

Chapter 8: Ornithology

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Appendices

Appendix 8.1:	2016 Sandwater Road ES - Chapter 8: Ornithology
Appendix 8.2:	2016 Sandwater Road ES – Baseline Bird Surveys Technical Report
Appendix 8.3:	2018 Survey Update for Sandwater by Atlantic Ecology
Appendix 8.4:	Draft Bird Protection Plan

8 Ornithology

8.1 Executive Summary

- 8.1.1 This Chapter presents a detailed review of previous assessment findings (2016 ES) related to the likely effects of the Proposed Development on ornithology. This review has been undertaken by Dr Andy Mackenzie, a partner in Mackenzie Bradshaw Environmental Consultants (MBEC) and a very experienced applied ecologist and ornithologist.
- 8.1.2 The study area for the Proposed Development has been extensively studied for birds, both as part of the wider Viking Wind Farm studies and specifically for the B9075 proposed road realignment. The study area was most recently surveyed for breeding birds in 2018 by Atlantic Ecology.
- 8.1.3 For most bird species, last year's survey results (2018) were similar to the survey results for 2013 and 2015 for the same study area and are consistent with the year-to-year variation expected for a relatively small survey area. However, a noticeable difference between the 2018 results and previous surveys is the absence of breeding common gull, Arctic skua and lapwing in 2018. These three species are known to have declining populations on the Shetland Mainland.
- 8.1.4 The most sensitive area for breeding birds in relation to the Proposed Development is the Petta Dale valley area. This area has included up to 3 breeding territories of whimbrel, a species of High nature conservation value. In addition, the area also supports a wide range of other breeding species, most importantly, including up to three pairs of golden plover, up to three pairs of dunlin and up to one pair of Arctic skua (not in 2018). Other breeding birds in this area include curlew, lapwing (not in 2018), Arctic tern, ringed plover and various breeding duck species. There is the potential for the Proposed Development to cause increased disturbance and or territory loss to birds breeding to the north of the Petta Dale valley area. The road alignment change to the north (circa 20m) could cause a greater level of impact (pre-mitigation) than assessed in the 2016 ES to breeding birds of High nature conservation value.
- 8.1.5 The majority of the mitigation proposed in the 2016 ES was necessary to minimise the likelihood of the predicted disturbance to breeding whimbrel (also relevant to other species) from construction related activities. These mitigation measures are all adopted into this application with a necessary minor change to the boundary of the breeding whimbrel protection zone to reflect the revised road alignment. Several additional measures are proposed and will be implemented by the Ecological/Environmental Clerk of Works, as required. All mitigation is included in a Bird Protection Plan. A pre-consultation draft is included (see Appendix 8.4) and will be discussed with SNH prior to any implementation/works on site.
- 8.1.6 It is concluded that the previous impact assessment findings (2016 ES), in relation to disturbance of birds and the level of bird habitat loss/change, remain the same for the Proposed Development. The revised road alignment is slightly further north than that assessed in the 2016 ES and closer to the important breeding area in the Petta Dale valley but the construction and operation of the new road is not likely to increase the number of important bird species and/or territories affected.

- 8.1.7 The adoption and updating of the mitigation measures including the implementation of a Bird Protection Plan ensures that the conclusion of the impact assessment for birds, in relation to the Proposed Development, would remain the same as the 2016 application; *“After mitigation the residual effect on all bird receptors is determined to be of negligible or minor significance and therefore judged to be not significant for the purposes of the EIA regulations.”*

