects on the RSA. However, any significant effects on the RSA arising as a result of the introduction of the **Shepherds' Rig Wind Farm** to the landscape, would arise because of the scheme in its own right rather than due to cumulative effects.

Combined Cumulative Effects on Visual Amenity

- 2.2.8. The addition of Troston Loch Wind Farm within the Scenario 1 baseline increases the extent to which wind development would be visible within the landscape to the south-**east of the Shepherds' Rig Site** as shown at AEI II Figure 2.1.

- 2.2.9. When the addition of Troston Loch within the Scenario 1 baseline is considered, it is noted that the Shepherds' Rig Wind Farm would be visible in combination with this scheme from the vast majority of high peaks and hill top locations within the study area and from the higher ground within the Glenkens Valley as shown within the cumulative wireframe views at AEI II Figures 2.26 to 2.29. This is typical of the fact that wind energy development tends to be sited on the higher ground within the landscape and reflects the pattern of development across the landscape. From the Southern Upland Way at Waterside Hill, for example (VP17 (AEI II Figure 2.18)), there will be wind energy development visible in the view to the north-west, through to the east, although these groupings of wind energy developments will appear distinct from each other within the landscape. The presence of Troston Loch in views from highpoints such as this will be greater than other wind farms at a larger distance, such as the existing Blackcraig Hill and the consented Knockman Hill, alongside the **Shepherds' Rig Wind Farm**, but similar to that of the adjacent Glenshimmeroch Wind Farm.

- 2.2.10. In views from low lying locations to the south, south-east and east (such as those at viewpoints 3 (Guttery Glen), 7 (Southern Upland Way at Culmark Hill) and 11 (B7000 north-east of Arndarroch), the **Shepherds' Rig Wind Farm** is most likely to be seen with Troston Loch in successional views whereby each development would appear within views in differing directions but where each development would appear distinct and separate within the landscape. However, such views would be far less frequent than from the higher ground due to the screening provided by intervening topography and vegetation in the landscape between the schemes.

- 2.2.11. Overall, there will be some localised significant cumulative effects on visual amenity as a result of the introduction of Troston Loch, to the landscape, alongside all other existing and consented schemes in this scenario. However, for the most part these effects would occur in the absence of the **Shepherds' Rig Wind Farm** due to the combined visibility of this additional scheme with the other operational and consented schemes already in the landscape.

Sequential Cumulative Effects on Visual Amenity

- 2.2.12. The four routes that formed the primary receptors considered in the sequential cumulative assessment presented in Chapter 8 of the EIA Report

(November 2018) and then updated in the AEIAE I Report were the B729, the B7000, the A713, and the Southern Upland Way.

- 2.2.13. In cumulative Scenario 1 of the EIA Report (November 2018), it was previously noted that there are several consented, yet unbuilt wind farms within 15 km of the site and that these predominantly lie to the north-east and north-west of the site. In turn the AEI I Report then identified that Glenshimmeroch Wind Farm would introduce further wind development approximately 5 km to the south-east of the site, roughly equidistant between the existing Wether Hill and Blackcraig Hill wind farms. This Scenario now also includes for the Troston Loch scheme. Troston Loch lies adjacent to the Glenshimmeroch scheme. In this regard, the addition of this scheme would serve primarily to reinforce the existing pattern of wind energy which had already been considered in the AEI I Report, rather than result in any notable additional views of wind energy in new locations from the Southern Upland Way.
- 2.2.14. The **Shepherds' Rig Wind Farm** would be seen in the context of this pattern of turbines extending from north to south over approximately 15 km. This will be appreciable particularly as the Southern Upland Way passes over open higher ground. There would be some significant sequential visual effects upon views from the Southern Upland Way, but these would occur in the absence of the **Shepherds' Rig Wind Farm** by virtue of the proximity of the other operational and consented sites to the route. In particular, the Glenshimmeroch Wind Farm would already be close to the route in the south-east. No additional significant effects over and above those assessed for the **Shepherds' Rig Wind Farm** in its own right (i.e. against the existing baseline), are predicted given this context.
- 2.2.15. In terms of the overall totality of effects on the route, this would be significant, but this significant effect would already occur irrespective of the **Shepherds' Rig Wind Farm**. The **Shepherds' Rig Wind Farm** would serve to reinforce the presence of wind farms as an existing key characteristic within the SNH LCA 2019 of the Southern Uplands with Forest (LCT178) and Foothills with Forest (LCT176), as these landscapes are experienced when walking the Southern Upland Way.
- 2.2.16. Along the A713, glimpsed views of the Troston Loch scheme may be available adjacent to Glenshimmeroch, but would not be such as create any significant effect. As noted in the AEI I Report, the overall effect would reinforce the presence of turbines within this outlying forested landscape beyond the Water of Ken Valley. Within this context the addition of the **Shepherds' Rig Wind Farm** would not appear out of character. The turbines of the **Shepherds' Rig Wind Farm** would appear as a distinctly separate wind farm from the Troston Loch and Glenshimmeroch schemes. The overall effect on the A713 would not be significant.
- 2.2.17. The addition of the Troston Loch Wind Farm would increase the overall visibility of turbines from the routes of the B729 and B700. Notwithstanding this, the addition of the **Shepherds' Rig Wind Farm**, in views from these routes would not give rise to any additional significant cumulative effects in

this Scenario, over and above those identified for the development in its own right.

2.3. Updated Scenario 2

2.3.1. The following section considers the updated Scenario 2 which assumes that all other consented (but as yet unbuilt) and in planning wind farms are operational (as set out at AEI II Table 2.1). For each of the following schemes now applicable in this Scenario in addition to those previously set out within the EIA Report and AEI I Report, cumulative ZTVs (CZTV) have been provided as part of this AEI II Report, to illustrate the theoretical visibility with the **Shepherds' Rig Wind Farm**:

- Cornharrow - AEI II Figure 2.33;
- Eucharhead - AEI II Figure 2.31;
- Fell - AEI II Figure 2.32; and
- Margree (revised tip height scheme) - AEI II Figure 2.30.

2.3.2. In turn, full updated 360 degree cumulative wireframes for a number of the assessment viewpoints, previously shown in AEI I Figures 8.59 – 8.64 of the AEI I Report, have been updated to show all operational, under construction, consented and in planning schemes. These are presented in AEI II Figures 2.24 – 2.29.

Cumulative Effects on Landscape Features and Character

2.3.3. It was previously identified in the AEI I Report that in this scenario there were three other undetermined wind farms subject to detailed assessment located within 15 km of the **Shepherds' Rig Wind Farm**, namely Windy Standard III, Troston Loch, and Margree. The Margree scheme has now been revised and there are also a further three applications of relevance to this scenario at Cornharrow (resubmission), Eucharhead and Fell.

2.3.4. Each of these four schemes is located adjacent to one or more existing operational or consented wind farms. Specifically, Cornharrow (resubmission) lies adjacent to Wether Hill, Eucharhead next to Lorg, Margree next to both Glenshimmeroch and Troston Loch, and Fell next to Blackcraig Hill as shown on AEI II Figure 2.1. As such, these further additional schemes would for the most part serve to reinforce existing effects, rather than introduce wind energy to new parts of the landscape. Each of the four schemes is considered in turn below, before consideration is given to the overall combined cumulative effect of the whole pattern of cumulative development proposed within the detailed study area.

2.3.5. Of the four schemes, Cornharrow (resubmission) lies closest to the **Shepherds' Rig Wind Farm**, with its nearest turbines lying just within 5 km to the east. Like the adjacent Wether Hill to its east, it lies within character type 19A Southern Uplands with Forest which covers much of the landscape to the east and north-east of the **Shepherds' Rig Wind Farm**. The area between the **Shepherds' Rig Wind Farm** and the Cornharrow (resubmission) also includes character type 4 – narrow wooded valley. The presence of Cornharrow (resubmission) in the landscape would serve to reinforce the cumulative

effect that was already identified to arise in this area of the landscape between the **Shepherds' Rig Wind Farm** and Wether Hill. Cornharrow (resubmission) would however be more prominent than Wether Hill and would increase the overall cumulative effect on the landscape between the group of Cornharrow (resubmission) and Wether Hill and that of **Shepherds' Rig**. However, there would be no additional parts of the landscape which would experience significant effects as the **Shepherds' Rig Wind Farm** was already identified to give rise to a significant effect on the Ken unit of character type 19A – Southern Uplands with Forest and the Ken unit of character type 4 – Narrow Wooded River Valley up to distances of 4.5 km to 5 km, which cover this area.

- 2.3.6. The Eucharhead scheme would also lie within character type 19A – Southern Uplands with Forest, but located beyond the Lorg scheme in the landscape at a distance of around 8-10 km to the north-east of the **Shepherds' Rig** site. Were this scheme to also lie in the baseline landscape, this would serve to further consolidate wind energy in that part of the Southern Uplands landscape that already occurs from both the adjacent Lorg site to its west, and also the nearby Afton and Windy Standard schemes. For those tracts of the landscape between the **Shepherds' Rig Wind Farm** and Eucharhead views of wind energy would be increased, but given that the Lorg turbines would already have been visible in this direction, and with regard to the infrequency of these views due to screening by intervening topography and land cover, there would be no change to the significant effects which have already been identified to arise as a result of the **Shepherds' Rig Wind Farm**.
- 2.3.7. The revised Margree scheme would lie beyond the Glenshimmeroch and Troston Loch schemes to the south-east of the **Shepherds' Rig Wind Farm**, which in this scenario are assumed to also form part of the baseline landscape. On that basis, the revised Margree turbines would serve to reinforce the presence of wind energy in this part of the landscape, visible as a grouping with other wind development. It is not considered that there would be any change to the significant effects which have already been identified to arise as a result of the **Shepherds' Rig Wind Farm**.
- 2.3.8. The proposed Fell wind farm lies adjacent to the operational Blackcraig Hill scheme, beyond the Glenshimmeroch, Troston Loch and Margree schemes at a distance of around 13 km south-east of the **Shepherds' Rig Wind Farm**. In the context of the other schemes between the Fell site and the **Shepherds' Rig Wind Farm**, it is not considered that the addition of the Fell scheme to the landscape would result in any change to the significant effects which have already been identified to arise as a result of the **Shepherds' Rig Wind Farm**.
- 2.3.9. Overall, it is recognised that the addition of these four further schemes to the cumulative pattern of wind energy development in the landscape would, should all four sites be consented, represents a notable further addition of wind energy to the landscape above that of the schemes which are already operational, or have been granted consent. The collective effect of the schemes would be to give rise to further significant effects to the landscape character; however, these effects would be largely restricted to the same tracts of the landscape in which schemes have already been constructed or

consented, primarily character types 19A – Southern Uplands with Forest and 18A – Foothills with Forest. Much of the landscape, in particular the lower lying areas in which the settlements and roads are largely located, would continue to experience no significant effects from wind energy.

- 2.3.10. The overall pattern of wind energy development that would arise if all consented and proposed schemes were to go on to be constructed would be one of wind energy located on the higher ground across different tracts of the landscape. In some areas, broad groupings of schemes are beginning to emerge, in particular in the Southern Uplands to the north of the site. Currently the **Shepherds' Rig Wind Farm** would lie in a separate part of the landscape, however, with regard to the proposed Quantans Hill scheme which is discussed in Appendix A2.1, it is noted that further schemes may yet come forward that would consolidate development in the area adjacent to the **Shepherds' Rig Wind Farm**.

Cumulative Effects on the Galloway Hills RSA

- 2.3.11. The introduction of the additional four schemes within the Scenario 2 baseline would be seen from the RSA, particularly from the higher ground within the Rhinns of Kells and from Cairnsmore of Carsphairn, as shown on the cumulative ZTVs at AEI II Figures 2.30 – 2.33. However, the schemes would in each case appear alongside existing wind farms and would largely appear to consolidate existing groupings of turbines lying within the landscape.
- 2.3.12. With the addition of the additional four schemes to the Scenario 2 baseline, there would be a slightly increased potential for cumulative effects on the RSA, by virtue of an increase in the number of wind turbines appearing within the landscape to the east of the RSA. However, each of the schemes will appear further from the RSA than the consented Glenshimmeroch Wind Farm which is already considered in the baseline of this Scenario. Wind energy development is already a characteristic of the landscape beyond the RSA and any significant effects on the RSA arising as a result of the introduction of the **Shepherds' Rig Wind Farm** to the landscape would continue to arise because of the scheme in its own right rather than due to cumulative effects.

Combined Cumulative Effects on Visual Amenity

- 2.3.13. Each of the four additional schemes is illustrated in the cumulative wireframes provided on sheet 1 of the updated visualisations (AEI II Figures 2.2 – 2.23) as well as in the 360 degree cumulative wireframes for notable highpoints (AEI II Figures 2.24 – 2.29). These demonstrate that for the most part visibility of these schemes alongside the **Shepherds' Rig Wind Farm** would be limited to higher parts of the landscape. Generally speaking, the only scheme of the four to be of particular relevance to combined cumulative visual effects is the Cornharrow (resubmission), mostly with regard to views from the Southern Upland Way. This can be referenced for example with reference to VP10 at Benbrack (AEI II Figure 2.11), where the addition of Cornharrow to the baseline would represent a notable change to the view, extending the visibility of turbines much closer to the route. The

Shepherds' Rig Wind Farm would then be located in the opposite direction from this section of the route. However, this equivalent situation already occurs elsewhere along the Southern Upland Way and it would only relate to a section of the route where the **Shepherds' Rig Wind Farm** of itself was already identified to give rise to a significant visual effect, rather than introducing a new significant effect.

- 2.3.14. Within northerly views, the inclusion of Eucharhead extends an existing pattern of wind development eastwards at the distant horizon, as seen at viewpoint 11 (AEI II Figure 2.12). However, the introduction of the **Shepherds' Rig Wind Farm into this baseline** would not bring about additional significant effects.
- 2.3.15. Overall, as with landscape character, there would be some localised cumulative effects on visual amenity as a result of the introduction of these four further schemes to the landscape, alongside all other existing and consented schemes. However, for the most part these effects would consolidate views of existing turbines already present in the landscape in the same direction as those schemes. There would be no further significant cumulative effects beyond those which would occur in any event in the absence of the **Shepherds' Rig Wind Farm**.
- 2.3.16. The overall pattern of development in the area would be perceived as being wind energy located in the upland tracts of the landscape, in some cases clustered together into groupings of development and in some cases separate from one another.

Sequential Cumulative Effects on Visual Amenity

- 2.3.17. The four routes that formed the primary receptors considered in the sequential cumulative assessment presented in Chapter 8 of the EIA Report (November 2018) and then updated in the AEI I Report were the B729, the B7000, the A713, and the Southern Upland Way.
- 2.3.18. As described previously, these four additional schemes are located adjacent to one or more existing operational or consented wind farms and would for the most part serve to reinforce existing effects, rather than introduce wind energy to new parts of the landscape. Each of the four schemes is considered in turn below, before consideration is given to the sequential effects of the whole pattern of cumulative development proposed in Scenario 2 within the detailed study area.
- 2.3.19. As with Scenario 1 above, the **Shepherds' Rig Wind Farm** would be seen in the context of a pattern of turbines extending from north to south over approximately 15 km to which the four additional schemes would be added in this Scenario 2. Wind development will be appreciable particularly as the Southern Upland Way passes over open higher ground. The significant sequential visual effects upon views from the Southern Upland Way, as set out in relation to Scenario 1, would remain, but these would occur in the absence of the **Shepherds' Rig Wind Farm** by virtue of the proximity of the other operational and consented and in planning sites to the route, in

particular, the Cornharrow wind farm would be close to the route to the east **of the Shepherds' Rig Wind Farm and further north, the Southern Upland Way** passes within the Eucharhead wind farm site area. Therefore, no additional significant effects over and above those assessed for the Shepherds' Rig Wind Farm in its own right (i.e. against the existing baseline), are predicted given this context.

- 2.3.20. The identified significant overall totality of effects identified in relation to Scenario 1 remain as a result of the effect of other wind development in the landscape **and which would be reinforced by the Shepherds' Rig Wind Farm.**
- 2.3.21. The addition of Fell and the revised Margree schemes would reinforce the existing pattern of wind energy to the south-**east of Shepherd' Rig and from the A713**, glimpsed views of these schemes alongside and set behind those of Glenshimmeroch, Knockman Hill and Blackcraig Hill, however such visibility would not be such as to bring about any significant effect, appearing beyond those of Glenshimmeroch, closer to the route. The forested landscape beyond the Water of Ken valley would have an increased presence of wind development which is increased by the revised Margree scheme and Fell wind farm, and the addition of the **Shepherds' Rig Wind Farm would not appear out of character** and not giving rise to a significant effect upon the A713.
- 2.3.22. It is identified for Scenario 1, that the Troston Loch wind farm to the south of **the B729 (east of the Shepherds' Rig site), would increase** the visibility of turbines from some locations on the route. The introduction of the Cornharrow wind farm would increase wind development visible to the north adjacent to the operational Wether Hill wind farm. Notwithstanding this, the introduction of the **Shepherds' Rig Wind Farm within views from this route** would not give rise to additional significant cumulative effects.
- 2.3.23. **The limited intervisibility on the B7000 between the Shepherds' Rig Wind Farm** and cumulative sites identified within the EIAR Report (November 2019) and the AEI I Report continues to apply to the updated Scenario 2 including the additional wind development of the Fell and revised Margree wind farms.
- 2.3.24. Along the A713, glimpsed views of the Troston Loch scheme may be available adjacent to Glenshimmeroch, but would not be such as create any significant effect. As noted in the AEI I Report, the overall effect would reinforce the presence of turbines within this outlying forested landscape beyond the Water of Ken Valley. Within this context the addition of the **Shepherds' Rig Wind Farm** would not appear out of character. The turbines of the **Shepherds' Rig Wind Farm** would appear as a distinctly separate wind farm from the Troston Loch and Glenshimmeroch schemes. The overall effect on the A713 would not be significant.
- 2.3.25. The addition of the Troston Loch Wind Farm would increase the overall visibility of turbines from the routes of the B729 and B700. Notwithstanding this, the addition of the **Shepherds' Rig Wind Farm**, in views from these routes would not give rise to any additional significant cumulative effects in this Scenario, over and above those identified for the development in its own right.

3. B729 Offsite Roadworks

3.1. Introduction

3.1.1. The B729 Offsite Roadworks (AEI II Figure 3.1.1) are required to facilitate turbine delivery and this section of the AEI II Report represents an assessment of the B729 Offsite Roadworks. This was not included in the EIA Report as significant effects were unlikely as a result of the B729 Offsite Roadworks; however, the lack of assessment was highlighted by the Dumfries and Galloway Council landscape officer in their response to AEI I. As such, in advance of the Public Inquiry, this supporting information has been included. This section is an addendum to the EIA Report (November 2018) and AEI I Report (October 2019), and should be read in conjunction with these, including figures and appendices.