8.2 Introduction

- 8.2.1 This Chapter presents a detailed review of previous assessment findings related to the likely effects of the Proposed Development on ornithology. Recent survey data and confirmation of the mitigation measures and commitments that will be incorporated during the construction phase to minimise potential effects on sensitive bird species are also included. As set out in the Pre-Application Briefing Note (see Appendix 6.1), given that the Proposed Development comprises localised changes to the proposed road realignment and construction compared to that assessed as part of the withdrawn 2016 ES, a completely new ornithological assessment has been scoped out of this EIA Report (see Section 8.3).
- 8.2.2 This Chapter should be read in conjunction with Chapter 8: Ornithology, of the 2016 ES, included as Appendix 8.1 to this Chapter, and the appendix to the 2016 chapter, included as Appendix 8.2. Updated survey information is discussed within this Chapter, and provided in Appendix 8.3. The Draft Bird Protection Plan referred to in this Chapter is included in Appendix 8.4. Where information or assessment does not require updating between this Chapter and the 2016 ES, this is stated, and the 2016 ES information only reproduced where it provides context for the review and updated assessment.
- 8.2.3 This review has been undertaken by Dr Andy Mackenzie, a partner in Mackenzie Bradshaw Environmental Consultants (MBEC). He is a very experienced applied ecologist and ornithologist having completed numerous impact assessments and practically implemented mitigation for birds and other species around Scotland. He has extensive experience on wind farm construction sites around Scotland as an Ecological and Environmental Clerk of Works (ECoW). Andy holds a Schedule 1 Licence for protected bird species; he is a Chartered Ecologist; and also holds a variety of other protected species licenses in Scotland. Andy has been put forward by Viking Energy Wind Farm LLP (VEWF) to undertake the lead ECoW role for the construction of Viking Wind Farm and he has been accepted for this role by Shetland Islands Council.

8.3 Scope and Consultation

Previous Assessment Findings

- 8.3.1 The 2016 ES concluded for ornithology that after the implementation of appropriate mitigation measures, the residual effect on all bird receptors would not be significant.
- 8.3.2 For context, the Executive Summary of Chapter 8 of the 2016 ES (Appendix 8.1) is reproduced in full below.

“Baseline bird surveys undertaken in 2013 and 2015 showed that the proposed development, buffered to 500m, provides breeding habitat for several species of high nature conservation value including: whimbrel and dunlin (up to three pairs each), golden

plover (up to two pairs) and Arctic skua (one pair). There are also several species of moderate nature conservation value including: curlew (up to 21 pairs), lapwing (up to 13 pairs) and common sandpiper (up to 1 pair). Outside the bird breeding season the site has relatively low ornithological value.

The proposed development is predicted to lead to two potential effects that could adversely affect birds: disturbance during the construction stage and long term habitat loss/change.

The site substantially overlaps the Central Shetland Moorland Areas Important Bird Area (IBA), an area of national importance for breeding whimbrel. This IBA comfortably meets the criteria for designation as a Special Protection Area under the EU Natura legislation (it currently holds approximately 8% of the UK whimbrel population).

Before mitigation, construction disturbance is predicted to cause disturbance of up to three pairs of breeding whimbrel, and this is rated as a Moderate magnitude effect on the Central Shetland Moorland Areas IBA whimbrel population and a Low magnitude effect on the Shetland (regional) population. Whimbrel is listed on Schedule 1 of the Wildlife and Countryside Act (as amended) and therefore disturbance of this species when breeding is prohibited. Habitat loss/change is also predicted to have a Low magnitude effect on the IBA whimbrel population.

The predicted effects of the development on regional populations of all other bird species are predicted to be of negligible magnitude.

Mitigation measures in the form of restricting the timing of construction works in the most bird sensitive parts of the site to outside the breeding season, and minimising habitat loss and change are proposed.

After mitigation the residual effect on all bird receptors is determined to be of negligible or minor significance and therefore judged to be not significant for the purposes of the EIA regulations.”

Screening and Pre-Application Briefing Note

- 8.3.3 The B9075 Sandwater Road Realignment, Screening Opinion Request (VEP, 2018) and Pre-Application Briefing Note (Appendix 6.1) noted that a new impact assessment for birds was not required. The reasons for relying on the existing assessment were: the conclusions in the previous Environmental Statement (Viking Energy, 2016a); the comprehensive mitigation proposed; and that recent bird surveying and knowledge of the area is extensive and detailed. Bird surveys have been ongoing within this area and the 2018 breeding bird surveys confirm the results of previous surveys (Viking Energy, 2018 and Appendix 8.3). The Proposed Development was also anticipated to lead to similar levels of bird disturbance and habitat loss as set out in the 2016 ES, and therefore, as long as the previous mitigation measures were taken forward and implemented, no additional or significant residual effects would be anticipated.
- 8.3.4 The Screening Opinion reply from Shetland Islands Council (SIC, 2018) (Appendix 1.1) and follow up consultation on the Pre-Application Briefing Note (see Appendix 6.1 and 6.2) confirmed acceptance for the proposed approach suggested for ornithology. The Screening Opinion makes it clear that *“The excavation and engineering operations associated with the proposal have potential to impact on Sandwater SSSI”*. The Sandwater Site of Special Scientific Interest (SSSI) is designated because of the special interest of the habitats and plants present. This is addressed separately in the Ecology Chapter (Chapter 9).

Scope

- 8.3.5 In line with the Screening Opinion and Pre-Application Briefing Note, the scope of this Chapter is as follows:
- Review previous assessment findings;
 - Update baseline survey information;
 - Confirm potential effects;
 - Review and update mitigation measures; and
 - Residual Effects/Conclusions.

8.4 Baseline Conditions

Study Area

- 8.4.1 The study area for the Proposed Development has been extensively studied for birds, both as part of the wider Viking Wind Farm studies and specifically for the B9075 proposed road realignment. The study area was most recently surveyed for breeding birds in 2018 by Atlantic Ecology. The methods used were the same as those used in previous surveys; see Appendix 8.2 for further details on methodology. The surveyed area for all important bird species included the proposed B9075 construction corridor with a buffer of 500m all round it. In addition, breeding merlin, whooper swan and red-throated diver were surveyed to an extended corridor at least 1km from the Proposed Development boundaries.

Survey Results

- 8.4.2 Table 1 of the 2018 Survey Update, included as Appendix 8.3, provides a summary of the important breeding birds present and their approximate locations.
- 8.4.3 For most bird species, last year's survey results (2018) were similar to the survey results for 2013 and 2015 for the same study area (see Appendix 8.2 for the results of the 2013 and 2015 surveys). For most species, the number and distribution of breeding territories are similar and the changes since the 2013 and 2015 surveys are consistent with the year-to-year variation expected for a relatively small survey area. However, a noticeable difference between the 2018 results and previous surveys is the absence of breeding common gull, Arctic skua and lapwing in 2018. These three species are known to have declining populations on the Shetland Mainland (Appendix 8.3).
- 8.4.4 Previous surveying has shown that the construction area and immediate surroundings are not very important for birds outside of the breeding season. There have been important records of wintering bird species in the wider surrounding area but they are unlikely to be affected by the Proposed Development.
- 8.4.5 The most sensitive area for breeding birds in relation to the Proposed Development is the Petta Dale valley area. This area includes the flat valley floor (blanket bog) just to the north of the existing B9075 and all of the north shore of Sandwater immediately south of the existing road (locally important for feeding and bathing for some bird species). This area has included up to 3 breeding territories of whimbrel, a species of very high conservation value. In addition, the area also supports a wide range of other breeding waders, skua and wildfowl species, most importantly, including up to three pairs of golden plover, up to

three pairs of dunlin and up to one pair of Arctic skua (not in 2018). Other breeding birds in this area include curlew, lapwing (not in 2018), Arctic tern, ringed plover and various breeding duck species. Arctic tern and ringed plover (1 pair of each) nested over 300m away in 2018. Further details of bird surveying results are provided in Appendices 8.2 and 8.3.

Nature Conservation Importance

- 8.4.6 Table 8.3 in Appendix 8.1 lists the rationale and nature conservation importance for all the relevant breeding bird species in the study area. The following species breeding within or in the immediate surroundings of the Proposed Development are of High nature conservation importance: whimbrel, dunlin, golden plover and arctic tern. In 2018 all of these species were present and breeding in the Petta Dale valley to the north of the existing B9075 with the exception of Arctic tern, one pair bred on the north east shore of Sandwater, approximately 350m south of the existing B9075.
- 8.4.7 The breeding bird species categorised as Moderate nature conservation importance are all listed in Table 8.3 in Appendix 8.1. Curlew, common sandpiper, lapwing, ringed plover and Arctic skua are all relevant. Lapwing and Arctic skua did not breed in the area of interest in 2018 but have in the recent past and one pair of ringed plover bred on the east shore of Sandwater approximately 400m south of the existing B9075 in 2018.