3.1.2. The B729 Offsite Roadworks are based on the Abnormal Load Route Assessment (ALRA) presented within the EIA Report (November 2018). The ALRA is based on a standard blade trailer and included within the AEI II as Appendix A3.1 and is summarised below.

3.1.3. The route for turbine components will be transported as abnormal loads via the following route:

- Port of Ayr;
- A77 Bankfield Roundabout;
- A713;
- B729; and
- Site Entrance.

3.1.4. The Abnormal Load Route Assessment (Appendix A3.1) identified 15 probable work areas along the route to **the Shepherds' Rig Wind Farm site** entrance. The first six work areas are located between the Port of Ayr and the A713/B729 junction with includes the A77 and A713 and represent oversail, temporary relocation of street furniture (e.g. lights, signs, bollards, etc.), and overrun within the existing public road network (e.g. central reservations and islands). In regards to these six work areas, no new road surfaces outwith the existing road network would be required with no vegetation clearance anticipated. As such, the focus of this assessment is the B729 Offsite Roadworks from Carsphairn to the site entrance as these will involve overrun and oversail areas that require vegetation clearance to accommodate the candidate turbine (Vestas V117) with turbine blade details provided in AEI II Table 3.1.1

AEI II Table 3.1.1: V117 Turbine Dimensions

| V117 | Data Used in Assessment |
|-------|-------------------------|
| Blade | Length 57.15 m |

3.1.5. For the purposes of this assessment, the delivery vehicle specifications are presented in AEI II Table 3.1.2.

AEI Table 3.1.2: Assumed delivery vehicles for Turbine Blade

| V117 | Data | Source |
|--------------------------|---|-------------------------|
| Blade Trailer (Standard) | Vehicle length – 55.6 m Blade overhang – 6.2 m | Volvo Cab / TSR Trailer |

3.2. Scope of B729 Offsite Roadworks Assessment

- 3.2.1. The work areas to be assessed for the B729 Offsite Roadworks are detailed in AEI II Table 3.1.3 and shown on AEI II Figure 3.1.1. The B729 Offsite Roadworks are focused upon areas of road widening and oversail where environmental impacts may occur. Where necessary, third party permission would be secured.
- 3.2.2. Improvements are underway along the route from the junction of the A713 and B729 and along the B729 to facilitate turbine delivery for the Windy Rig Wind Farm (Planning Reference: 15/P/2/0155) which utilises the same route (AEI II Figure 3.1.1) with the Windy Rig site entrance located beyond the **Shepherds' Rig site entrance**. Whilst some of these areas would be reinstated and others left in situ, the assessment presented within this AEI II has not considered these improvements in order to present a worst-case assessment where no improvements have yet been made to the road network as this represents the most significant effect that may occur as a result of the B729 Offsite Roadworks.
- 3.2.3. It is acknowledged that some of the work identified within the nine work areas (AEI II Table 3.1.3) associated with the B729 Offsite Roadworks for the **Shepherds' Rig Wind Farm** may have already been implemented for the Windy Rig Wind Farm. Windy Rig is utilising a tilting blade trailer to deliver **turbine components whereas the B729 Offsite Roadworks for Shepherds' Rig Wind Farm** is based on a standard trailer. **Shepherds' Rig Wind Farm** may also ultimately utilise a tilting blade trailer for delivery, if available, with the feasibility of this option to be examined prior post-consent and prior to turbine delivery.

AEI II Table 3.1.3: Work Areas for the B729 Offsite Roadworks (AEI II Figure 3.1.1)

| Work Points | Location | Abnormal Load Effect | Road Mitigation and Construction Work to Be Assessed as Recommended within the Abnormal Load Route Assessment |
|-------------|--|---|--|
| PC/07 | A713/B729 Junction at Carsphairn | Trailer to overrun inside bend of junction within public land adjacent to Scottish Water facility. Load to oversail inside of right bend beyond junction. | Manual Rear Wheel Steering (RWS) required to negotiate bend. Load bearing surface to be laid in overrun area on inside bend. Vegetation to be cleared from all oversail areas. |
| PC/08 | B729 Junction at War Memorial | Vehicle to overrun inside bend and conflict with telegraph posts and stone wall. | Telegraph posts to be permanently relocated outside of overrun and oversail areas. Load bearing surface to be laid in overrun areas. Stone wall to be relocated. |
| PC/09 | Bend on B729 over culvert at Dalbonniton Knowe | Load to oversail inside bend above bridge parapet. | Site observations would suggest this is unlikely to be an issue. |
| PC/10 | B729 Burnfoot Bridge | Blade tip to oversail outside bend and conflict with telegraph posts. Load to oversail inside bend over bridge parapet. Vehicle to overrun outside bend east of bridge and conflict with telegraph posts. | Telegraph posts to be permanently relocated. Vegetation to be cleared from oversail areas. Load bearing surface to be laid in overrun area. |
| PC/11 | B729 Bend Beyond Burnfoot Bridge | Vehicle to overrun outside bend, blade tip to oversail outside bend. | Load bearing surface to be laid in overrun area. Vegetation to be cleared from oversail area. |
| PC/12 | B729 Bend at Kengslen | Mapping does not correspond to site observations. | Likely to require widening works. |
| PC/13 | B729 Bend at Nether Loskie | Vehicle to overrun outside bend on east side of road. | Load bearing surface to be laid in overrun area. Vegetation to be cleared from overrun and oversail areas. |
| PC/14 | Bend at B729/B7000 Junction | Blade tip to oversail outside bend to south. Vehicle to overrun outside bend to east. Load to oversail inside bend and conflict with sign. | Vegetation to be cleared from oversail areas. Load bearing surface to be laid in overrun area. Road sign to be relocated or mounted on demountable supports. |
| PC/15 | B729 Bend at Muirdrochwood | Oversail and overrun at various locations on inside and outside of series of bends. Inconsistencies noted between mapping and on-site observations. | Vegetation clearance may be required to accommodate vehicle and blade tip oversail. Overrun areas to be constructed. |

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3.2.4. The EIA Regulations require the Applicant to "describe the likely significant effects" of a development; effects that are not considered significant do not need to be described to meet the requirements of the EIA Regulations.

3.2.5. Based upon the requirement to focus on likely significant effects, the environmental topics detailed in AEI II Table 3.2.1 are scoped out of the AEI II for the B729 Offsite Roadworks as significant effects are unlikely to occur.

AEI II Table 3.2.1: Technical Areas Scoped Out of B729 Offsite Roadworks Assessment as Significant Effects Unlikely

| Technical Area | Reason for Scoping Out |
|---|--|
| Forestry | Limited vegetation clearance required for the offsite roadworks at localised locations of oversail. Removal of any trees, if required, would be subject to compensatory planting and agreed with Scottish Forestry. |
| Ornithology | Offsite Roadworks would be limited in extent and located in areas of low ornithological value as identified by the ecology surveys. Furthermore, due to works being short-term in nature, there is no potential for significant effects on bird populations. Consequently, there is considered to be no potential for any adverse effect on regional populations of species of medium or high Nature Conservation Importance as a result of the Offsite Roadworks, including cumulative effects. |
| Geology and Peat | AAA desk-based mapping review of areas of overrun will generally take place within the alluvial, glacio-fluvial or river soils within the channel of the Water of Deugh or made ground soils originating from the construction of the B729. Therefore, no impacts on peat are likely and any effects are not significant. Additionally, construction best practice would be implemented to manage environmental effects. |
| Noise | Construction works would be localised and temporary. As advocated by BS 5228 ² , noise from works of a duration of less than 1 month are unlikely to constitute a significant effect. Works in any of the areas detailed in AEI II Table 3.1.3 are expected to last for a period of substantially less than 1 month, and the proposed works are relatively non-invasive, with no piling or deep excavation required. As such, there is no reasonable prospect of a significant effect. Additionally, the site contractors shall be required to employ the best practicable means of reducing noise emissions from plant, machinery and construction activities, as advocated in BS 5228. |
| Aviation | The localised minor improvements would not affect air traffic or radar. |
| Socio-economics, Tourism and Recreation | The road works are localised and limited so that there is unlikely to be any long term effect upon socio-economics, tourism and recreation receptors. |
| Shadow Flicker | No potential for shadow flicker effects associated with turbine delivery. |

² BS 5228: 2009+A1: 2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites

| Technical Area | Reason for Scoping Out |
|-----------------------------------|--|
| Telecommunications and Utilities | The Offsite Roadworks would adhere to construction best practice to ensure there is no effect upon telecommunications and utilities. |
| Health and Safety | Requirements for human health would be covered under the Construction Environmental Management Plan and any construction method statements by the Principal Contractor for Shepherd's Rig Wind Farm to ensure no significant effects. |
| Climate Change and Carbon Balance | The offsite roadworks are localised and temporary and would not result in a noticeable change to climate change or the carbon balance. |

3.2.6. This AEI II Report is focused on the areas where potential environmental effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance may occur which include:

- Landscape and Visual;
- Ecology;
- Cultural Heritage;
- Traffic and Transport; and
- Hydrology and Hydrogeology.

3.2.7. The assessment follows the EIA Methodology presented in Section 6.3 of the EIA Report (November 2018) which in summary considers the following combined with professional judgement:

- The sensitivity of the resource or receptor under construction;
- The magnitude of potential impact in relation to the degree of change which occurs as a result of the **Shepherds' Rig Wind Farm** and B729 Offsite Roadworks;
- The type of effect, i.e. adverse, beneficial, neutral or uncertain;
- The probability of the effect occurring, i.e. certain, likely or unlikely; and
- Whether the effect is temporary, permanent and/or reversible.

3.2.8. Each chapter sets out its own specific methodology, but the assessments will broadly follow the assessment of effects as detailed in paragraphs 6.4.1 to 6.4.10 in the EIA Report (November 2018).

3.3. Landscape and Visual

Introduction

3.3.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance (B729 Offsite Roadworks). It supplements Chapter 8: Landscape and Visual of the EIA Report (November 2018) and AEI (October 2019) and should be read in conjunction with it.

3.3.2. This chapter considers the potential effects of the B729 Offsite Roadworks upon:

- Individual landscape features and elements;
- Landscape character;
- Specific views; and
- People who view the landscape.

3.3.3. As stated in Section 3.1, this chapter has not considered the improvements brought about by the Windy Rig Wind Farm which utilises the same road for access, in order to present a worst-case assessment.

Methodology

3.3.4. The same significance criteria and assessment methodology as referred to in Chapter 8, section 8.3 of the EIA Report (November 2018) and section 8.2 of the AEI I Report have been followed.

Baseline Conditions

3.3.5. AEI II Table 3.3.1 identifies the baseline conditions along the road from each work point where work is proposed along the length of the B729 Offsite Roadworks and assumes that the improvements from the Windy Rig Wind Farm have not taken place. This has been prepared base upon a combination of topographical survey, aerial and street imagery and a drive through survey carried out on the 25th February 2021 for the purposes of this assessment.

AEI II Table 3.3.1: Landscape and Visual Baseline Conditions

| Work Points | Baseline Conditions |
|-------------|--|
| PC/07 | Access point from the A713 to a rural residential road. Vegetation is located either side of the road on locally elevated ground which filters views towards the two nearby residential properties and substations with associated maintenance access. A number of overhead powerlines cross over or near to the road junction. Both properties are screened from the junction by vegetation surrounding the property. |

| Work Points | Baseline Conditions |
|------------------------|---|
| PC/08 | The stretch of road is generally open overlooking surrounding moorland and farmland, with the road defined by dry stone walls with occasional self seeded scrub on grass verges. The surroundings provide a setting for the Carsphairn War Memorial which is located to the south of the road and occupies a locally elevated position with views towards the Water of Deugh in context of traffic along the A713. A number of overhead powerlines on telegraph poles follow or cross the road. |
| PC/09 | The road is defined by a dry-stone wall with open farmland to the south and a mature native block of woodland to the north on rising land. Overhead powerlines on telegraph poles follow the northern edge of the road. |
| PC/10 | The road passes over a small bridge crossing Marbrack Burn and close to a number of residential properties. The road is located close to the Water of Deugh, with glimpsed views possible along the river valley in between roadside vegetation. Overhead powerlines on telegraph poles follow the northern edge of the road. |
| PC/11 | The road passes close to the Water of Deugh with a steep sided vegetated embankment to the north and glimpses towards the water course to the south along gently undulating valley. Overhead powerlines on telegraph poles follow the northern edge of the road. |
| PC/12 | The road winds close to the Water of Deugh with vegetation located on both sides, with glimpses towards the water course and surrounding farmland either side of the road. The road appears isolated from nearby residential properties. Overhead powerlines on telegraph poles follow the northern edge of the road. |
| PC/13 | The area is defined by dense trees and vegetation either side of the meandering road providing an intimate character, with occasional glimpses towards the Water of Deugh. |
| PC/14 | The road links with the B7000, as direction of travel along the road changes direction and follows the Water of Ken. The vegetation either side of the road is predominately coniferous plantation woodland of various ages. |
| PC/15 | The road passes through areas of coniferous plantation woodland of various ages, which provides a sense of enclosure and remoteness. The road is generally narrow and meandering with evidence of overhead powerline crossing the road and wide access points to commercial forestry areas. |
| Overall extent of road | The stretch of road is rural in nature with open views over the Water of Deugh to the west, with numerous residential properties overlooking the route and more enclosed to the east, with a prominence of coniferous plantation woodland. Overhead powerlines, built form and commercial forestry activity influence the character of the route. |

Assessment of Effects

- 3.3.6. AEI II Table 3.3.2 identifies the potential effects of the B729 Offsite Roadworks from each work point, as well as assessing the overall effects upon the road. The effects considered include landscape features, landscape character and visual amenity of those using the road or living nearby.
- 3.3.7. Within the landscape and visual chapter of the EIA Report Viewpoint 22 from Carsphairn War Memorial is located at work point PC/08 of the B729 Offsite Roadworks (AEI II Figure 2.23).
- 3.3.8. With reference to landscape and visual sensitivity, it is noted that in a number of cases, this could vary between landscape features, landscape character and various visual receptors. However, so the assessment assumes a worst-case scenario, it has been assumed that the landscape and visual sensitivity will be high.
- 3.3.9. With reference to work point PC/12, although the anticipated works are not known, it has been assumed that road widening and vegetation removal may be required to a similar extent as other work points along the road, as a worst-case scenario.

AEI II Table 3.3.2: Landscape and Visual Effects

| Work Points | Consideration of Landscape and Visual Effects |
|-------------|---|
| PC/07 | <p>Landscape Features: The proposals would result in the cutting back or removal of some trees along the route, however, would retain most of the vegetation surrounding the two nearby properties. Some benefits resulting in the removal of overhead utilities. The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: The proposals would affect the setting of the junction between the A713 and B729 over a very limited area and would not influence the overall character of the area. The magnitude of change upon landscape character is predicted to be Very Low, resulting in a Minor level of effect.</p> <p>Visual Amenity: Limited visual effects to road users and two nearby residential properties. The magnitude of change upon visual receptors is predicted to be no greater than Low, resulting in a Moderate/Minor level of effect.</p> |

| Work Points | Consideration of Landscape and Visual Effects |
|---|--|
| PC/08 (refer to Viewpoint 22 in EIA Report) (AEI II Figure 2.23) | <p>Landscape Features: The proposals would result in the removal of roadside scrub and sections of dry-stone wall. Some benefits resulting in the relocation of utilities (telegraph poles and wires). The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Loss of landscape features such as dry-stone walls and increase of road surfacing in an area already influenced by numerous roads. The magnitude of change upon landscape character is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: Setting of Carsphairn War Memorial altered, in an area already dominated by road infrastructure, with limited visual effects upon road users. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |
| PC/09 | <p>Landscape Features: Some vegetation will be lost or cut back along the northern edge of the road; however, the drystone wall will be retained. Some benefits resulting in the relocation of overhead utilities. The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: The removal of vegetation would result in negligible change to physical and perceptual attributes of the landscape character of the area. The magnitude of change upon landscape character is predicted to be Very Low, resulting in a Minor level of effect.</p> <p>Visual Amenity: There would be limited effects upon users of the road as a result of the roadworks. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |
| PC/10 | <p>Landscape Features: Some vegetation will be lost close to Marbrack Burn, with additional hard surfacing introduced. Some benefits resulting in the removal of overhead utilities. The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: The removal of vegetation would result in negligible change to physical and perceptual attributes of the landscape character of the area. The magnitude of change upon landscape character is predicted to be Very Low, resulting in a Minor level of effect.</p> <p>Visual Amenity: Limited visual effects to road users and two nearby residential properties. The magnitude of change upon visual receptors is predicted to be no greater than Low, resulting in a Moderate/Minor level of effect.</p> |

| Work Points | Consideration of Landscape and Visual Effects |
|-------------|---|
| PC/11 | <p>Landscape Features: The addition of hard surfacing close to the water course and the loss of vegetation on both sides of the road would give rise to a Low magnitude of change, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Due to the proximity to the Water of Deugh and extent of vegetation removal, there would be a minor alteration to the physical and perceptual attributes of the landscape character of the area. The magnitude of change upon landscape character is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: There would be limited effects upon users of the road as a result of the roadworks. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |
| PC/12 | <p>Landscape Features: Limited areas of vegetation will be removed as a result of the road widening on both sides of the road. The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Despite the proximity to the Water of Deugh, the removal of vegetation would result in negligible change to physical and perceptual attributes of the landscape character of the area. The magnitude of change upon landscape character is predicted to be Very Low, resulting in a Minor level of effect.</p> <p>Visual Amenity: There would be limited effects upon users of the road as a result of the roadworks. The magnitude of change upon visual receptors is predicted to be Very Low, resulting in a Minor level of effect.</p> |
| PC/13 | <p>Landscape Features: Linear areas of roadside vegetation will be removed and replaced by areas of hard standing. Although localised in nature, vegetation removal would occur along an approximate length of 250m. The magnitude of change upon landscape features is predicted to be Medium/Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Due to the extent of vegetation removal, there would be a minor alteration to the physical and perceptual attributes of the landscape character of the area. The magnitude of change upon landscape character is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: There would be minor alterations in views along the road as a result of the vegetation removal and roadworks. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |

| Work Points | Consideration of Landscape and Visual Effects |
|-------------|---|
| PC/14 | <p>Landscape Features: Limited areas of vegetation will be removed as a result of the road widening on both sides of the road. Some benefits resulting in the removal of overhead utilities. The magnitude of change upon landscape features is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Due to the extent of vegetation removal, there would be a minor alteration to the physical and perceptual attributes of the landscape character of the area in proximity to the road junction. The magnitude of change upon landscape character is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: There would be minor alterations in views along the two roads as a result of the vegetation removal and roadworks, with the width of road appearing wider. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |
| PC/15 | <p>Landscape Features: Some loss of areas of roadside vegetation along a 350m stretch of road, including coniferous plantation woodland as a result of road widening either side of the road. The magnitude of change upon landscape features is predicted to be Medium/Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: Due to the extent of vegetation removal, there would be a minor alteration to the physical and perceptual attributes of the landscape character of the area in proximity to the road junction. The magnitude of change upon landscape character is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: There would be minor alterations in views along the road with a reduced sense of enclosure as a result of the vegetation removal and roadworks. The magnitude of change upon visual receptors is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> |

| Work Points | Consideration of Landscape and Visual Effects |
|------------------------|--|
| Overall extent of road | <p>Landscape Features: Although areas of roadside vegetation would be lost at regular intervals along the road, including features such as drystone walls to the west and commercial forestry to the east, the extent of vegetation loss is limited in nature. Therefore, the overall magnitude of change upon landscape features as a result of the B729 Offsite Roadworks is predicted to be Low, resulting in a Moderate/Minor level of effect.</p> <p>Landscape Character: In a number of locations, vegetation and feature removal, along with road widening would have some influence upon the overall character of the road. However, the B729 Offsite Roadworks are predicted to result in only minor alterations to some of the key physical and perceptual attributes of the overall experience along the route. On balance, the overall magnitude of change upon landscape character as a result of the B729 Offsite Roadworks is predicted to be no greater than Low, resulting in a Moderate/Minor level of effect.</p> <p>Visual Amenity: There would be some minor alterations in views for road users and some properties as a result of the works. The overall magnitude of change upon visual amenity as a result of the B729 Offsite Roadworks is predicted to be Low, resulting in an overall Moderate/Minor level of effect.</p> |