8.5 Potential Effects

Introduction

- 8.5.1 The complete length of the proposed realigned B9075 road is just over 2km. The 2016 application included a new road junction at the east end with the A970, just north of the existing B9075 junction. The Proposed Development also includes this new junction but it is located approximately 38m north of the 2016 application (see Figure 3.1). The Proposed Development varies in road alignment along its 2km length when compared to the 2016 application and is generally further to the north (see Figure 3.1).
- 8.5.2 While breeding birds of High and Moderate conservation value can vary the locations where they breed from year to year, the extensive surveying in this study area, over multiple years has confirmed that the most sensitive area for birds, in relation to the Proposed Development, is the Petta Dale valley. This area is located to the West of the A970 and is the flattish valley bottom going north from the northern shore of Sandwater. It can be seen in Figure 3.1 that the Proposed Development is partly on the same alignment as the 2016 application in this area but curves to the north of it before curving back south on to the previous alignment. This alignment change to the north is in the middle of the Petta Dale valley. The altered alignment has been measured using GIS to be approximately 20m further north at its furthest point in this area compared with the 2016 alignment (road centre to road centre).
- 8.5.3 Potential effects on birds for the Proposed Development are related to construction disturbance and habitat loss/change. Construction disturbance can be caused by the proximity of works to breeding birds, increased noise and movement being important. Habitat loss will occur in relation to the new footprint of the road and the edges of it. Habitat change relates to how birds use the area and how the works and subsequent

operation could affect their territories for breeding. A full discussion of the potential effects is given in Chapter 8 of the previous ES (Appendix 8.1).

- 8.5.4 Disturbance was assessed in the 2016 application as short-term and of negligible significance for all breeding bird species except whimbrel. The breeding whimbrel were assessed, pre-construction disturbance mitigation, based on the Central Shetland Moors Important Bird Area, to be of Moderate significance and therefore significant under the EIA Regulations.
- 8.5.5 Habitat loss and change were assessed in the 2016 application, pre-mitigation, at a maximum for all bird species of Minor significance and not significant under the EIA Regulations.
- 8.5.6 Specifically in relation to the Petta Dale area, there is the potential for the Proposed Development to cause increased disturbance and or territory loss to birds breeding to the north of this area. The circa 20m alignment change to the north could cause a greater level of impact (pre-mitigation) than assessed in the 2016 application to breeding birds of High nature conservation value (this is addressed further in Section 8.7 below).

8.6 Mitigation

Previously Proposed Mitigation Measures

- 8.6.1 The mitigation measures proposed in the 2016 application (Appendix 8.1) to minimise the predicted effects on birds are fully reproduced below.

“Mitigating Effect 1: Construction Disturbance

Mitigation to address the predicted disturbance to breeding birds from construction activities are focussed on whimbrel, the only species for which Moderate or Minor significance disturbance effects is predicted. Whimbrel is also the only species predicted to be affected by disturbance that is listed on Schedule 1 of the Wildlife and Countryside Act (as amended). Thus, disturbance of this species (including nests and dependent young) when breeding would be in contravention of the WCA and therefore must be avoided. The primary objective of mitigation measures to address construction disturbance is to deploy measures that avoid all disturbance to breeding whimbrel.

The breeding whimbrel territories predicted to be affected have been shown by surveys over multiple years to be approximately spatially consistent across years and are clustered together in the Pettadale valley approximately 100 – 300m north of the road. Therefore mitigation measures to prevent disturbance to breeding whimbrel would only need to apply to a portion of site. This corresponds to the area of blanket bog in the Pettadale valley to the north of the existing B9075 that is regularly used by breeding whimbrel.

Several other breeding bird species of high or moderate Nature Conservation Importance are also predicted to potentially be adversely affected by disturbance during construction, namely: golden plover, dunlin, curlew, lapwing and Arctic skua (Table 8.11). Disturbance of any species of high or moderate Nature Conservation Importance whilst breeding is highly undesirable as it could lead to abandonment of territories or breeding failure. Although mitigation to control disturbance to these species is not required to prevent this effect being judged as significant under the EIA regulations nor for compliance with the WCA Schedule 1 disturbance clauses, best practice is to avoid or reduce disturbance to breeding birds in general in so far as measures are reasonable and practical to deploy. Thus the secondary

objective of mitigation measures to address construction disturbance is to reduce disturbance to species other than whimbrel of high or moderate Nature Conservation Importance.

All the territories of golden plover, dunlin and Arctic skua, and approximately half the territories of curlew and lapwing, predicted to be affected by disturbance are located in close proximity to the three whimbrel territories. Therefore the measures described below aimed at avoiding disturbance of breeding whimbrel would incidentally also result in the avoidance of disturbance to the territories of these other species breeding in close proximity.

Bird Protection Plan

A Bird Protection Plan (BPP) will be drawn up before construction commences that describes the measures that will be deployed to manage disturbance of breeding birds, especially WCA Schedule 1 species such as whimbrel.

The BPP would provide a mechanism that allows construction activities to comply with WCA legislation by preventing, as far as is practically possible, disturbance to breeding Schedule 1 species, and keeping any low level incidental disturbance within levels deemed acceptable by SNH. In consultation with SNH, the BPP will identify the type, timing and location of activities that are likely to disturb breeding Schedule 1 and other priority bird species and their nests and young, and identify appropriate temporary protection zones and other mitigation procedures to prevent disturbance. The BPP will be informed by survey work conducted by an experienced ornithologist in the period leading up to and throughout construction work.

As part of the BPP, to avoid disturbance to breeding whimbrel it is proposed there will be a defined Breeding Whimbrel Protection Zone (BWPZ) with no access to Project workers and construction equipment during the period when whimbrel are breeding and sensitive to disturbance. Whimbrel is a summer visitor to Shetland arriving as early as 25 April and staying until up to mid-August. These dates are based on the period when breeding whimbrel have been encountered during baseline bird surveys for the Viking Wind Farm. Whimbrels are potentially most sensitive to disturbance when they have eggs or small chicks. Studies of nesting whimbrel undertaken in Shetland in 2010 and 2011 by NRP showed that egg-laying occurs from approximately 15 May up to approximately 20 June, and that incubation takes around four weeks (NRP/VEWF unpublished data). Therefore, the critical period when active nests and young chicks are potentially present is from around 15 May up to around 25 July. Although older chicks may be present until well into August, at this stage the birds have a much lower sensitivity to disturbance and are highly mobile; typically at this stage adults will quickly lead chicks away from disturbance sources.

The indicative extent of the BWPZ based on data collected during the baseline surveys is illustrated in Figure 8.1. The actual boundary of the BWPZ and the time period over which it would be enforced will be agreed, in consultation with SNH, prior to construction. Any new spatial and temporal information on the breeding attempts by whimbrel collected by field studies during the construction phase would be used to iteratively revise the BWPZ boundary and time period as appropriate.

The proposed southern boundary of the BWPZ shown in Figure 8.1 is based on a 15m-buffer along the proposed development (the maximum required for road construction and verges, and safe movement of construction personnel and equipment). There is more scope for where the eastern and western boundaries of the BWPZ are drawn (these boundaries will not materially impinge on construction activities), those shown in Figure 8.1 are based on

buffering the areas used by whimbrel (the valley blank-bog habitat) to 150m, modified in parts to follow obvious features on the ground (existing stream courses and tracks).

The indicative BWPZ boundary illustrated in Figure 8.1 provides for a separation distances of at least 150m between the BWPZ boundary and the nominal centres of the recent (2013 – 2015) whimbrel territories potentially affected, and most of the recent nominal centres are more than 250m from the indicative BWPZ boundary. Whimbrel nest-flush-distances (the distance at which an incubating bird leaves its nest in response to a person approaching on foot) were recorded during the breeding studies undertaken in Shetland by NRP in 2010 and 2011 (Jackson and Chapman, 2010; NRP/VEWF unpublished data). This study found that flush distances are highly variable but that 92% of incubating birds (out of a sample of 77) had flush distances of below 150m, and 81% had flush distances of 100m or less; the median flush distance was 75m. Thus there is a high likelihood that the proposed southern boundary of the BWPZ shown in Figure 8.1 would effectively prevent disturbance in the core part the territories, including the nest sites, of the two to three pairs of whimbrel that breed in the BWPZ.