- 3.3.10. AEI II Table 3.3.3 provides a summary of the landscape and visual effects as a result of the B729 Offsite Roadworks, building upon the above:

AEI II Table 3.3.3: Summary of Landscape and Visual Effects

| Work Points | Sensitivity | Receptor Type | Magnitude of Change | Level of Effect | Significance |
|-------------|-------------|---------------------|---------------------|-----------------|-----------------|
| PC/07 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Very Low | Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/08 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/09 | High | Landscape Features | Low | Moderate/Minor | Not Significant |

| Work Points | Sensitivity | Receptor Type | Magnitude of Change | Level of Effect | Significance |
|-------------|-------------|---------------------|---------------------|-----------------|-----------------|
| | | Landscape Character | Very Low | Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/10 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Very Low | Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/11 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/12 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Very Low | Minor | Not Significant |
| | | Visual Receptors | Very Low | Minor | Not Significant |
| PC/13 | High | Landscape Features | Medium/Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/14 | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| PC/15 | High | Landscape Features | Medium/Low | Minor | Not Significant |

| Work Points | Sensitivity | Receptor Type | Magnitude of Change | Level of Effect | Significance |
|------------------------|-------------|---------------------|---------------------|-----------------|-----------------|
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |
| Overall extent of road | High | Landscape Features | Low | Moderate/Minor | Not Significant |
| | | Landscape Character | Low | Moderate/Minor | Not Significant |
| | | Visual Receptors | Low | Moderate/Minor | Not Significant |

Mitigation

- 3.3.11. It is assumed that the proposed road widening along the B729 would be permanent, and therefore, any vegetation lost as a result, would not be replanted. However, planting areas of grass verges would be reinstated in areas where working corridors would be required in order to construct areas of road widening.
- 3.3.12. It is also anticipated that any boundary features such as dry-stone walls would be replaced and therefore effects would be temporary in nature. There would be a benefit to the permanent removal of overhead utilities / powerlines where alternative underground locations could be possible.

Summary

- 3.3.13. Along the entire length of the road the B729 Offsite Roadworks would introduce localised landscape and visual effects at periodic intervals along the road, which would have limited influence upon the users of the road, landscape feature and the landscape character and setting of the route.
- 3.3.14. In a number of locations, vegetation and feature removal, along with road widening would have some influence upon the overall character of the road and effect landscape features. However, the B729 Offsite Roadworks are predicted to result in only minor alterations to key physical and perceptual attributes upon the overall experience of the road, as well as limited losses to vegetation and local features. On balance, the overall magnitude of change upon landscape character and landscape features as a result of the B729 Offsite Roadworks is predicted to be Low, resulting in Moderate/Minor level of effects.
- 3.3.15. There would be some minor alterations in views for road users and some properties as a result of the works. The overall magnitude of change upon visual amenity as a result of the B729 Offsite Roadworks is predicted to be Low, resulting in an overall Moderate/Minor level of effect. The proposed

mitigation measures will have the potential to reduce landscape and visual effects in the longer term for delivery using a standard trailer. The use of a tilting trailer would reduce the effects set out above.

Statement of Significance

- 3.3.16. Effects on landscape features, landscape character and visual amenity associated with the B729 Offsite Roadworks are all considered to be not significant.

3.4. Ecology

Introduction

- 3.4.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance (B729 Offsite Roadworks). It supplements Chapter 9 of the EIA Report (November 2018) and AEI Report (October 2019) and should be read in conjunction with it.

Methodology

- 3.4.2. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and AEI (October 2019), where relevant, updated as follows.
- 3.4.3. Since the 2018 EIA Report, NatureScot (formerly Scottish Natural Heritage (SNH)) released updated bat survey guidance³ regarding bats and onshore wind turbine developments in the UK. This guidance is not applicable to the assessment of Offsite Works as they are only applicable to wind turbine development.
- 3.4.4. In light of the above, there have been no substantial changes to legislation, policy and guidance which would alter the conclusions of the EIA Report (November 2018) or the AEI I Report (October 2019).
- 3.4.5. An Extended Phase 1 Habitat survey (hereby referred to as the Phase 1 Survey) of the Site was undertaken by Arcus Ecologist Laura Spence MCIEEM on the 24th February 2021 following standard Joint Nature Conservation Committee (JNCC) survey methodology⁴. Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The survey was extended to include consideration of the habitat suitability and presence of protected or otherwise notable species.
- 3.4.6. Although surveys were undertaken out with the optimal period for habitat and botany survey, NatureScot do not consider this period unsuitable for Phase 1 Habitat Surveys⁵. Additionally, due to the low value of habitats recorded and minor scale of the proposed works, the survey period was considered suitable to inform the baseline for this assessment.
- 3.4.7. Surveys were carried out within 50 m of the B729 Offsite Roadworks (Survey Area), where access permitted. Due to the lack of sensitive habitats and botanical species recorded during the Phase 1 Survey, there was no

³ Joint Publication SNH, Natural England, et al. (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation

⁴ JNCC (2010) Handbook for Phase 1 Habitat Survey: A technique for environmental audit. 5th Edition

⁵ NatureScot (2020) Ecological Survey Calendar. Available online at: <https://www.nature.scot/ecological-survey-calendar> [accessed 19 February 2021]

requirement for a National Vegetation Classification (NVC) Survey to be carried out.

3.4.8. Due to large number of separate areas of private land (including residential housing and gardens) located within the Survey Area, full coverage of the Survey Area was often not possible. However, due to the very low value of the majority of habitats within and adjacent to the B729 Offsite Roadworks, this is unlikely to have had a notable impact on the robustness of the data collected. In addition, the implementation of good practice measures, as outlined below, are considered sufficient to ensure any ecology feature is appropriately safeguarded.

3.4.9. The same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed. Taking into account the relevant policy and guidance, and assessment criteria, an assessment is presented below which details the effects of the B729 Offsite Roadworks.

Baseline Conditions














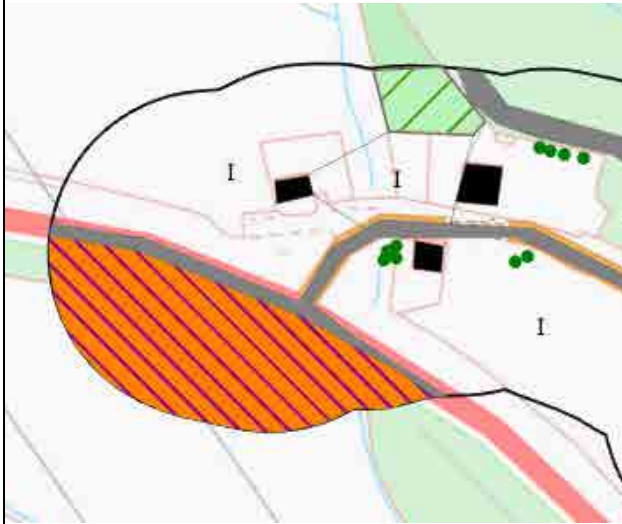
3.4.10. Habitats recorded within the Survey Area (AEI III Table 3.4.1) were limited to common and widespread habitats of low to negligible conservation value, many of which were non-natural and included:















- Broadleaved woodland – semi natural (A1.1.1);
- Coniferous woodland – plantation (A1.2.2);
- Mixed plantation woodland (A.3.2.);
- Marshy grassland (B5);
- Improved grassland (B4);
- Tall ruderal (C3.1);
- Running water (G2);
- Amenity grassland (J.1.2);
- Bare ground (J4);
- Built up areas (J3); and
- Buildings (J3.6)














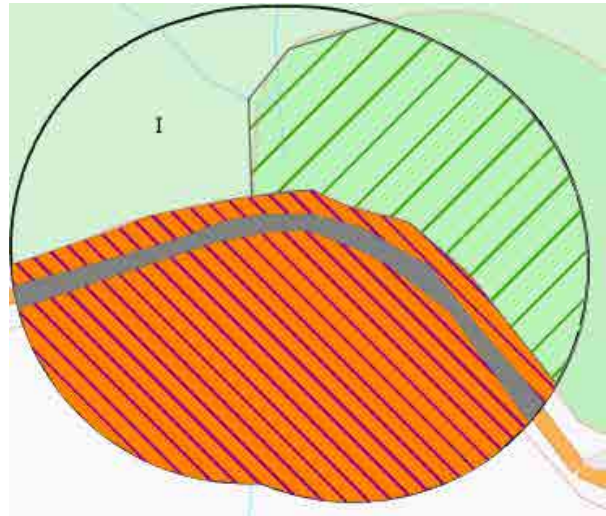
3.4.11. No evidence of protected species was recorded, and habitats were generally considered of limited value to most protected species, with the exception of otter, where good potential for foraging, commuting and shelter was recorded widely in the local area. Some suitability for foraging and commuting badger was recorded, and localised low-moderate suitability for water vole, red squirrel, pine marten and roosting bats was also recorded. As such, it is considered likely that otter is present in the local area with badger also likely to be present. Although the presence of water vole, pine marten, red squirrel and roosting bats cannot be ruled out, their presence within the Survey Area is considered unlikely, due to the limited value of the habitats recorded for these species.

3.4.12. Further details of the habitats and protected species suitability recorded is presented in AEI II Table 3.4.2 with photos presented in AEI II Table 3.4.2.














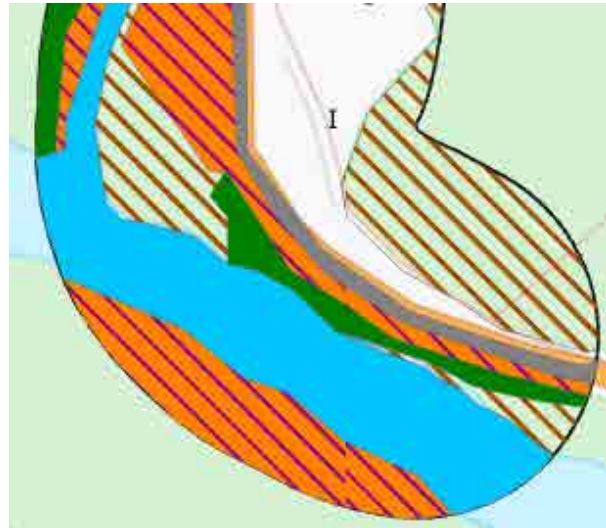
AEI II Table 3.4.1: Working areas and Ecological Features within Survey Area














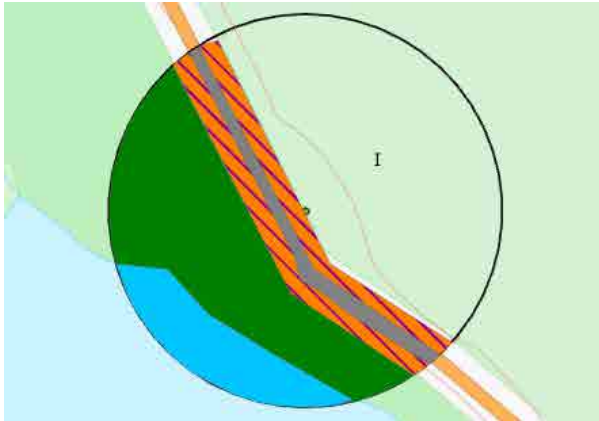
| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|--|----------------------------------|--|---|--|
| <p>Key: Phase 1 Habitats</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p> Marshy grassland</p> <p> Improved grassland</p> <p> Broadleaved woodland - semi natural</p> <p> Coniferous woodland - plantation</p> <p> Mixed woodland - plantation</p> <p> Other tall herb and fern - ruderal</p> <p> Cultivated/disturbed land - amenity grassland</p> </div> <div style="width: 50%;"> <p> Standing water</p> <p> Running water</p> <p> Built up area</p> <p> Buildings</p> <p> Bare ground</p> <p> Broadleaved scattered trees</p> </div> </div> | | | | |
| PC/07 | A713/B729 Junction at Carsphairn | Vegetation clearance and load bearing surface to be laid in overrun area | <ul style="list-style-type: none"> • Marshy grassland (B5) • Improved grassland (B4) • Running water (G2) - Unnamed tributary of the Water of Deugh • Mixed plantation (A.3.2.) • Broadleaved scattered trees • No evidence of protected species recorded • Some low bat roost potential, but no potential roosting features (PFRs) recorded (see AEI II Table 3.4.2, Photo 1) • Some red squirrel potential but no dreys recorded. (see AEI II Table 3.4.2, Photo 1) |  |

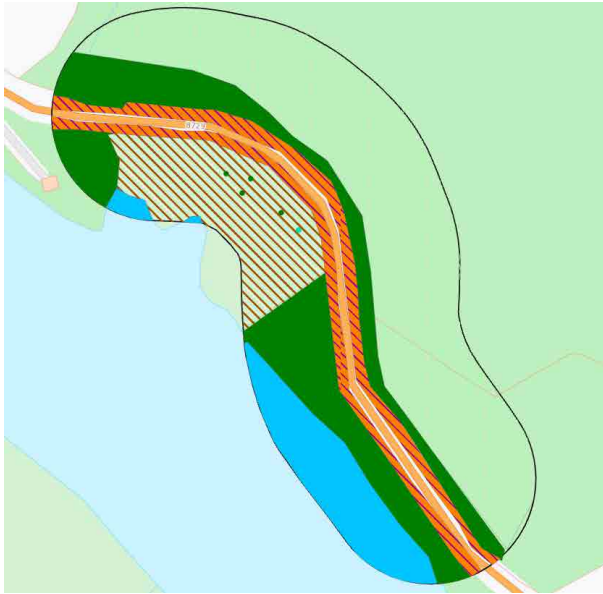
| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|--|-------------------------------|--|--|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/08 | B729 Junction at War Memorial | Load bearing surface to be laid in overrun area and relocation of stone wall | <ul style="list-style-type: none"> Marshy grassland (B5) Improved grassland (B4) Amenity grassland (J.1.2) Running water (G2) - Unnamed tributary of the Water of Deugh Broadleaved scattered trees No evidence of protected species recorded Low otter and badger foraging and resting potential for (see AEI II Table 3.4.2, Photos 2 & 3). |  |














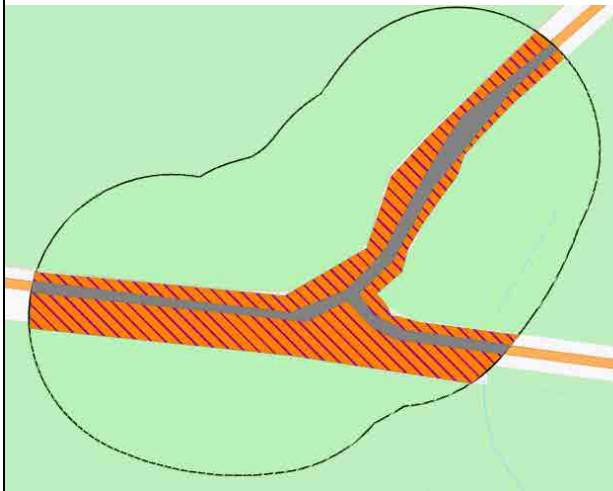
| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|--|--|--|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/09 | Bend on B729 over culvert at Dalbonniton Knowe | Vegetation clearance will take place, but drystone wall will be retained | <ul style="list-style-type: none"> Marshy grassland (B5) Improved grassland (B4) Mixed plantation (A.3.2.) No evidence of protected species recorded. Moderate red squirrel and badger foraging and resting potential but no setts or dreys recorded (see AEI II Table 3.4.2, Photo 4) Low/moderate water vole potential (see AEI II Table 3.4.2, Photo 5) |  |















| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|----------------------|--|---|---------------------------|
| <p>Key: Phase 1 Habitats</p> <div> <div> <div>Marshy grassland</div> <div>I Improved grassland</div> <div>Broadleaved woodland - semi natural</div> <div>Coniferous woodland - plantation</div> <div>Mixed woodland - plantation</div> <div>Other tall herb and fern - ruderal</div> <div>A Cultivated/disturbed land - amenity grassland</div> </div> <div> <div>Standing water</div> <div>Running water</div> <div>Built up area</div> <div>Buildings</div> <div>Bare ground</div> <div>Broadleaved scattered trees</div> </div> </div> | | | | |
| PC/10 | B729 Burnfoot Bridge | Vegetation clearance and load bearing surface to be laid in overrun area | <ul style="list-style-type: none"> Marshy grassland (B5) Improved grassland (B4) Running water (G2) - Marbrack Burn Broadleaved woodland – semi natural (A1.1.1) Broadleaved scattered trees Tall ruderal (C3.1) No evidence of protected species recorded. Low/moderate red squirrel suitability (see AEI II Table 3.4.2, Photo 6) Good general otter suitability (see AEI II Table 3.4.2, Photo 7) | |

| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|----------------------------------|--|--|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/11 | B729 Bend Beyond Burnfoot Bridge | Vegetation clearance and load bearing surface to be laid in overrun area | <ul style="list-style-type: none"> Marshy grassland (B5) Improved grassland (B4) Running water (G2) - The Water of Deugh Broadleaved woodland – semi natural (A1.1.1) Tall ruderal (C3.1) No evidence of protected species recorded Good general otter suitability (see AEI II Table 3.4.2, Photo 8) Low red squirrel, badger and roosting bat suitability (see AEI II Table 3.4.2, Photo 9) |  |




| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|--|-----------------------|---|--|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/12 | B729 Bend at Kensglen | Load bearing surface to be laid in overrun area (if required) | <p>The Water of Deugh and Kendoon Loch</p> <ul style="list-style-type: none"> • Marshy grassland (B5) • Improved grassland (B4) • Running water (G2) • Standing Water • Broadleaved woodland – semi natural (A1.1.1) • No evidence of protected species recorded; • Good general otter potential (see AEI II Table 3.4.2, Photo 10) |  |

| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|----------------------------|--|---|--|
| <p>Key: Phase 1 Habitats</p> <div> <div> <div>Marshy grassland</div> <div>I Improved grassland</div> <div>Broadleaved woodland - semi natural</div> <div>Coniferous woodland - plantation</div> <div>Mixed woodland - plantation</div> <div>Other tall herb and fern - ruderal</div> <div>A Cultivated/disturbed land - amenity grassland</div> </div> <div> <div>Standing water</div> <div>Running water</div> <div>Built up area</div> <div>Buildings</div> <div>Bare ground</div> <div>Broadleaved scattered trees</div> </div> </div> | | | | |
| PC/13 | B729 Bend at Nether Loskie | Vegetation clearance and load bearing surface to be laid in overrun area | <p>The Water of Deugh c. 25 m south-west of works</p> <ul style="list-style-type: none"> • Marshy grassland (B5) • Improved grassland (B4) • Running water (G2) • Broadleaved woodland – semi natural (A1.1.1) • Broadleaved scattered trees • Tall ruderal (C3.1) • No evidence of protected species recorded • Good general otter suitability (see AEI II Table 3.4.2, Photo 11) • Moderate badger potential but low protected species potential elsewhere (see AEI II Table 3.4.2, Photo 12). |  |







| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|-----------------------------|--|--|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/14 | Bend at B729/B7000 Junction | Vegetation clearance and load bearing surface to be laid in overrun area | <ul style="list-style-type: none"> Marshy grassland (B5) Running water (G2) - Unnamed tributary of the Water of Deugh No evidence of protected species recorded Low protected species potential (see AEI II Table 3.4.2, Photo 13) |  |

| Work Points | Location | Description of Works | Ecological Features | Phase 1 Habitats Recorded |
|---|----------------------------|--|---|--|
| <p>Key: Phase 1 Habitats</p> <div> <div>  Marshy grassland  Improved grassland  Broadleaved woodland - semi natural  Coniferous woodland - plantation  Mixed woodland - plantation  Other tall herb and fern - ruderal  Cultivated/disturbed land - amenity grassland </div> <div>  Standing water  Running water  Built up area  Buildings  Bare ground  Broadleaved scattered trees </div> </div> | | | | |
| PC/15 | B729 Bend at Muirdrochwood | Vegetation clearance and load bearing surface to be laid in overrun area | <ul style="list-style-type: none"> Marshy grassland (B5) Running water (G2) - The Water of Ken c Broadleaved woodland – semi natural (A1.1.1) Coniferous woodland – plantation (A1.2.2) No evidence of protected species recorded Low badger sett and bat roosts suitability (see AEI II Table 3.4.2, Photo 14) Low/moderate water vole (see AEI II Table 3.4.2, Photo 15 & 17) red squirrel and pine marten (see AEI II Table 3.4.2, Photo 16) suitability Good otter potential (see AEI II Table 3.4.2, Photo 18) |  |

AEI II Table 3.4.2: Site Photo Log

| Photo Log | | |
|--|--|---|
|  |  |  |
| Photo 1: Broadleaf Woodland at A713/B729 Junction at Carsphairn (PC/07). Low to moderate bat and red squirrel resting potential. | Photo 2: Unnamed tributary of the Water of Deugh. Low protected species suitability (PC/08). | Photo 3: B729 Junction at War Memorial (PC/08). Low protected species suitability. |
|  |  |  |
| Photo 4: Mixed woodland with moderate red squirrel and badger foraging and resting potential near Dalbonniton Knowe (PC/09). | Photo 5: Unnamed burn near Dalbonniton Knowe with low/moderate water vole and otter potential (PC/09). | Photo 6: Mixed woodland near Burnfoot Bridge with moderate red squirrel and badger foraging and resting potential (PC/10) |

| | | |
|---|--|---|
|  |  |  |
| <p>Photo 7: From Marbrack burn looking onto Water of Deugh at B729 Burnfoot Bridge (PC/10). Good otter suitability.</p> | <p>Photo 8: Water of Deugh beyond Burnfoot Bridge (PC/11). Good otter suitability.</p> | <p>Photo 9: Ruderal vegetation at B729 bend beyond Burnfoot Bridge (PC/11). Low protected species suitability.</p> |
|  |  |  |
| <p>Photo 10: Water of Deugh near B729 bend at Kensglen (PC/12). Good otter suitability</p> | <p>Photo 11: Water of Deugh at B729 bend at Nether Loskie (PC/13). Good otter suitability.</p> | <p>Photo 12: Broadleaved woodland, ruderal vegetation and grassland at B729 bend at Nether Loskie (PC/13). Moderate badger potential.</p> |

| | | |
|--|---|---|
|  |  |  |
| <p>Photo 13: Coniferous plantation and grassland habitats at B729/B7000 Junction (PC/14). Low protected species suitability.</p> | <p>Photo 14: Semi natural broadleaved woodland east of B729 bend at Muirdrochwood (PC/15). Low/moderate protected species suitability.</p> | <p>Photo 15: Unnamed minor tributary of Water of Ken south of B729 bend at Muirdrochwood (PC/15). Low water vole suitability.</p> |
|  |  |  |
| <p>Photo 16: Coniferous plantation woodland at B729 bend at Muirdrochwood (PC/15). Low/moderate protected species suitability.</p> | <p>Photo 17: Unnamed tributary of Water of Ken south-east of B729 bend at Muirdrochwood (PC/15). Moderate water vole and otter suitability.</p> | <p>Photo 18: Water of Ken east of B729 bend at Muirdrochwood (PC/15). Good otter suitability.</p> |

Important Ecological Features

- 3.4.13. In accordance with CIEEM guidance⁶ an evaluation of the nature conservation value of the habitats and species present within or in the immediate vicinity of the B729 Offsite Roadworks, or considered likely to be present, is required. In this process, each ecological feature recorded is assigned a level of importance in accordance with geographical scale, as those determined of sufficient value are determined to be Important Ecological Features (IEFs).
- 3.4.14. Following the evaluation of the results and importance as outlined in Table 9.9 in the 2018 EIA Report, the following IEFs are scoped out of the assessment, on the basis that they are considered of local or less than local importance, or there is no potential for significant impact from the B729 Offsite Roadworks:
- Broadleaved woodland – semi natural (A1.1.1);
 - Coniferous woodland – plantation (A1.2.2);
 - Mixed plantation woodland (A.3.2.);
 - Marshy grassland (B5);
 - Improved grassland (B4);
 - Tall ruderal (C3.1);
 - Running water (G2);
 - Amenity grassland (J.1.2);
 - Bare ground (J4);
 - Built up areas (J3); and
 - Buildings (J3.6)
 - Pine marten;
 - Water vole;
 - Red squirrel;
 - Roosting bats
 - Reptile species; and
 - Amphibian species;
- 3.4.15. Although the above features have been scoped out of further assessment within this Chapter, good practise measures to mitigate potential impacts on these features have been included to ensure legislative compliance of works as well as adherence to accept industry best practise.
- 3.4.16. IEF scoped into the assessment are limited to:
- Otter; and
 - Badger
- 3.4.17. Although neither of the above species were recorded, due to access limitations a precautionous approach has been taken in the determination of IEFs to includes species of sufficient conservation value, or that are subject to legal protection, that were not recorded to be present, but are considered likely to be present.

⁶ CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. V1.1. September 2018. Chartered Institute of Ecology and Environmental Management, Winchester.

Embedded Mitigation

- 3.4.18. As detailed in Section 9.8 of the 2018 EIA Report, a number of good practice mitigation measures, particularly to ensure the safeguarding of protected species during construction, are to be implemented and will include, but may not be limited to:
- Ecological Clerk of Works (ECoW): An ECoW will be appointed to provide ecological and environmental advice during works, including the monitoring of environmental compliance; and
 - Pre-Construction Protected Species Survey: Surveys will be undertaken ahead of works taking place within the working areas and appropriate buffers, to identify changes in the baseline condition for protected species (including those not considered to be IEFs), to ensure all species are sufficiently safeguarded and works are compliant with protected species legislation.

Assessment of Effects

- 3.4.19. Potential effects of the B729 Offsite Roadworks are considered to be limited to:
- Disturbance through noise and vibration; and
 - Injury and mortality through construction activities.

Disturbance

- 3.4.20. Both species may be impacted through indirect disturbance to protected resting areas, as a result excess noise and vibration from the proposed works, which is an offence under European⁷ and national legislation⁸. Disturbance potential for badger setts is considered to be 30 m for normal ground works (no blasting or piling is proposed). Accepted disturbance range for otter resting areas (couches and holts) is typically 30 m but could be up to 200 m for a natal holt. Although natal holts are very unlikely, all works within this distance, which includes PC 10-13 and PC 15 (see AEI II Table 3.4.1) should be considered to have the potential to impact otter through disturbance.
- 3.4.21. Although no resting areas for either species were identified, suitable habitats were recorded, and otter couches and a holt were recorded on the Water of Ken during EIA surveys in 2018. Although no badger setts were recorded during EIA surveys, either species could become established in the area prior to works taking place, so disturbance cannot be completely ruled out. However, as pre-construction surveys will be carried out ahead of any works taking place, this risk of disturbance is very low, as is the risk of causing a legal offence.
- 3.4.22. In light of the above, this effect is considered to be adverse, but of negligible magnitude, and therefore not-significant in terms of the EIA Regulations

⁷ European Commission (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

⁸ UK Government (1992) Protection of Badger Act 1992

Construction Related Mortality & Injury

- 3.4.23. In addition to construction phase disturbance, the direct increase of vehicle movements and operation of plant from construction may also result in a temporary increase in the risk of accidental otter fatality, particularly if construction works are scheduled to take place during low light levels in the winter months. The potential for accidental injury or mortality with otters is considered greatest at proposed watercourse crossings or close to watercourse (such as PC 10-13 and PC 15) and for badger, near areas of suitable woodland (PC 9, 10, 12 & PC 13). However, due to the temporary nature of construction this is considered a potential impact of low risk, unlikely to affect more than a very small number of individuals (if any). This effect is considered of low magnitude, and is therefore a non-significant effect in terms of the EIA Regulations.

Mitigation

- 3.4.24. No mitigation is required for the B729 Offsite Roadworks beyond that recommended in the EIA Report and AEI I.
- 3.4.25. Construction good practice is embedded in the project and has been demonstrated at other developments of a similar nature to limit the potential for ecological effects.

Summary

- 3.4.26. Although the B729 Offsite Roadworks have the potential to detrimentally effect badger and otter, due to the low magnitude of predicted effect and the implementation of embedded construction good practice measures, no significant effects are predicted.

Statement of Significance

- 3.4.27. Effects on ecological resources associated with the B729 Offsite Roadworks are considered to be not significant.

3.5. Cultural Heritage

Introduction

3.5.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance upon cultural heritage assets. It supplements Chapter 11 of the EIA Report (November 2018) and AEI I Report (October 2019) and should be read in conjunction with it.

3.5.2. Taking into account the relevant policy and guidance, and assessment criteria, an assessment is presented below which details the effects of the B729 Offsite Roadworks.

Methodology

3.5.3. This assessment focuses on nine potential work impact areas (PC/07 to PC/15) along the route of the B729 from Carsphairn to the entrance of the **Shepherds' Rig Windfarm** (AEI II Figures 3.5.1-3.5.6).

3.5.4. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and updated in the AEI I Report (October 2019).

3.5.5. The same significance criteria and assessment methodology as referred to in Chapter 11, Section 11.3 of the EIA Report (November 2018) has been followed.

B729 Offsite Roadworks Study Area

3.5.6. A 10 m Study Area was agreed with the local authority archaeologist for Dumfries and Galloway along the B729 from Carsphairn to the entrance to **the Shepherds' Rig Windfarm**. The study area has been defined to identify potential direct impacts upon heritage assets alongside the road as a result of required B729 Offsite Roadworks.

Data Sources

3.5.7. The review of cultural heritage baseline data within the Study Area was informed by a desk-based study, based on readily available documentary sources, following the Chartered Institute for Archaeologists' (CIfA) 'Standard and Guidance for historic environment desk-based assessment'. The following sources of information were referred to:

- Designation data downloaded from the Historic Environment Scotland website on 21st January 2021;
- The National Record of the Historic Environment (NRHE), including the Canmore database and associated photographs, prints/drawings and manuscripts held by HES;
- The Dumfries and Galloway Council (DGC) Historic Environment Record (HER), digital extract received 25th January 2021;

- Aerial photographs, LiDAR data, and documents (including OS Name books and early edition mapping), and British Geological Survey data were all consulted in the course of the EIA Report (November 2018). These documents will not have changed since that time and have not been revisited for the AEI II.

Drive Through Survey

- 3.5.8. Due to COVID-19 restrictions it was agreed that a drive through survey of the B729 would be carried out using a dashboard mounted Go-Pro camera by a single person instead of multiple surveys by individual team members. The survey was carried out on the 25th January 2021 and began at the A713/B729 junction at Carsphairn and proceeded east along the B729, ending at the **entrance to the proposed Shepherd's Rig Windfarm.**

Baseline Conditions

PC/07 A713/B729 Junction at Carsphairn

- 3.5.9. The available historic environment indicates that there are no designated heritage assets located at PC/07 (AEI II Figure 3.5.2). The Dumfries and Galloway Historic Environment Record (DGHER) records that the landscape to the south of the A713 and the junction as an archaeologically sensitive area (ASA) of Bardennoch and Garryhorn (19). This is defined by Dumfries and Galloway **Council in Policy HE4 as an area 'not confined to a particular site but extends over a large area. In order to highlight to potential developers of large-scale projects, such as wind farms, mineral extraction, or forestry, that there is a particular need to consider these extensive archaeological interests and issues that might arise from their proposals at an early stage, Archaeologically Sensitive Areas have been designated by the Council and occur both within settlements and within rural areas'** (D&G Local Development Plan 2 (2019) p45). The ASA therefore relates to archaeological potential, rather than specific assets within the Study Area at PC/07.
- 3.5.10. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there are existing drystone walls on the north and south side of the road. Although the existing drystone wall/ field boundaries are not recorded by either HES, DGHER or Canmore as heritage assets, it is advised that they should be treated as such as they form an important part in preserving the historic character of the wider rural landscape.

PC/08 B729 Junction at War Memorial

- 3.5.11. The available historic environment data indicates there are no designated heritage assets within the Study Area at PC/08. The Dumfries and Galloway HER records that the war memorial is a non-designated heritage asset (9) (AEI II Figure 3.5.2).
- 3.5.12. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there are existing drystone walls on the north and south side of the road.

PC/09 Bend on B729 over culvert at Dalbonniton Knowe

- 3.5.13. The available historic environment data indicates there are no designated heritage assets within the Study Area at PC/09. The DGHER records that within the Study Area and to the immediate north of the existing road is the Knockgray non-inventory garden and designed landscape (21) (AEI II Figure 3.5.2). This is a list of sites of local and regional significance, identifying their key features⁹. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there is an existing drystone wall on the north side of the bend. It is likely that this drystone wall forms the southern boundary of the Knockgray heritage asset.

PC/10 B729 Burnfoot Bridge

- 3.5.14. The available historic environment data indicates there are no recorded designated or non-designated heritage assets within the Study Area at PC/10 (AEI II Figure 3.5.3). However, the drive through survey carried out on the 25th February 2021 for this assessment indicates that the bridge parapet is approximately 1 m from the road and within the Study Area. Although this structure is not recorded by either HES, DGHER or Canmore as heritage assets, it is advised that they should be treated as such as they form an important part in preserving the historic character of the wider rural landscape.

PC/11 B729 Bend Beyond Burnfoot Bridge

- 3.5.15. The available historic environment data indicates that there are no designated or non-designated heritage assets within the Study Area at that location (AEI II Figure 3.5.3). However, the drive through survey carried out on the 25th February 2021 for this assessment indicates that there is an existing stone wall immediately adjacent to the northern side of the road.

PC/12 B729 Bend at Kensglen

- 3.5.16. The ALRA found that the mapping data used in its initial desk-based assessment did not correspond to the conditions observed during the visual inspection of the route. It was proposed that a topographical survey will be required to determine final mitigation requirements but that road widening works were likely required.
- 3.5.17. The available historic environment data indicates that there are no designated or non-designated heritage assets within the Study Area at PC/12 (AEI II Figure 3.5.3). However, the drive through survey carried out on the 25th February 2021 for this assessment indicates that there is an existing stone wall located alongside the northern side of the B729.

⁹ https://www.dumgal.gov.uk/media/21885/Adopted-Local-Development-Plan-2/pdf/Adopted_LDP2_OCTOBER_2019_web_version.pdf?m=637060550180970000

PC/13 B729 Bend at Nether Loskie

- 3.5.18. The ALRA identified that the vehicle will overrun the outside bend on the eastern side of the B729. Works proposed by the ALRA involved clearing vegetation from the over sail and overrun areas, and laying a load bearing surface in the overrun area.
- 3.5.19. The available historic environment data indicates that there are no designated heritage assets within the Study Area at PC/13. However, the DGHER records an area of historic field systems (11) on the north side of the B729 at Marscalloch. These are also recorded by Canmore as historic farmstead (297914) and field system (177467) (AEI II Figure 3.5.3).
- 3.5.20. The DGHER also records a small cottage (10) at Nether Loskie. This building is recorded on the 1st edition Ordnance Survey (OS) map from 1856 and was **named 'Bankend'** (AEI II Figure 3.5.6). Although the point location for this non-designated heritage asset is located within the existing carriageway, the historic map shows the building on the north side of the road.
- 3.5.21. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there are existing stone walls immediately adjacent to the northern side of the road and at the location of the two historic farmstead and field systems.

PC/14 Bend at B729 and B7000 Junction

- 3.5.22. The ALRA identified that the blade would over sail the bend to the south whilst the vehicle would overrun the outside bend to the east. The ALRA also determined that the load would oversail the inside of the bend and affect an existing road sign. The proposed mitigation suggested that vegetation is cleared from the over sail areas and a load bearing surface be laid in the overrun area. The road sign is also to be relocated.
- 3.5.23. The available historic environment data indicates that there are no designated heritage assets within the Study Area at PC/14. However, the DGHER records a head dyke (12) is located near the bend (AEI II Figure 3.5.5). This appears to be a dyke which is present on the 1856 OS map. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there is an existing stone wall to the northern side of the road.