Should construction work commence in early 2017 [now out of date], works would be underway well before whimbrel (and most other species) would have returned and selected their breeding territories. The desirability and merits of taking measures that discourage whimbrel (and other species) from settling to breed close to the project site will be discussed with SNH. The aim of any such measures would be to encourage prospective breeding birds to settle at a safe distance away (say at least 200m) from the Project site rather than displace them to a different site altogether. For example, before birds return, a strip of 50 – 100 metres width along the southern edge of the proposed BWPZ (Figure 8.1) could be made visually less attractive to returning prospecting birds using light weight hazard tape strung between bamboo canes. The same measure could also be used elsewhere to discourage other bird species (i.e., those not on Schedule 1) from nesting close to the Project site. The desirability of this approach will also be discussed with SNH.

The mitigation measures described above are considered likely to prevent disturbance to breeding whimbrel, and therefore avoid potential violation of the WCA. Nevertheless, it is recognised that these measures cannot guarantee this because it remains possible that, despite the measures, whimbrel (or other Schedule 1 species) could attempt to breed so close to the proposed development that they would be disturbed by construction activity. Therefore, throughout the breeding season in the year of construction an ornithologist with a Schedule 1 license and experienced in surveying whimbrel would regularly (at least weekly) check for the presence of whimbrel in the vicinity of the proposed development, locate nests and collect all other necessary information to inform how mitigation measures may need to be revised to take account of changing circumstances. In a worst case scenario it is accepted that a nest could be so close to the proposed development that it would necessitate the temporary cessation of construction work in that part of the site.

Mitigating Effect 2: Habitat loss and change

Although no mitigation is required, in keeping with good practice, measures will be undertaken to avoid and reduce the negative effects on birds arising from habitat loss and change, in particular by minimising the footprint of the proposed development in sensitive blanket bog habitat (all the whimbrel, dunlin, golden plover and Arctic skua territories potentially affected are on blanket bog) and restoring damaged habitat to good condition for birds. The detail of mitigation measures aimed at reducing adverse effects of habitat change on bird species will be devised in conjunction with the measures aimed at restoring

the conditions of habitats of high ecological or conservation value (Chapter 9: Ecology and Nature Conservation). SNH will be consulted over habitat restoration methods.”

Mitigation Measures for the Proposed Development

- 8.6.2 In the 2016 bird impact assessment for the withdrawn application (Appendix 8.1), it was clear that the majority of the mitigation is necessary to minimise the likelihood of the predicted disturbance to breeding whimbrel (and other species) from construction related activities. These mitigation measures will be adopted into this application with a necessary change to the boundary of the breeding whimbrel protection zone (see Appendix 8.4 for further details) to reflect the revised road alignment, as explained below.
- 8.6.3 Figure 8.1 from the 2016 application is referred to in the mitigation text reproduced above from the 2016 application and is included here in Appendix 8.4. This figure along with the proposed Bird Protection Plan (BPP) provides for a whimbrel protection zone and suggests its extents. The 2016 mitigation measures text states that the extent of the protection zone is subject to consultation with SNH and depends on up to date pre-construction/construction surveying (normally the previous bird breeding season and as/once construction commences). The southern boundary of the whimbrel protection zone was proposed to be 15m north of the edge of the proposed road, in the 2016 application. The proposed re-alignment of the road is now slightly further north on the eastern section than it was in the 2016 application (see Figure 3.1 and Appendix 8.4). Therefore, it is necessary for the protection zone to be located the corresponding distance north. It has been estimated that the shift north would be circa 20m in one location dropping back to the same as the previous application to both sides of this. Therefore, the southern boundary of the whimbrel protection zone would shift a maximum of approximately 20m in one location. This can be limited further by limiting the road edge works/disturbance to 10m rather than the 15m proposed in the previous application with a further reduction in the shift north to a maximum of approximately 15m in the Petta Dale valley area.
- 8.6.4 The use of the whimbrel protection zone is to prevent disturbance to them and other species in the area while they are breeding. Whimbrel are listed on Schedule 1 of the Wildlife and Countryside Act (1981, as amended). This requires no disturbance to them when they are breeding. The use of the whimbrel protection zone and whether it will be possible for road construction to proceed to the immediate south of this zone during their breeding season is entirely dependent on precisely where whimbrel set up territory(s) and nest in that particular spring during construction. Pre-construction surveying and on-going surveying as construction proceeds are therefore critical in determining whether construction can commence and continue within this area.
- 8.6.5 There are measures and management of the construction process which will also have a bearing on avoiding disturbance to whimbrel (and other bird species). The timing of construction work starting in the eastern section of the new road will be critical. The ideal time of year to start work on the eastern section of the road would be immediately post-breeding. This would be likely to be early to mid-August but would be determined by survey (Snow and Perrins, 1998). Alternatively, if a spring start is desired by the main contractor on the eastern section, then starting work on the road in early March would be possible and would allow time to implement the breeding bird disturbance zone prior to their arrival in April. An early spring start would need to be under the clear understanding that if on-going bird surveying into the spring identifies whimbrel presence and the