PC/15 Bend at Muirdrochwood

- 3.5.24. The ALRA identified that there are a number of over sail and overrun at various locations on the inside and outside of a number of bends along this stretch of the B729. Mitigation proposed includes vegetation clearance which may be needed to accommodate both vehicle and blade tip over sail with additional overrun areas requiring construction. Additional third-party land may be required as a result.

- 3.5.25. The available historic environment data indicates that there are no designated or non-designated heritage assets within the Study Area at PC/15 (AEI II Figure 3.5.4). The drive through survey carried out on the 25th February 2021 for this assessment confirmed that this section of road has a number of bends lined with a wire and post fence on the northern side. Overgrown vegetation made it difficult to confirm the post and wire fence was consistent or if sections consisted of drystone walls.

Other Potential Heritage Impacts along the Proposed Transport Route

- 3.5.26. The Canmore records the Kirn Bridge (Canmore ID: 270463) at PC/03 near Dalmellington as a non-designated heritage asset¹⁰. The ALRA identified that the turbine blade tip and middle of the trailer will over sail the bridge parapets. Mitigation in the form of a clearance height check of the trailer and turbine blade above the parapet as well as a structural survey of the Kirn Bridge has been proposed.

Historic Map Analysis

- 3.5.27. The earliest historic mapping of the area consulted was **Roy's** Lowlands military maps from 1755. This map showed the landscape as it was in the mid-18th century and showed Carsphairn Kirk and Knockgray at the western end of the Study Area for the AEI II, and Muirdrochwood and Marscalloch Hill at the eastern end. The map suggests that the Water of Deugh which runs along the southern edge of the B729 has changed course several times over the last 270 years (NLS 2021).
- 3.5.28. The earliest Ordnance Survey (OS) map consulted was from 1853 and shows the recorded cottage (10) named as **'Bankend' located near PC/13**. The historic map indicates that the cottage was located in the field to the immediate north of the road at that time.
- 3.5.29. Historic mapping from 1931-1935 shows that the Water of Deugh was dammed as part of the South Galloway Hydro-Electricity Scheme to create the Kendoon Loch. This resulted in the slight route change in the B729 at PC/13 which appears to make way for an inlet created as a result of the rising waters of the loch. The change in the road appears to go through the site of the cottage seen in the 1853 OS map.

Assessment of Effects

- 3.5.30. In summary, this assessment has identified there will be no adverse effects to any designated heritage assets caused by the proposed road improvements along the B729 between PC/07 and the entrance to the **Shepherds' Rig Wind Farm**.

¹⁰ <https://canmore.org.uk/site/270463/kirn-bridge>

PC/07 A713/B729 Junction at Carsphairn

- 3.5.31. The ALRA identified the trailer will overrun the inside bend of the junction within public land and that the load will over sail inside the right bend just beyond the junction. The proposed works indicates vegetation clearance and a new load bearing surface will be laid in the overrun area.
- 3.5.32. The Bardennoch-Garryhorn ASA (19) will not be directly impacted by the proposed road improvement works. The recorded boundary of the ASA is to the immediate south of the works area at PC/07 and approximately 60m south of PC/08. As such it is considered that the proposed works will have no effect on the historic significance of the non-designated heritage asset.
- 3.5.33. The drive through survey carried out on the 25th February 2021 for this assessment indicates that there are existing drystone walls on the north and south side of the road. Although the existing drystone wall/ field boundaries are not recorded by either HES, DGHER or Canmore as heritage assets, it is advised that they should be treated as such as they form an important part in preserving the historic character of the wider rural landscape.

PC/08 Junction at War Memorial

- 3.5.34. The ALRA identified that the transport vehicle will overrun the inside bend and conflict with existing telegraph poles and a stone wall within third party land. The proposed mitigation involves relocating the telegraph posts to outside the overrun and over sail areas. A new load bearing surface will be laid in overrun areas on third party areas and the stone wall is to be relocated.
- 3.5.35. The war memorial (9) at PC/08 is located approximately 30m away from the nearest now load bearing surface works and is unlikely to be physically impacted by the proposed road works. However, it is advised that the monument is still fenced off from the works areas in order to prevent accidental damage to this heritage asset.
- 3.5.36. The proposed road improvements works include the dismantling and re-location of existing dry-stone walls at PC/07, and PC/08. It is considered that the re-location and re-building of sections of drystone walls will have no significant adverse effects.

PC/09: PC10: PC/11

- 3.5.37. At PC/09 the ALRA identified that the load will oversail the bridge parapet, possibly into third party land. The works involve undertaking a structural survey of the culvert structure and the land ownership of the over sail area to be established.

- 3.5.38. AT PC/10 the ALRA identified that the load will oversail the route into the private garden of a third-party landowner and conflict with existing telegraph poles and the bridge parapet. The vehicle will also overrun the outside bend to the east of the bridge into third-party land and conflict with further existing telegraph poles. The works involve checking the height of the load over the bridge parapet and a structural survey carried out. The affected telegraph poles are to be relocated and vegetation cleared from the overrun areas and load bearing surfaces laid.
- 3.5.39. At PC/11 the ALRA identified that the vehicle would overrun the outside of the bend into third-party land with the turbine blade tip to over sail the outside bend into third-party land. The proposed works involve the laying of a new load bearing surface on the overrun area and vegetation to be cleared from the over sail area.
- 3.5.40. No works which require the demolition and reconstruction of any existing dry-stone walls are proposed at PC/09 adjacent to the recorded Knockgray non-inventory registered garden (21). As such it is considered that the proposed works will have no effect on the historic significance of the non-designated heritage asset.
- 3.5.41. No works involving the demolition and reconstruction of any existing dry-stone walls are proposed at PC/10 or PC/11. Although there are no recorded heritage assets at these locations, it is advised that the Burnfoot bridge (PC/11) should be treated as a non-designated heritage asset and should not be damaged. It is understood that the height of the bridge parapet is approximately 0.80 m in height. It is advised that the vehicle clearance height should exceed 0.80 m and should be confirmed before the turbine blades are transported.
- 3.5.42. At PC/12 the ALRA found that the mapping data did not correspond to the conditions observed during the visual inspection of the route. It has been assumed that road widening works are likely required. However, the drive through survey carried out indicates that there is an existing stone wall located alongside the northern side of the B729. Any proposed road widening works has the potential to impact this wall. It is recommended as good practice that any walls to be removed are dismantled and re-constructed using the original materials and techniques as originally found.
- 3.5.43. The Dumfries and Galloway HER records the location of a cottage on the 1st edition OS map (10) at PC/13. The HER point data places this heritage asset within the existing carriageway of the B729, although historic mapping data suggests that the building was located in the field next to the tree line immediately north of the road. The change in the road layout following the creation of the modern Kendoon loch in the 1930s may also have impacted and removed any buried remains of the building that may have been present.
- 3.5.44. The proposed works indicate that an overrun area will need to be built up along the outside of the bend at PC/13 but past the recorded location of the cottage. It is therefore considered unlikely that the proposed works will impact this non-designated heritage asset.

- 3.5.45. The Dumfries and Galloway HER records a stone dyke (12) located on land to the north of the B729 at PC/14 and the drive through survey indicated a dry-stone wall along the northern side of the carriageway. The ALRA indicates that an over-run area will be built up on the southern side of the carriageway but does not indicate that any dry-stone walls will be removed as part of the road improvement work. As a result, it is considered that the proposed works will not impact and therefore have no effect on the historic significance of the recorded dyke (12).
- 3.5.46. There are no designated or non-designated heritage assets recorded at PC/15 and so no heritage assets will be affected by proposed road widening works here.

Mitigation

- 3.5.47. Although the route of the B729 itself is little changed since the mid-19th century, historic mapping indicates that many of the existing drystone walls are late 19th and early 20th century in date. These walls do contribute to character of the overall landscape as rural upland farms with large grazing areas. Dry-stone walls should be treated as part of the historic character of the landscape and preserved in-situ where possible. Where this is not possible, they should be re-built using the same construction materials and techniques as originally found.
- 3.5.48. It is recommended as best archaeological practice that archaeological monitoring and recording (watching brief) of any intrusive ground works at PC/13 at Nether Loskie, the recorded location of a post-medieval cottage (10) identified on historic mapping, should take place to identify and record any surviving remains of this heritage asset.

Summary

- 3.5.49. There are no recorded heritage assets at locations PC/10, 11, and 15.
- 3.5.50. The Dumfries and Galloway HER records non-designated heritage assets at PC/07 to PC/09, and PC/12 to PC/14. It is not anticipated that the proposed road improvement works will affect any recorded non-designated heritage assets at these locations.
- 3.5.51. Although existing drystone walls are not recorded by either HES, DGHER or Canmore as heritage assets, it is advised that they should be treated as such as they form an important part in preserving the historic character of the wider rural landscape. Any drystone walls which are dismantled as part of the road improvement works, including at PC/07, PC08, potentially PC/12, and anywhere else necessary should be carefully dismantled and reconstructed using the original materials and with traditional techniques where possible.

- 3.5.52. It is recommended as best archaeological practice that archaeological monitoring and recording (watching brief) of any intrusive ground works at PC/13 at Nether Loskie, should take place to identify and record any surviving remains of a possible post-medieval cottage (10) recorded on the 1st edition OS map.

Statement of Significance

- 3.5.53. Following implementation of the recommended archaeological mitigation measures, identified impacts of the proposed road improvements associated with the B729 Offsite Roadworks upon potential remains of a post-medieval cottage (10) recorded on first edition OS mapping, and drystone walls at PC/07, PC/08 and potentially PC/12 which are considered to contribute to landscape character, are considered to be not significant.

3.6. Traffic and Transport

Introduction

- 3.6.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance (B729 Offsite Roadworks). It supplements Chapter 15: Traffic and Transport of the EIA Report (November 2018) and AEI Report (October 2019) and should be read in conjunction with it.

Methodology

- 3.6.2. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and AEI I Report (October 2019).
- 3.6.3. There have been no relevant changes to the traffic and transport legislation, policy and guidance referred to in the EIA Report (November 2018). The baseline information relied upon in order to make an assessment of the effects of the **Shepherds' Rig Wind Farm** has not changed and remains that which has been provided in the EIA Report (November 2018).
- 3.6.4. The same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed. Taking into account the relevant policy and guidance, and assessment criteria, an assessment is presented below which details the effects of the B729 Offsite Roadworks.

Baseline Conditions

- 3.6.5. There are no changes to baseline traffic conditions from the EIA Report (November 2018) so that Section 5.5 of the EIA Report remains valid. The Vehicle Movements presented in the AEI I Report (October 2019), Section 15.4 remain valid for the 17 turbine **Shepherds' Rig Wind Farm onsite works** with consideration for the B729 Offsite Roadworks presented below.

Assessment of Effects

- 3.6.6. The following aspects of the B729 Offsite Roadworks are of relevance to Traffic and Transportation Assessment:
- PC/07 – PC/15 Require offsite road improvements to be complete to allow the transportation of abnormal loads to the **Shepherds' Rig Wind Farm** site.
- 3.6.7. The effect of each of these changes is an increase in the quantity of materials required to be imported during construction of the **Shepherds' Rig Wind Farm**; therefore, the number of vehicle movements anticipated during construction will be marginally increased from those identified in the AEI I Report (October 2019) but less than that presented in the EIA Report (November 2018) due to the removal of two turbines and corresponding access track lengths, cabling and hardstanding.
- 3.6.8. AEI II Table 3.6.1 provides a summary of all deliveries expected throughout duration of construction for the 17 turbine **Shepherds' Rig Wind Farm** (based on the vehicle movements within the AEI I Report (October 2019) and the B729 Offsite Roadworks.

AEI II Table 3.6.1: Anticipated Vehicle Movements - Summary

| Operation | Vehicle Type | Operational Months | Total | Max Monthly |
|--|--------------------------------------|--------------------|-------|-------------|
| Forestry | | | | |
| Plant Delivery/Removal | HGV Low Loader | 1, 6 | 28* | 14* |
| Timber Extraction | HGV | 1-6 | 1600 | 267 |
| Fuel Delivery | Fuel Tanker HGV | 1-6 | 96 | 16 |
| Subtotal | | | 1724 | 297 |
| Site Mobilisation/Demobilisation | | | | |
| On-site vehicles | Car/LGV** | 3, 17 | 30 | 15 |
| Construction Compound | HGV Low Loader | 3, 17 | 120* | 60* |
| Borrow Pit Equipment | HGV Low Loader | 3, 17 | 168* | 84* |
| Subtotal | | | 318 | 159 |
| Access Track and Hardstanding Construction | | | | |
| Plant Delivery | HGV Dump Truck | 5-11 | 16 | 8 |
| | HGV Low Loaders (Excavators/Rollers) | 5-11 | 8* | 4* |
| Material Deliveries | HGV | 5-11 | 24 | 5 |
| Subtotal | | | 48 | 12 |
| B729 Offsite Roadworks | | | | |

| Operation | Vehicle Type | Operational Months | Total | Max Monthly |
|---|-------------------------|--------------------|-------|--------------|
| Plant Delivery | HGV Low Loader | 5-11 | 4* | 4* |
| Material Deliveries | HGV | 5-11 | 196 | 33 |
| Organic Material Removal | HGV | 5-11 | 100 | 23 |
| Telegraph Poles and Signs | HGV | 5-11 | 4 | 1 |
| Subtotal | | | 304 | 44 |
| Turbine Foundation Construction | | | | |
| Concrete Delivery | Ready-Mix HGV | 8-13 | 1904 | 112 (daily) |
| Rebar Delivery | HGV | 8-13 | 96 | 16 (monthly) |
| Subtotal | | | 2000 | |
| Control Building and Substation Construction | | | | |
| Electrical Components and Switchgear Delivery | HGV | 4-11 | 40 | 5 |
| Transformer Delivery | ALV | 4-11 | 4 | 2 |
| | Escort Car/Van | 4-11 | 8 | 4 |
| Subtotal | | | 52 | 11 |
| Electrical Cabling Delivery | | | | |
| Electrical Cabling Delivery | HGV | 12-14 | 50 | 17 |
| Crane Delivery | | | | |
| Crawler Crane | HGV | 12, 16 | 52 | 26 |
| | Abnormal Load Vehicle** | 12, 16 | 2 | 1 |
| Subtotal | | | 54 | 27 |
| Turbine Delivery | | | | |
| Turbine Components | ALV | 12-16 | 272 | 55 |
| | Escort Car or Van | 12-16 | 544 | 110 |
| Ancillary Equipment | HGV | 12-16 | 34 | 7 |
| Subtotal | | | 850 | 172 |

| Operation | Vehicle Type | Operational Months | Total | Max Monthly |
|---|-----------------|--------------------|--------|-------------|
| Fuel Delivery | | | | |
| Fuel Delivery | HGV Fuel Tanker | 3-17 | 30 | 2 |
| Staff | | | | |
| Staff | Car or Minibus | 3-21 | 26,318 | 1490 |
| Totals | | | | |
| Total HGV and Abnormal Load Movements (excluding concrete deliveries) | | | 2944 | 429 |
| Total HGV Movements for Concrete Delivery (19 non-consecutive days) | | | 1904 | 318 |
| Total Car and Van Movements | | | 26,900 | 1494 |
| Overall Total | | | 31,748 | 1,884** |

*Includes transporter vehicle leaving and then returning to site during demobilisation.

** Total flow in peak month

- 3.6.9. The EIA Report (November 2018) concluded that there would be 30,628 overall total vehicle movements, with 1,932 movements in the peak month. One potentially significant effect was identified for pedestrian amenity at three school locations in Carsphairn, Dalmellington and Patna. With the implementation of the mitigation detailed in the EIA Report and a traffic management plan, the residual effect upon transport and traffic was not significant. AEI II Table 3.6.1 shows that the 17 turbine **Shepherds' Rig Wind Farm** and the B729 Offsite Roadworks would result in a minor overall increase and lower peak monthly traffic level than that presented in the EIA Report so that effects would remain not significant with further details below.
- 3.6.10. A detailed breakdown of the distribution of vehicle movements in each month, and for each element of work, throughout the construction phase of the **Shepherds' Rig Wind Farm** is included in AEI II Figure 3.6.1. The peak month of construction, from a traffic perspective, was identified and used to predict the traffic increase on routes within the study area. A worst case scenario in which all predicted traffic passes each location within the study area was assumed.
- 3.6.11. From inspection of the predicted traffic movements, the peak month for vehicle flow is expected to be month 11 where a total of 1,884 vehicle movements are predicted. Concrete deliveries are expected to occur during this month on non-consecutive days. On days where concrete delivery occurs, a maximum of 172 vehicle movements are expected. This represents a reduction from the EIA report where 1,932 overall vehicle movements with a daily maximum of 173 movements were predicted.

- 3.6.12. During month 11 on days with no concrete delivery a maximum of 60 vehicle movements are expected. This represents a reduction from the EIA Report where 61 movements were predicted on these days.
- 3.6.13. Outside of the foundation pouring phase, the peak month of construction from a transport perspective is expected to be month three, relating to forestry and mobilisation. During this month a total of 1,768 vehicle movements are expected resulting in an average of 68 vehicle movements per day. These figures are the same as predicted in the EIA Report.

Summary

- 3.6.14. The **Shepherds' Rig Wind Farm** was considered using the same assessment methodology as the EIA Report 2018. The **Shepherds' Rig Wind Farm** is predicted to result in a lower overall number of peak traffic movements than that presented in the EIA Report. This is due to the removal of two turbines and associated infrastructure (as detailed in the AEI I Report, November 2019) which in combination with the B729 Offsite Roadworks results in a marginal overall increase in the volume of construction materials required to be delivered during construction. With the implementation of the mitigation detailed in the EIA Report and a traffic management plan, the residual effect upon transport and traffic was not significant. As **the 17 turbine Shepherds' Rig Wind Farm** and the B729 Offsite Roadworks would result in a lower overall and peak monthly traffic level than that presented in the EIA Report, effects would remain not significant in relation to Traffic and Transport.

Statement of Significance

- 3.6.15. Effects on Traffic and Transport associated with the **Shepherds' Rig Wind Farm** and B729 Offsite Roadworks are not significant. This represents no change to the conclusions outlined in the EIA Report (November 2018).

3.7. Hydrology and Hydrogeology

Introduction

3.7.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential effects of the B729 Offsite Roadworks from Carsphairn to the Site Entrance (B729 Offsite Roadworks). It supplements Chapter 13: Hydrology and Hydrogeology of the EIA Report (November 2018) and AEI I Report (October 2019) and should be read in conjunction with it.

3.7.2. This assessment has been undertaken by Liam Nevins MCIWEM C.WEM of Arcus Consultancy Services Ltd.

Methodology

3.7.3. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and AEI I Report (October 2019), updated as follows:

- Guidance for Pollution Prevention 1 (GGP1): A General Guide to Preventing Pollution (October 2020)¹¹;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) - Version 8.3 (February 2019)¹²;
- Technical Flood Risk Guidance for Stakeholders – Scottish Environment Protection Agency (SEPA) requirements for undertaking a Flood Risk Assessment - Version 12 (May 2019)¹³;
- Climate change allowances for flood risk assessment in land use planning Land Use Planning System (LUPS-CC1) – SEPA (April 2019)¹⁴; and
- Nature Scot formerly Scottish Natural Heritage (SNH) (2019) 4th Edition, Good Practice During Wind Farm Construction¹⁵.

3.7.4. There have been no substantial changes to legislation, policy and guidance which would alter the conclusions of the 2018 EIA Report or 2019 AEI I Report.

3.7.5. The same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed. Taking into account the

¹¹ Netregs (2020) GGP1: A General Guide to Preventing Pollution [Online] Available at: <https://www.netregs.org.uk/media/1835/gpp-1.pdf> (Accessed 19/11/20)

¹² Scottish Government (2018) The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) [Online] Available at: https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf (Accessed 19/11/20)

¹³ SEPA (2019) Technical Flood Risk Guidance for Stakeholders - SEPA requirements for undertaking a Flood Risk Assessment [Online] Available at: <https://www.sepa.org.uk/media/162602/ss-nfr-p-002-technical-flood-risk-guidance-for-stakeholders.pdf> (Accessed 19/11/20)

¹⁴ SEPA (2019) Climate change allowances for flood risk assessment in land use planning Land Use Planning System (LUPS-CC1) [Online] Available at: https://www.sepa.org.uk/media/426913/lups_cc1.pdf (Accessed 19/11/20)

¹⁵ SNH (2019) Good practice during windfarm construction, 4th Edition [Online] Available at: <https://www.nature.scot/guidance-good-practice-during-wind-farm-construction> (Accessed 19/11/20)

relevant policy and guidance, and assessment criteria, an assessment is presented below which details the effects of the B729 Offsite Roadworks.

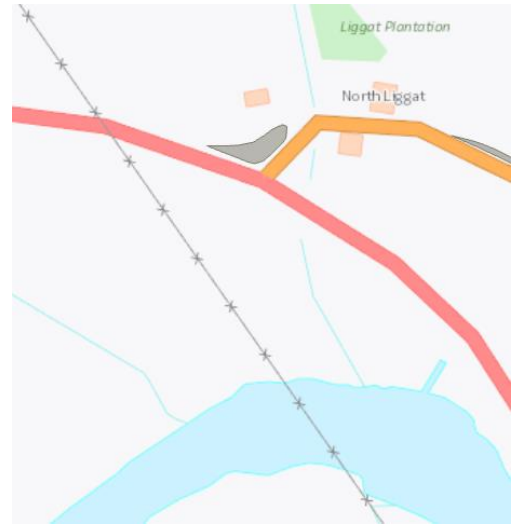
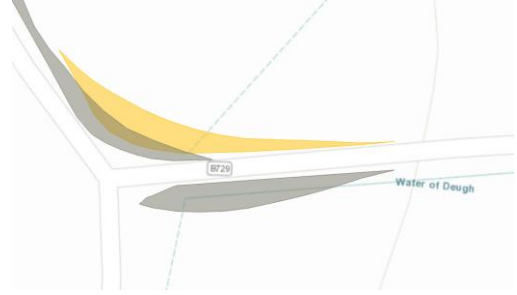
- 3.7.6. It should be noted that the criteria for attributing sensitivity and the assessment of magnitude of potential effects is the same as presented in the 2018 EIA Report.
- 3.7.7. The study area is defined as 20 m from the working areas.



Baseline Conditions

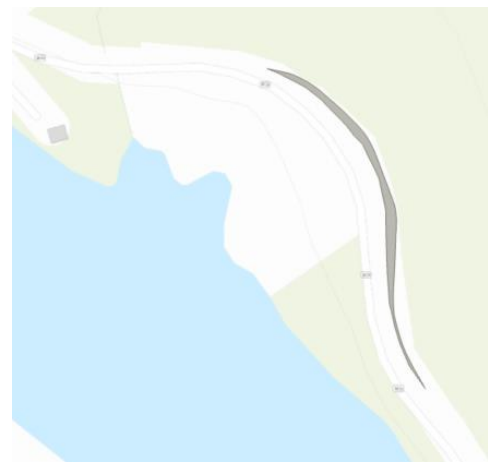

- 3.7.8. The **Shepherds' Rig Wind Farm** and B729 Offsite Roadworks is located within the primary catchments of the Water of Deugh and the Water of Ken.
- 3.7.9. The Water of Deugh has an overall SEPA classification of Poor.
- 3.7.10. The Water of Deugh subsequently flows into Kendoon Loch which converges with the Water of Ken (downstream of Kendoon) which has an overall SEPA classification of Bad.
- 3.7.11. Scottish Water confirmed that the **Shepherds' Rig Wind Farm** lies within a designated Drinking Water Protected Area (DWPA) under the Water Framework Directive.
- 3.7.12. Carsfad Loch is located on the Water of Ken approximately 5 km south of the **Shepherds' Rig Wind Farm**. Raw water is pumped from Carsfad Loch to Lochinvar Loch which supplies Lochinvar water treatment works (WTW).
- 3.7.13. The working areas and hydrologically linked receptors are summarised in AEI II Table 3.7.1.


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AEI II Table 3.7.1: Working areas and hydrologically linked receptors

| Work Points | Location | Description of Works | Receptors Linked to Works | Map of location |
|-------------|--|--|--|--|
| PC/07 | A713/B729 Junction at Carsphairn | Vegetation clearance and load bearing surface to be laid in overrun area | Unnamed tributary of the Water of Deugh c. 15 m east of works |  |
| PC/08 | B729 Junction at War Memorial | Load bearing surface to be laid in overrun area and relocation of stone wall | Unnamed tributary of the Water of Deugh – immediately over watercourse |  |
| PC/09 | Bend on B729 over culvert at Dalbonniton Knowe | No works | n/a | |

| Work Points | Location | Description of Works | Receptors Linked to Works | Map of location |
|-------------|----------------------------------|--|--|--|
| PC/10 | B729 Burnfoot Bridge | Vegetation clearance and load bearing surface to be laid in overrun area | Marbrack Burn c. 10 m north of works |  |
| PC/11 | B729 Bend Beyond Burnfoot Bridge | Vegetation clearance and load bearing surface to be laid in overrun area | The Water of Deugh c. 3 m south of works |  |
| PC/12 | B729 Bend at Kensglen | Load bearing surface to be laid in overrun area (if required) | The Water of Deugh and Kendoon Loch | |

| Work Points | Location | Description of Works | Receptors Linked to Works | Map of location |
|-------------|-----------------------------|--|---|--|
| PC/13 | B729 Bend at Nether Loskie | Vegetation clearance and load bearing surface to be laid in overrun area | The Water of Deugh c. 25 m south-west of works |  |
| PC/14 | Bend at B729/B7000 Junction | Vegetation clearance and load bearing surface to be laid in overrun area | Unnamed tributary of the Water of Deugh c. 40 m south-east of works |  |

| Work Points | Location | Description of Works | Receptors Linked to Works | Map of location |
|-------------|----------------------------|--|---|---|
| PC/15 | B729 Bend at Muirdrochwood | Vegetation clearance and load bearing surface to be laid in overrun area | The Water of Ken c. 70 m south of works |  |

- 3.7.14. Based on the sensitivity criteria and the attribution of sensitivity of receptors outlined in Table 13.8 of the EIA Report, watercourses are classified as High sensitivity although all classified watercourses have a classification of Poor or Bad, the Development is located within a DWPA.
- 3.7.15. Due to the nature of the B729 Offsite Roadworks, the running surface will be an extension of existing ground levels and therefore does not have the potential to displace flood waters in areas potentially at risk of flooding.
- 3.7.16. Furthermore, Windy Rig Wind Farm Bridge Assessment¹⁶, identifies that the existing bridges along the transport route do not require upgrades to carry the blade delivery vehicles, meaning no upgrades / alterations to structures within the floodplain is likely to be required.
- 3.7.17. Therefore, flood risk has been scoped out of this assessment.
- 3.7.18. The 2018 EIA Report identified several private water supplies (PWS) along the B729 all of which abstract from groundwater and not surface water. All supplies in proximity to works are on the northern side of the works i.e. hydrologically upgradient of works. Works are unlikely to involve excavations beyond 1 m depth and any clearance works would likely involve scraping the surface rather than clearing through excavating.
- 3.7.19. As such, effects on PWS have been scoped out of this assessment in accordance with SEPA Guidance LUPS-GU31¹⁷ i.e. abstractions within 100 m of excavations of less than 100 m depth and 250 m from excavations greater than 1 m depth.

Assessment of Effects

- 3.7.20. Vegetation clearance is likely to involve:
- Scraping vegetation and topsoil;
 - Strimming vegetation; and
 - Small-scale felling and or lopping of trees.
- 3.7.21. Vegetation clearance has the potential to:
- Increase nutrient loading;
 - Cause sedimentation effects;
 - Increase surface water run-off rates; and
 - Cause compaction of soil.
- 3.7.22. The following good practice measures would be implemented:
- Cleared vegetation and felling material will be stored on drier slopes at least 50 m from watercourses and not blocking roadside drains. Semi-impermeable obstructions such as silt matting will be used along the

¹⁶ Windy Rig Wind Farm Bridge Assessment (Ionic Consulting December 2019).

¹⁷ https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf

down-slope of timber stacking areas, to reduce sediment-laden run-off entering streams or watercourses;

- **The area within 50 m of watercourses shall be regarded as a "sensitive area";**
- During vegetation clearance operations within "sensitive areas", silt traps or entrapment matting will be used in local drains to prevent sediment entering watercourses, and silt fences will be constructed between working areas and watercourses;
- Any work in "sensitive areas" to be approved by the Infrastructure Contractor's Project Manager and the Ecological Clerk of Works;
- If felling or vegetation clearing is to occur in the riparian zone (the interface between land and a flowing surface water body) of a watercourse, trees will be felled away from the watercourse;
- Brash mats will be used to protect bare soils;
- Heavy machinery will not be used in areas of vegetation clearance;
- Silt fences will be cleaned out on a regular basis and following heavy precipitation; and
- Silt matting to be checked on a regular basis and replaced as required.

3.7.23. Given the short time span and limited working area of the vegetation clearance effects adjacent to the existing B729 as well as limited working areas and the large attenuation capacity of the primary watercourses, there would be an effect of negligible magnitude on watercourses of high sensitivity and therefore (in accordance with Table 13.4 of the 2018 EIA Report) this would be of negligible significance. This is not significant in terms of the EIA Regulations.

3.7.24. The laying of load bearing surfaces is likely to include:

- Compaction of the cleared ground;
- Laying of graded crushed rock; and
- Laying of asphalt surface.

3.7.25. The laying of load bearing surfaces has the potential to:

- Impediments to flow;
- Cause chemical pollution; and
- Increase in run-off rates.

3.7.26. Placing load bearing surfaces in or over existing watercourses has the potential to disrupt natural flow process. The works have the theoretical potential to sever flow continuity at PC/08 by laying load bearing surfaces over a minor drain feeding the Water of Deugh, on the south side of the B729 opposite the war memorial. However, observations from the site walkover show that these works have already been undertaken as part of other wind farm developments, as shown in Plate 1.

3.7.27. Should this area be reinstated then the level of effects would not exceed those that have already occurred. From the site visits, effects of negligible magnitude were recorded. No other locations of improvements / works have the potential for direct working within the water environment.

3.7.28. As such, potential effects associated with impediments to flow are of negligible magnitude and therefore (in accordance with Table 13.4 of the

2018 EIA Report) of negligible significance. This is not significant in terms of the EIA Regulations.

Plate 1: Existing load bearing improvements south of B729



- 3.7.29. Distances between overrun areas and watercourses have been maximised, where possible, to reduce the potential for chemical pollutants to be transferred to the water environment.
- 3.7.30. Potentially polluting chemicals, such as oils and fuels, will be stored at least 50 m from a watercourse and refuelling would not take place within this distance.
- 3.7.31. Due to the proximity of surface watercourses and lochs, an emergency protocol will be adopted to include:
- The ECoW shall be contacted immediately following a planning or environmental spillage or incident, followed by immediate notification of the Site Manager. Should a serious environmental incident occur, SEPA should also be notified;
 - SEPA must be notified via its pollution hotline within 24 hours, of any of the following incidents:
 - (i) any accident which has had, or could have, an adverse impact on the water environment;
 - (ii) any malfunction, breakdown or failure of plant or techniques which has had, or could have, an adverse impact on the water environment;
 - (iii) any other event or action, which has resulted, or is likely to result, in a breach of any condition in this licence.
 - The ECoW/Site Manager will investigate the incident and offer advice as to remedy or mitigate any potential pollution arising from the incident;

- Assuming the issue arose from the failure of a control system, the issue shall be rectified at the earliest opportunity;
- The response action shall be recorded on the Environmental Complaints/ Spills/ Incidents Report by the Site Manager, Owners Engineer or ECoW;
- A log of all environmental spills/ incidents and follow-up actions should be kept and made available for inspection; and
- All complaints received from the public or other interested parties as a result of the installation works must be recorded on the Environmental Complaints/ Spills/ Incident Form.

3.7.32. During the operation of the excavations, machinery will be regularly maintained to ensure that there is minimal potential for fuel or oil leaks / spillages to occur. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages.

3.7.33. Appointed refuelling personnel will be trained in the correct methods of refuelling on site to ensure that pollution incidents are prevented and a quick response plan is implemented, should a spill occur, to minimise the impact of spills.

3.7.34. Plate 2 of this document display examples of dip pans and bunds.

Plate 2: examples of dip pan, bunds and EnviroPad



3.7.35. Based on the embedded good construction practice, the short construction time and limited working area of the laying of load bearing surfaces, chemical pollution effects on these watercourses of high sensitivity are of negligible magnitude and therefore (in accordance with Table 13.4 of the 2018 EIA

Report) of negligible significance. This is not significant in terms of the EIA Regulations.

- 3.7.36. Due to the limited working areas the increase in impermeable surface coverage is unlikely to lead to surface water run off rates increasing beyond those of the baseline. As such, the potential increase in surface water flows is of negligible magnitude and therefore (in accordance with Table 13.4 of the 2018 EIA Report) of negligible significance. This is not significant in terms of the EIA Regulations.

Mitigation

- 3.7.37. No mitigation is required for the works other than construction good practice which is included as part of embedded design measures.
- 3.7.38. Construction good practice has been demonstrated at other developments of a similar nature to limit the potential for hydrological effects.

Summary

- 3.7.39. The B720 Offsite Roadworks were considered using the same assessment methodology as the EIA Report 2018. The B729 Offsite Roadworks is predicted to result in no significant effects and construction best practice would be implemented throughout the construction period.

Statement of Significance

- 3.7.40. Effects on hydrological resources associated with the B729 Offsite Roadworks are considered to be not significant.

4. Lorg Grid Connection

4.1. Introduction

4.1.1. SP Energy Networks (SPEN) submitted a scoping report to Scottish Government in February 2019 for a 132 kilovolt (kV) overhead line supported on **'Trident' wood poles with a** connection point to the electricity transmission network (DE Route) and a junction where the individual connections from Lorg and Longburn Wind Farm meet. The Longburn Wind Farm was refused at appeal in May 2019 so that its junction would no longer be required, so that the works are referred to in this AEI II Report as **'the Lorg Grid Connection'**.

4.1.2. The main components of the Lorg Grid Connection are:

- Trident wood poles to carry the overhead lines in a **likely 'H' pole design** with typical heights of 13 m, with a range between 10 and 22 m;
- Single circuit overhead line;
- Junction of the two overhead lines; and
- T-in point comprising a switching station.

4.1.3. The route of the Lorg Grid Connection is described in the Scoping Report as...

'initially follows a westerly direction to the bottom of the water of Ken valley from the Lorg connection point, and then south along the Water of Ken valley. It generally runs parallel to the existing 11 kV line through commercial forestry along the eastern side of the valley, deviating around residential properties...

*The combined route now follows a south-westerly direction through a smaller region of commercial forestry north of Marsalloch Hill and to the west through areas of rough grazing (moorland and semi-improved grassland). It skirts to the north of Quantans Hill, and behind the Holm Hill to **'T-in' with the DE Route** electricity transmission line on the western flank of Holm Hill.*

4.1.4. At the time of writing, the Section 37 application and associated EIA Report have not been submitted. As such, there is limited environmental information available to undertake a cumulative assessment. However, as the Lorg Grid Connection is expected to transverse the centre of the **Shepherds' Rig Wind Farm** at its narrowest point (AEI II Figure 4.1.1), this section of the AEI II Report is a cumulative assessment focused upon the key disciplines where cumulative effects are most likely to arise as a result of the **Shepherds' Rig Wind Farm** and Lorg Grid Connection. This section of the AEI II Report is an addendum to that presented in the EIA Report (November 2018) and AEI I Report (October 2019) and should be read in conjunction with these, including figures and appendices.

4.2. Scope of the Lorg Grid Connection Cumulative Assessment

4.2.1. The AEI II has been prepared following a systematic approach to EIA and following the principles outlined within Chapter 6 of the EIA Report (November 2018).

4.2.2. Cumulative effects result from incremental changes caused by the Shepherds' Rig Wind Farm and the Lorg Grid Connection. The environmental topics detailed in AEI II Table 4.2.1 are unlikely to receive a significant cumulative effect and are not considered further in this AEI II Report.

AEI II Table 4.2.1: Technical Areas Scoped Out of Lorg Grid Connection Cumulative Assessment as Significant Effects Unlikely

| Technical Area | Reason for Scoping Out |
|----------------------------|---|
| Forestry | Forestry would be managed via the Forestry Management Plan for each Development. |
| Ecology | The Lorg Grid Connection is localised through the centre of the Shepherds' Rig Wind Farm Site within low value commercial forestry with limited potential to support sensitive habitat and protected species so that cumulative effects would not occur. |
| Ornithology | The Lorg Grid Connection is localised through the centre of the Shepherds' Rig Wind Farm Site. Baseline field studies recorded very infrequent use of the Lorg Grid Connection route corridor by species of Nature Conservation Importance. Hence, their reliance on habitats (e.g. for breeding, roosting or foraging) and airspace in the vicinity of the route corridor was very low, and the Lorg Grid Connection will have no potential for significant cumulative effects on relevant populations of these species. Consequently, given regional abundance and/or behavioural sensitivity there is considered to be no potential for any adverse cumulative effects on regional populations in combination with the wind farm. |
| Geology and Peat | Lorg Grid Connection is an overhead line with limited localised ground effects associated with the trident poles so that any cumulative effects would be negligible. |
| Hydrology and Hydrogeology | Hydrology would be managed via construction best practice and through the submittal of Construction Environmental Management Plan and any construction method statements by the Principal Contractor for each Development to ensure no significant effects. |
| Noise | As stated in Chapter 14 of the EIA Report, Section 14.6, there is significant separation distance between the Developments and noise sensitive properties, so that no significant construction noise effects are anticipated. For operational noise, the Lorg Grid Connection would not have an appreciable level of noise in conjunction with the Shepherds' Rig Wind Farm due to the separation distance between where the overhead crosses the Site and the closest residential properties and no significant operational noise effects are anticipated. |
| Aviation | Due to the limited height of the Lorg Grid Connection (up to 22 m), there is no potential for cumulative effects. |

| | |
|---|--|
| Socio-economics, Tourism and Recreation | There is unlikely to be any long term effect upon socio-economics, tourism and recreation receptors as a result of the Shepherds' Rig Wind Farm and Lorg Grid Connection. |
| Shadow Flicker | No potential for shadow flickers effects associated with the Lorg Grid Connection so there is no potential for cumulative effects. |
| Telecommunications and Utilities | No telecommunications affected by the Shepherds' Rig Wind Farm and no known utilities within the centre of the Shepherds' Rig Wind Farm Site where the Lorg Grid Connection will be located so there is no potential for cumulative effects. |
| Health and Safety | Requirements for human health would be covered under the Construction Environmental Management Plan and any construction method statements by the Principal Contractor to ensure no significant cumulative effects. |
| Climate Change and Carbon Balance | The Lorg Grid Connection is localised within the Shepherds' Rig Wind Farm Site and would not result in an appreciable cumulative effect upon climate change or the carbon balance calculations in combination with the wind farm. |

4.2.3. In accordance with the EIA Regulations, the following technical areas were identified as being where a cumulative effect may occur and are considered further within the AEI II Report:

- Landscape and Visual;
- Cultural Heritage; and
- Traffic and Transport.

4.2.4. Each individual technical area will detail their specific cumulative assessment methodology in the relevant sections of this AEI II Report.

4.3. Landscape and Visual

Introduction

- 4.3.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential cumulative effects of the **Shepherds' Rig** Wind Farm and the Lorg Grid Connection. It supplements Chapter 8: Landscape and Visual of the EIA Report (November 2018) and AEI (October 2019) and should be read in conjunction with these.

Methodology

- 4.3.2. This section takes into account the legislation, policy and guidance referred to in the EIA Report (November 2018) and AEI (October 2019), updated as follows:

- Dumfries and Galloway Local Development Plan 2 (2019);
- Dumfries and Galloway Wind Farm Landscape Capacity Study (2020);
- Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations (2020);
- Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations - Appendix 'C' Wind Farm Landscape Capacity Study (2020); and
- Dumfries and Galloway Dark Skies Friendly Lighting Supplementary Guidance (2020).

- 4.3.3. The same significance criteria and assessment methodology as referred to in the EIA Report (November 2018) has been followed. Taking into account the relevant policy and guidance, and assessment criteria, a cumulative assessment is presented below which details the cumulative effects of the **Shepherds' Rig** Wind Farm and the Lorg Grid Connection upon:

- Individual landscape features and elements;
- Landscape character;
- Specific views; and
- People who view the landscape.

- 4.3.4. This assessment considers the potential for significant cumulative effects to occur from the addition of **the Shepherds' Rig Wind Farm into a landscape** where the Lorg Grid Connection is already present alongside other operational wind development. However, should cumulative Scenario 1 (all consented developments are operational) or Scenario 2 (all consented and in planning schemes are operational) be considered, the same conclusions would continue to apply.

Baseline Conditions

- 4.3.5. In relation to the perceptibility of the Lorg Grid Connection, the EIA Scoping Report for the Proposed 132kV Grid Connection to Lorg and Longburn Wind Farms (February 2019) prepared on behalf of SP Energy Networks, sets out the extent of its landscape and visual study area. Paragraphs 7.2.10 to 7.2.12 of the EIA Scoping Report state:

'Research on the perceptibility of wood pole overhead lines has shown that they may be visible from up to 6 km and are likely to be noticeably visible from up to about 1.5 km.

Experience from similar projects suggests that significant effects are unlikely beyond 1.5 km from the line. Taking a precautionary approach, the initial study area for both landscape and visual effects will be based on the zone of theoretical visibility (ZTV) of the Proposed Development, cut off at 3 km from the line. This limit will be tested during the early stages of the LVIA process and will be amended if necessary for the EIA Report to reflect findings on the ground.'

- 4.3.6. In considering the nature of the grid connection and the above likelihood that significant effects for the grid connection in its own right would be unlikely beyond distances of 1.5 km, this distance has been used as a parameter within which to assess potential likelihood for significant cumulative effects **arising from the inclusion of the Shepherds' Rig Wind Farm** into a baseline where the Lorg Grid Connection is present. It is considered that there would be no potential for significant cumulative effects beyond 1.5 km of the Lorg Grid Connection route, and therefore any landscape or visual receptors beyond 1.5 km have not been considered further within this assessment.
- 4.3.7. With reference to landscape character areas, those across which the 1.5 km offset from the route of the Lorg Grid Connection extents are as follows:
 - 19 – Southern Uplands (Carsphairn unit);
 - 19A – Southern Uplands with Forest;
 - 21 – Rugged Granite Uplands;
 - 4 – Narrow Wooded Valley (Ken Unit); and
 - 9 – Upper Dale (Upper Glenkens unit).
- 4.3.8. Of these, significant effects for the **Shepherds' Rig Wind Farm** were assessed for the following character areas and extents:
 - 19 – Southern Uplands (Carsphairn unit) up to 4.5km;
 - 19A – Southern Uplands with Forest (Ken unit) up to 5km;
 - 4 – Narrow Wooded Valley (Ken Unit) up to 4.5km; and
 - 9 – Upper Dale (Upper Glenkens unit) up to 4.5km.
- 4.3.9. Where there is overlap in the extent of identified effects and the 1.5 km offset from the route of the Lorg Grid Connection and areas within which a significant effect of the **Shepherds' Rig Wind Farm**, these have been considered as part of this assessment.
- 4.3.10. The 1.5 km offset from the Lorg Grid Connection does not extend to the majority of viewpoint locations set out in the EIA Report (November 2018). The following viewpoints within 1.5 km from the Lorg Grid Connection, from where it may be **'noticeably visible'**, have been considered further within this assessment:
 - Viewpoint 1 - Stroanfreggan Bridge (B729);
 - Viewpoint 2 – Stroanfreggan Craig;
 - Viewpoint 6 – Head of Ken Valley; and
 - Viewpoint 15 - Craig of Knockgray.

- 4.3.11. In relation to those residential properties within 2 km of the **Shepherds' Rig** Wind Farm included as part of the Residential Visual Amenity Study (RVAS), the following are located within 1.5km of the Lorg Grid Connection and therefore considered within this assessment:
- Marbrack (1);
 - Marbrack Cottage (2);
 - Stroanpatrick (9);
 - Craigengillan (10);
 - Craigengillan (11); and
 - Strahanna Farm (13).
- 4.3.12. In relation to other visual receptors, the following are either wholly or partly within 1.5 km of the Lorg Grid Connection route (as shown on AEI II Figure 4.1.1) and have therefore been considered further as part of the assessment:
- Corlae and Craigythorn residential properties within 2-5km of the site;
 - Southern Upland Way long distance route (also Core Path 504);
 - Core Path 182;
 - Local Rights of Way including DS15, DS16 and DS17;
 - B729; and
 - Lorg Road.
- 4.3.13. The **Shepherds' Rig** Wind Farm lies partly within the Galloway Hills Regional Scenic Area (RSA), with most of the western part of the Lorg Grid Connection lying within the same RSA, therefore, it is considered further by the assessment.

Assessment of Cumulative Effects

Landscape Character

- 4.3.14. The **Shepherds' Rig** Wind Farm, the Lorg Grid Connection and local character areas are shown at AEI II Figure 4.3.1.
- 4.3.15. The **Shepherds' Rig** Wind Farm, in combination with the Lorg Grid Connection would serve to further reinforce the presence of built vertical elements within the surrounding landscape, in particular to the west, east and north-east of the **Shepherds' Rig** Wind Farm, where the Lorg Grid Connection extends into the surrounding landscape beyond the site. The 'H' design of the vertical Trident wood poles of Lorg Grid Connection 'typically 13 m above ground, with a range of 10 m and 20 m' (Lorg and Longburn Windfarms Grid Connection Scoping Report, para 3.1.5) are of a scale comparable to trees, whereas the **Shepherds' Rig** Wind Farm, at between 125 m and 149.9 m in height to blade tip, would appear as distinctly different elements in the landscape, of differing form, scale, composition and extent. Given these factors, it is considered that the greater part of effects upon landscape character would continue to arise from the **Shepherds' Rig** Wind Farm, notwithstanding the presence of the Lorg Grid connection also being within the landscape. It is acknowledged that there may be some locations within the 1.5 km grid corridor from where there could be a perception of an increase in energy development and infrastructure from a combination of

both the grid connection and the **Shepherds' Rig Wind Farm** (or any other cumulative wind farm schemes which may be visible in the wider landscape); however, the extent to which this combination would occur, would be restricted to instances where both the **Shepherds' Rig Wind Farm** and Lorg Grid Connection are visible at close quarters. In such instances, however, the influence upon character which arises from the **Shepherds' Rig Wind Farm**, which is already significant, would comprise the greater effect.

4.3.16. For the reasons set out above, within a radius of up to 5 km from the **Shepherds' Rig Wind Farm**, the overall effects upon landscape character, in combination with the Lorg Grid Connection, would not give rise to additional cumulative effects over and above those significant effects identified as a result of the **Shepherds' Rig Wind Farm**. By virtue of the scale and nature of the **Shepherds' Rig Wind Farm** within the distances over which the Lorg Grid Connection could also be noticeably visible, the **Shepherds' Rig Wind Farm** would have the greater influence upon the surrounding landscape character and therefore, the following significant effects upon landscape character remain:

- 19a Southern Uplands with Forest – Ken unit, up to 5 km to the east and north-west of the **Shepherds' Rig Wind Farm**;
- 4 Narrow Wooded River Valley – Ken Unit, up to 4.5 km from the **Shepherds' Rig Wind Farm**;
- 9 Upper Dale – Glenkens unit, up to 4.5 km from the **Shepherds' Rig Wind Farm**; and
- 19 Southern Uplands – Carsphairn unit, up to 4.5 km from the **Shepherds' Rig Wind Farm**.

4.3.17. Beyond the above areas, all effects of the **Shepherds' Rig Wind Farm** upon landscape character as set out in the EIA report are unchanged and not significant. In isolated locations where the Lorg Grid Connection is present, additional effects upon landscape character are likely to occur over and above that assessed as a result of the **Shepherds' Rig Wind Farm**. However, these locations are likely to be limited in nature due to the linear nature of the Lorg Grid Connection and would be a result of the effects of the Lorg Grid Connection itself, rather than that of the **Shepherds' Rig Wind Farm** and these are matters which would be assessed for the Lorg Grid Connection through the production of EIA material in support of an application.

Representative Viewpoints

4.3.18. The **Shepherds' Rig Wind Farm**, the Lorg Grid Connection and assessment viewpoints are shown at AEI II Figure 4.3.2.

4.3.19. AEI II Table 4.3.1 sets out the assessment from each representative viewpoint as set out within the AEI, not including those excluded from the assessment, as set out above. Commentary is provided in relation to potential cumulative effects as a result of the **Shepherds' Rig Wind Farm** seen in conjunction with the Lorg Grid Connection.

AEI II Table 4.3.1: Representative Viewpoints Cumulative Assessment **Shepherds' Rig Wind Farm** and Lorg Grid Connection

| Name/ Receptor | Sensitivity | Magnitude of Change | Level of Effect | Significance |
|--|-------------|------------------------|-------------------|--------------|
| 1. Stroanfreggan Bridge (B729) | High | High | Major | Significant |
| The Lorg Grid Connection is unlikely to be visible from this location due to intervening landform in the foreground, including the peak of Stroanfreggan Craig (294m AOD). Therefore, no cumulative effects are predicted as a result of the Shepherds' Rig Wind Farm and Lorg Grid Connection. | | | | |
| 2. Stroanfreggan Craig | High | High | Major | Significant |
| Although the Lorg Grid Connection would be visible in the Water of Ken valley in the foreground, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged whereby the Shepherds' Rig Wind Farm would appear materially more visible than that of the comparatively low-level Grid Connection. | | | | |
| 6. Head of Ken Valley | High | Medium to High | Moderate to Major | Significant |
| The Lorg Grid Connection would be visible in the foreground to the east of the road, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged, although the effect may be lessened slightly by the closer presence of the Grid Connection infrastructure already within the baseline. | | | | |
| 15. Craig of Knockgray | High | High | Major | Significant |
| The Lorg Grid Connection would be visible in the foreground below the elevated viewpoint. The significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged although the effect may be lessened slightly by the closer presence of the Grid Connection infrastructure already within the baseline. | | | | |

- 4.3.20. In summary, the **Shepherds' Rig Wind Farm** in combination with the Lorg Grid Connection, would not bring about any additional cumulative effects from the viewpoints set out in AEI II Table 4.3.1, over and above those already assessed for the **Shepherds' Rig Wind Farm** in its own right. It should be noted however, that the presence of the Grid Connection within the baseline of some views, may slightly reduce the degree to which the **Shepherds' Rig Wind Farm** would change the view by virtue of the closer presence of the Grid Connection infrastructure to the viewpoint, however not to such a degree that a change of effect would result.

Visual Receptor Groups

- 4.3.21. The **Shepherds' Rig Wind Farm**, the Lorg Grid Connection and visual receptor groups are shown at AEI II Figure 4.3.3.
- 4.3.22. AEI II Table 4.3.2 sets out the assessment from each representative visual receptor as contained within the EIA Report within 1.5 km of the Lorg Grid Connection, with a commentary provided in relation to any cumulative effects as a result of the **Shepherds' Rig Wind Farm** seen in conjunction with it.

AEI II Table 4.3.2: Visual Receptor Cumulative Assessment
Shepherds' Rig Wind Farm and Lorg Grid Connection

| Name/ Receptor | Sensitivity | Magnitude of Change | Level of Effect | Significance |
|--|---|----------------------------------|----------------------|--------------|
| Corlae and Craigythorn residential properties | High | Medium to High from curtilage | Moderate to Major | Significant |
| | Although the Lorg Grid Connection would be visible in the foreground view from the properties, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged, although the effect may be lessened slightly by the closer presence of the Grid Connection infrastructure already within the baseline. | | | |
| Southern Upland Way | High | Medium to High | Moderate to Major | Significant |
| | Although the Lorg Grid Connection would be visible in the Water of Ken valley in the foreground, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged whereby the Shepherds' Rig Wind Farm would appear materially more visible than that of the comparatively low-level Grid Connection. | | | |
| Core Path 182 | High | High | Major | Significant |
| | Although the footpath would cross the route of Lorg Grid Connection where it would appear prominent, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged, although the effect may be lessened slightly by the closer presence of the Grid Connection infrastructure already within the baseline. | | | |
| Local Right of Way DS15 | High | High | Major | Significant |
| | Although the footpath would cross the route of Lorg Grid Connection where it would appear prominent, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged, although the effect may be lessened slightly by the closer presence of the Grid Connection infrastructure already within the baseline. | | | |
| Local Right of Way DS16 | High | High | Major | Significant |
| | Although the Lorg Grid Connection would be visible in the Water of Ken | | | |

| Name/ Receptor | Sensitivity | Magnitude of Change | Level of Effect | Significance |
|----------------------------|--|------------------------|-----------------|--------------|
| | valley in the foreground where the path is not within coniferous woodland, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged. | | | |
| Local Right of Way DS17 | High | High | Major | Significant |
| | Although the Lorg Grid Connection would be visible in the Water of Ken valley in the foreground where the path is not within coniferous woodland, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged. | | | |
| B729 | High | High | Major | Significant |
| | Most of the road is beyond 1.5km of the Lorg Grid Connection, however, the Grid Connection infrastructure would be visible from locations to the south-east of the site. The significant effect as a result of the Shepherds' Rig Wind Farm would however remain unchanged. | | | |
| Lorg Road | High | Very High/High | Major | Significant |
| | Although the Lorg Grid Connection would appear visible in the Water of Ken valley in the foreground, the significant effect as a result of the Shepherds' Rig Wind Farm would remain unchanged. | | | |

- 4.3.23. In summary, the **Shepherds' Rig Wind Farm** in combination with the Lorg Grid Connection, would not bring about any additional cumulative effects from the visual receptors set out in AEI II Table 4.3.2, that have not already been brought about by the **Shepherds' Rig Wind Farm** in its own right.

Residential Visual Amenity Properties

- 4.3.24. The **Shepherds' Rig Wind Farm**, the Lorg Grid Connection and the residential visual amenity study area are shown at AEI II Figure 4.3.4.
- 4.3.25. AEI II Table 4.3.3 sets out the assessment from each residential property within the RVAS within 1.5 km of the Lorg Grid Connection, with a commentary provided in relation to any cumulative effects which may arise as a result of the **Shepherds' Rig Wind Farm** seen in conjunction with it.

AEI II Table 4.3.3: RVAS Properties Cumulative Assessment

| ID: | Property Name: | Worst case effect from house or garden/ curtilage/ private access using Pegasus methodology | Level of Significance | Over-bearing? |
|-----|----------------|--|-----------------------|---------------|
| 1 | Marbrack | Moderate from all locations | Not significant | No |
| | | The Lorg Grid Connection would be seen from the property crossing the adjacent landscape; however, the assessment of the Shepherds' Rig Wind Farm would remain unchanged. | | |

| ID: | Property Name: | Worst case effect from house or garden/ curtilage/ private access using Pegasus methodology | Level of Significance | Over-bearing? |
|-----|------------------------------|--|-----------------------|---------------|
| 2 | Marbrack Cottage | Moderate from all locations | Not significant | No |
| | | The Lorg Grid Connection would be seen from the property crossing the adjacent landscape; however, the assessment of the Shepherds' Rig Wind Farm would remain unchanged. | | |
| 9 | Stroanpatrick | Moderate from first floor bedroom and access track approaching and leaving the property | Not significant | No |
| | | The Lorg Grid Connection is unlikely to be visible from this location due to intervening landform in the foreground. Therefore, no cumulative effects are predicted as a result of the Shepherds' Rig Wind Farm . | | |
| 10 | Craigengillan (holiday home) | Moderate/major from north-west facing windows (presumed living space) | Significant | No |
| | | The Lorg Grid Connection is likely to be prominent in the Water of Ken valley, however, the assessment of the Shepherds' Rig Wind Farm would remain unchanged. | | |
| 11 | Craigengillan Cottage | Moderate from garden/curtilage and access track | Not significant | No |
| | | The Lorg Grid Connection is likely to be prominent in the Water of Ken valley, however, the assessment of the Shepherds' Rig Wind Farm would remain unchanged. | | |
| 13 | Strahanna Farm | Moderate/major from living space and garden | Significant | No |
| | | The Lorg Grid Connection is likely to be prominent in the Water of Ken valley, however, the assessment of the Shepherds' Rig Wind Farm would remain unchanged. | | |

- 4.3.26. In summary, the **Shepherds' Rig Wind Farm** in combination with the Lorg Grid Connection, would not bring about any additional cumulative effects that have not already been brought about by the **Shepherds' Rig Wind Farm** in its own right.

Mitigation

- 4.3.27. No specific mitigation measures have been considered as part of this assessment.

Summary

- 4.3.28. The Lorg Grid Connection includes infrastructure, which would introduce to the baseline landscape, a series of vertical elements across the site, and, extending beyond it to the west, south-east and north-east, where it may be **visible in combination with the Shepherds' Rig Wind Farm**. However, by virtue of the size and relative scale of the **Shepherds' Rig Wind Farm**, it is not

assessed that the effects previously set out within the EIA Report (November 2018) or the AEI I Report (October 2019) would be altered by the addition of the Lorg Grid Connection to a baseline that includes the **Shepherds' Rig Wind Farm**.

Statement of Significance

- 4.3.29. Effects on landscape character and visual amenity associated with the **Shepherds' Rig Wind Farm** in combination with the Lorg Grid Connection are considered to be not significant over and above those effects which have been set out in the previously submitted EIA Report and AEI.

4.4. Cultural Heritage

Introduction

- 4.4.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential cumulative effects of the **Shepherds' Rig** Wind Farm and the Lorg Grid Connection. It supplements Chapter 11 of the EIA Report (November 2018) and AEI I Report (October 2019) and should be read in conjunction with it.

Methodology

- 4.4.2. This section takes into account the legislation, policy and guidance cited in the EIA Report (November 2018) and AEI (October 2019).
- 4.4.3. The Lorg Grid Connection includes infrastructure, which would introduce to the baseline landscape, a series of vertical elements across the site, and, extending beyond the windfarm to the west, south-east and north-east, where it may be visible in combination **with the Shepherds' Rig Wind Farm**. However, by virtue **of the size and relative scale of the Shepherds' Rig** Wind Farm compared to the Lorg Grid Connection, the following heritage assets were identified as requiring consideration for cumulative effects as a result of changes to setting following comments from Historic Environment Scotland (HES; Doc Ref: ECU00000735) and the local authority archaeologist for Dumfries and Galloway Council (DGC Doc Ref: 18/1939/S36):
- Craigengillan Cairn Scheduled Monument (SM2238);
 - Stroanfreggan Fort Scheduled Monument (SM1095);
 - Little Auchrae farmstead non-designated heritage asset (MDG11404); and
 - Previously unrecorded non-designated burnt mound identified by the DGC Archaeologist (MDG27135).
- 4.4.4. This assessment deals with cumulative impacts to setting caused by the introduction of the Lorg Grid Connection to the Development.
- 4.4.5. The AEI I 2019 report concluded that as wider views from and of the Burnt Mound (MDG27135) contribute little to any understanding or appreciation of its cultural significance, it is considered that MDG27135 will not be subject to changes in setting that affect its cultural significance. It is therefore excluded from further assessment.
- 4.4.6. The same significance criteria and assessment methodology as used in the EIA Report (November 2018) has been followed. Taking into account the relevant policy and guidance, and assessment criteria, a cumulative assessment is presented below which details the effects of the **Shepherds' Rig** Wind Farm and Lorg Grid Connection.

Baseline Conditions

- 4.4.7. The baseline conditions as set out in both the 2018 EIA Report (Section 11.5) and the 2019 AEI I Report (Section 11.5) remain valid for the heritage assets

identified for cumulative assessment of the **Shepherds' Rig Wind Farm and Lorg Grid Connection**:

- Craigengillan Cairn Scheduled Monument (SM2238);
- Stroanfreggan Fort Scheduled Monument (SM1095);
- Little Auchrae farmstead non-designated heritage asset (MDG11404); and
- Previously unrecorded non-designated burnt mound identified by the DGC Archaeologist (MDG27135).

Assessment of Cumulative Effects

Operational Effects

- 4.4.8. Potential operational effects may occur because of changes to setting that affect a heritage **asset's** cultural significance or the appreciation of that cultural significance.

Craigengillan Cairn (SM2238)

- 4.4.9. Craigengillan Cairn (SM2238) was assessed in the AEI I Report (October 2019), operational impacts upon it were considered to be of low magnitude, resulting in no significant effect. With mitigation, residual effects were considered to be of negligible significance and not significant in terms of the EIA regulations.
- 4.4.10. The monument is a Bronze Age kerb cairn consisting of a grassed over circular mound of stones approximately 25 m in diameter and 3 m high. The scheduled area extends for **20 m from the edge of the cairn's visible remains** and is 45 m in diameter. The cairn appears to be well preserved, with only moderate disturbance from later activity. At the time of the site visit in 2019, the plantation encroached within the scheduled area, but no trees were planted on the visible surface remains of the cairn itself. A drystone walled sheep fold (shelter) depicted on the 1st Edition Ordnance Survey (OS) map had been constructed on top of the cairn. It is likely **that some of the cairn's stones were used in the shelter's construction**.
- 4.4.11. In general, the key characteristics from which the setting of Bronze Age burial cairns derive their cultural significance relate to their prominence in relation to their immediate surroundings and their inter-visibility with similar contemporary features such as other cairns, barrows and cremation cemeteries. As elements within the landscape have changed so much since the Bronze Age, the details of what is visible from such cairns is of less relevance. However, open views from the cairns, where such views exist, are also considered desirable, as the underlying topographic features within the landscape may be relevant to an understanding and appreciation of cultural significance.
- 4.4.12. Craigengillan cairn is located on a south-east facing slope at approximately 275 m AOD in a commercial forestry plantation. It is 250 m north-east of the confluence of the Craigengillan burn and the Goat Strand water. The possibly contemporary burnt mound (MDG27135) is approximately 180 m to the north-east of the cairn. During the site visit in 2019 the cairn was approached

from the north-east along a forestry ridge which follows an existing field boundary wall. Due to the forestry plantation, the cairn was not visible in any views on the approach. However, even in the absence of forestry the undulating local topography would likely screen and prevent middle and longer distance views of the cairn. The forestry also prevented short-distanced views of the cairn as it remained hidden from view until one was within the scheduled area itself.

- 4.4.13. From the cairn, views in every direction were restricted by forestry plantation. However, in the absence of forestry open views would be available across the Water of Ken to the south-east and east. Views in other directions are largely restricted by rising ground and local variations in topography. Future forestry felling plans relating to the **cairn's setting** are detailed in the 2018 EIA report.
- 4.4.14. In the absence of forestry, it is considered that the open views towards the south and east would contribute to **Craigengillan Cairn's cultural significance** and are a key characteristic of its setting. Because of the screening effect of local topography, the cairn is not a prominent or dominant feature in middle- or long-distance views towards it, and these views, although still of interest, are considered to contribute less **to the monument's cultural significance**.
- 4.4.15. The Lorg Grid Connection will be at least 312 m to the south of the Craigengillan Cairn at its closest point. Following the proposed forestry felling plan (AEI I Figure 7.1) trees will be felled immediately surrounding the cairn opening up views to the south-east and south. However, forestry trees further down the slope towards the Water of Ken will be retained. The Lorg Grid Connection will come from the north to south across the valley of the Water of Ken and will appear in the key views south-east and east from the cairn. It is considered that the wood poles will, at a maximum expected height of 22 m above ground, not increase the magnitude of effect. The views south-east and east from the cairn will remain open and unobstructed, and the view south will remain largely open. It will remain possible to understand and appreciate the contribution made to cultural significance by these views. In the absence of mitigation, operational impacts upon Craigengillan Cairn will be adverse and low in magnitude.
- 4.4.16. Embedded mitigation identified in the 2019 report (AEI I) remains unchanged. As such it is considered that the introduction of the Lorg Grid Connection to a baseline that **includes the Shepherds' Rig Wind Farm** will not result in any cumulative effects to key views to the south-east and south from the cairn. This is primarily due to distance, local topography and plantation and the use of wood poles in the construction of the over-head line through the landscape.

Stroanfreggan Craig Fort (SM1095)

- 4.4.17. The Stroanfreggan Craig Fort was assessed in the 2019 AEI I Report and operational impacts upon its significance were considered to be of negligible magnitude, resulting in an effect of negligible significance. This was considered not significant in EIA terms.

- 4.4.18. The fort comprises the collapsed remains of a stone-walled, Iron Age enclosure around a rocky outcrop on Stroanfreggan Craig. The fort exploits a natural cliff on its south-eastern side, but an arc of stone rubble represents the remains of a wall arcing around the Craig from south to north-east. A later (probably modern) stone cairn has been built on the Craig, just to the north-east of the fort.
- 4.4.19. In general, key characteristics from which Iron Age forts derive their cultural **significance relate to their builders' use** of the natural terrain to create secure, defensible enclosures, and strategic views available from, towards and between forts. As elements within the landscape have changed so much since the Iron Age, the detail of what is visible from such forts is less significance. However, defensive and/or commanding views from the forts, where such views exist, are also considered a key setting characteristic, and the maintenance of the views is considered desirable, as the underlying topographic features within the landscape may be relevant to an understanding and appreciation of cultural significance.
- 4.4.20. The Stroanfreggan Craig is a rocky spur running south-west/ north-east, rising to the north-east. The fort is on a north-west facing slope at 225 m AOD, approximately 600 m south-west of and 70 m below the highest point of the Craig. Close to the route of the Southern Upland Way, the usual approaches to the fort are either from the north-east, taking a brief diversion from the main Way across pasture field and rough grazing, or more easily from a layby on the B729 where a signpost points the way to the north-east along a rough path to the fort.
- 4.4.21. Views from the fort across the surrounding landscape are as described in both the 2018 EIA and 2019 AEI reports. In views towards the Craig from the south-east and south, the structure of the fort cannot be discerned until approximately 45m east of Smittons Bridge on the B729, although the modern cairn is clearly visible. West and north-west of this point, the remains of the fort can be clearly seen in views from the bridge and the minor road heading north to Craigengillan farmstead. These views are also relevant to understanding and appreciating the contribution made by setting to the **fort's** cultural significance, as they clearly illustrate the relationship between the fort and its hinterland, and the **use of terrain by the fort's builders**.
- 4.4.22. It is considered that views from the fort across and along the valley of the Water of Ken are of most relevance to its cultural significance and are a key characteristic of its setting. It is likely that the relatively flat and low-lying lands on the banks of the Ken were farmed (or monitored) by the **fort's** occupants, and the visual relationship between the fort and this land is key to any appreciation or understanding of cultural significance. Longer-distance views across the wider landscape – the hills beyond the Water of Ken and the lands further south-west, south and south-east – whilst still of some relevance, are not considered to be **key characteristics of the fort's setting**. Because of the screening effect of local topography, the fort is not discernible in middle- or long-distance views towards it from the south, south-east or east, and these views are considered to be of limited relevance to the **monument's cultural** significance.

- 4.4.23. The Lorg Grid Connection will be approximately 1.5 km away and come from the north to south across the valley of the Water of Ken and will appear in the key views to the north along the Water of Ken from the fort. It is considered that the wood poles will, at a maximum expected height of 22m above ground, largely blend into the plantation landscape. The views north from the fort will remain open and unobstructed, and the view south will remain largely open. It will remain possible to understand and appreciate the contribution made to cultural significance by these views. In the absence of mitigation, operational impacts upon Craigengillan Cairn will be negligible in magnitude.
- 4.4.24. Despite the presence of the Lorg Grid Connection in views from the fort, and in certain views towards **the fort's location**, it will remain possible to understand and appreciate the contribution made to cultural significance by **the fort's setting**.
- 4.4.25. Embedded mitigation identified in the 2019 report (AEI I) remain unchanged. As such it is considered that the introduction of the Lorg Grid Connection to a **baseline that includes the Shepherds' Rig Wind Farm** will not result in any cumulative effects to cultural significance of this designated heritage asset.

Little Auchrae Farmstead (MDG11404)

- 4.4.26. Little Auchrae farmstead (MDG11404) was assessed in the 2019 AEI I Report, and operational impacts upon it were considered to be of negligible magnitude, resulting in an effect of negligible significance. This was considered not significant in EIA terms.
- 4.4.27. The farmstead survives as a series of drystone walls defining enclosures, fields and buildings. On the eastern bank of the Water of Ken, it is on a west facing slope overlooking the low-lying lands along the river. Although non-designated, the DGHER categorises this heritage asset as being of schedulable quality and therefore it is of national importance.
- 4.4.28. In general, agricultural buildings and settlements such as Little Auchrae gain their significance from their immediate environment and the relationship they have with local topography and related features; such as the Water of Ken and the farmland alongside it. MDG11404 was not built with wider views in mind and the presence of the **Shepherds' Rig Wind Farm** in long-distance views from and across it would not greatly detract from any understanding or appreciation of the **farmstead's setting, or the contribution made by setting** to cultural significance.
- 4.4.29. Embedded mitigation identified in the 2019 report (AEI I) remain unchanged. As such it is considered that the introduction of the Lorg Grid Connection to a **baseline that includes Shepherds' Rig Wind Farm** will not result in any cumulative effects to cultural significance of this non-designated heritage asset.

- 4.4.30. Operational effects upon this heritage asset will be adverse, and negligible in magnitude, resulting in an effect of negligible significance. This will not be significant in EIA terms.

Mitigation

- 4.4.31. Mitigation measures intended to reduce the significance of direct effects remain as proposed in the 2018 EIA Report and 2019 AEI I Report with no further mitigation recommended for cumulative effects.

Summary

- 4.4.32. Cumulative effects are considered in cases where an effect of more than negligible significance has been predicted on the setting of a heritage asset as a result of the **Lorg Grid Connection and the Shepherds' Rig Wind Farm**. No setting effects of more than a negligible significance have been predicted, and therefore no significant cumulative effects will occur as a result of the Lorg Grid Connection and the **Shepherds' Rig Wind Farm**.

Statement of Significance

- 4.4.33. Effects on the cultural significance of heritage assets associated with the **Shepherds' Rig Wind Farm** in combination with the Lorg Grid Connection are considered to be not significant over and above those effects which have been set out in the previously submitted EIA Report and AEI.

4.5. Traffic and Transport

Introduction

- 4.5.1. This chapter provides Additional Environmental Information II (AEI II), as necessary, to address the potential **cumulative effects of the Shepherds' Rig Wind Farm and the Lorg Grid Connection**. It supplements Chapter 15: Traffic and Transport of the EIA Report (November 2018) and AEI (October 2019) and should be read in conjunction with these.

Methodology

- 4.5.2. The EIA Report, Section 15.9 (November 2018) identified a number of nearby developments which have the potential to result in cumulative effects. As the **Lorg Grid Connection is expected to transverse the centre of the Shepherds' Rig Wind Farm** at its narrowest point this section of the AEI II Report provides a cumulative traffic and transport assessment of the effects most likely to arise as a result of the **Shepherds' Rig Wind Farm and Lorg Grid Connection**.
- 4.5.3. In order to provide an assessment of the revised worst case cumulative scenario it has been assumed that the peak months of each development, excluding concrete delivery days, would coincide. In reality the peak months are unlikely to coincide and therefore the peak increase in traffic would be less than identified. It is assumed that the concrete pouring phases of each development would be timed so as to avoid each other.

Baseline Conditions

- 4.5.4. During the peak month of construction of the Lorg Grid Connection, the increase in overall traffic is predicted to be 8 vehicle movements per day, made up of 1 HGV movement per day and 7 car or van movements per day on average. AEI II Tables 4.5.1 and 4.5.2 indicate the previously predicted increase in traffic during the cumulative scenario and the revised cumulative scenario with the Lorg Grid Connection included respectively.

AEI II Table 4.5.1 - Cumulative Scenario ex. Lorg Grid Connection

| Location | Total Vehicles | | | HGV Only* | | |
|----------|----------------|------------|------------|---------------|------------|------------|
| | 2021 Baseline | Peak Month | % Increase | 2021 Baseline | Peak Month | % Increase |
| 1 | 156 | 811 | 421 | 57 | 216 | 280 |
| 2 | 148 | 803 | 441 | 44 | 203 | 358 |
| 3 | 1564 | 2219 | 42 | 414 | 573 | 38 |
| 4 | 23844 | 24499 | 3 | 1276 | 1435 | 12 |

AEI II Table 4.5.2 - Cumulative Scenario inc. Lorg Grid Connection

| Location | Total Vehicles | | | HGV Only* | | |
|----------|----------------|------------|------------|---------------|------------|------------|
| | 2021 Baseline | Peak Month | % Increase | 2021 Baseline | Peak Month | % Increase |
| 1 | 156 | 819 | 426 | 57 | 217 | 282 |
| 2 | 148 | 811 | 447 | 44 | 204 | 361 |
| 3 | 1564 | 2227 | 42 | 414 | 574 | 39 |
| 4 | 23844 | 24507 | 3 | 1276 | 1436 | 13 |

Assessment of Cumulative Effects

- 4.5.5. The nominal change in the two scenarios resulting from the inclusion of the Lorg Grid Connection construction is negligible. The worst-case location for change is reference location 2 (on the B729 east of its junction with the A713), here the percentage increase in overall traffic would change from 441% above baseline to 447% above baseline as a result of the additional 8 vehicle movements per day. The corresponding change in HGV percentage change is from 358% above baseline to 361% above baseline.
- 4.5.6. The above changes in traffic level as a result of the inclusion of the Lorg Grid Connection construction to the cumulative scenario are considered to be negligible and therefore the previous conclusion on the significance of cumulative effects is still valid and cumulative effects remain not significant.

Statement of Significance

- 4.5.7. Effects on Traffic and Transport associated with the Development in conjunction with the Lorg Grid Connection are not significant. This represents no change to the cumulative assessment conclusions outlined in the EIA Report (November 2018) and AEI I Report (October 2019).



For further information please contact:

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