likelihood of disturbance then work would have to be suspended completely in this area, at short notice, and possibly until early to mid-August. A construction start in the eastern section of the road later into the spring or early summer should be avoided and would be likely to be stopped due to breeding birds.

- 8.6.6 There are additional measures during the breeding season which could be used if thought likely to be successful, in the particular circumstances occurring at the time, by the ECoW. Such additional measures could include using tall barrier fencing on the immediate edge of the construction area/edge of the protection zone to hide and minimise construction movements. Tall barrier fencing would need to be built prior to the return of breeding birds. A strong structure of scaffold poles or similar, would be required and strong horticultural wind netting or similar could then be securely fastened to it. This fencing would need to be tall enough to lessen the visual disturbance by construction traffic and workers building the road i.e. it would need to mask all vehicle and people movements ideally up to dumper truck height. It would not be practical to try to hide all excavator arm movements or crane use. Timing of construction operations which would have the highest risk of bird disturbance (e.g. the temporary use of cranes, piling works or rock pecking) with time periods which would be the least disturbing for breeding birds could also be important and used in consultation with the main contractor. The use of these additional measures, should they be necessary, will be included in the Bird Protection Plan, which will be discussed with SNH prior to implementation/construction on site. A first draft of the Bird Protection Plan, prior to any consultation with SNH, is included as Appendix 8.4.

8.7 Residual Effects Discussion

Key Species and Number of Territories

- 8.7.1 Studying all the bird survey information (including the 2018 results, Appendix 8.3) and the previous impact assessment (Appendix 8.1), the following can be stated. The Proposed Development, with a road alignment which is slightly further north, is not likely to add to the list of important bird species or the usual number of breeding territories of these species which could be affected. Previous surveys do indicate that there will be an element of year to year variation in the presence of particular species and the numbers of breeding territories present.

Construction Disturbance

- 8.7.2 The 2018 breeding bird survey results (Appendix 8.3) indicate that two territories of whimbrel (High nature conservation importance) were present in 2018 which could be disturbed by the construction of the Proposed Development. In the 2016 assessment up to three territories of whimbrel were predicted to be affected by construction disturbance. Other High nature conservation importance species' breeding territories in the area, recorded in 2018, were a total of three golden plover and one dunlin territory, although the golden plover were noted as being 200-400m north of the B9075. In the 2016 assessment up to two golden plover territories and one of dunlin were predicted to be potentially disturbed by the works. Some variation in precise location and territory numbers are to be expected from year to year.
- 8.7.3 Territories of four species categorised as having Moderate nature conservation importance were predicted to be affected in the 2016 assessment; 3 lapwing territories, 6 curlew, one Arctic skua and one common sandpiper. The 2018 survey results (Appendix 8.3) show that

Arctic skua and lapwing were not present in the area in 2018 and one common sandpiper territory was remote from the Proposed Development. Within the total study area, in 2018, 18 curlew territories were present. When the likely disturbance area around the Proposed Development is compared with the complete study area for the 2018 survey, it can be seen that the number of curlew breeding territories potentially affected is likely to be similar to or slightly less than the number predicted to be adversely affected in the 2016 assessment (12).

- 8.7.4 Accounting for the 2018 surveying, the previous impact assessment findings in relation to disturbance of birds are still accurate for the Proposed Development. The alteration in road alignment is a very minor change in comparison to the overall territory sizes, varying local distribution between years and relative disturbance to the birds involved.

Habitat Loss and Change

- 8.7.5 The alignment of the Proposed Development will be slightly further north compared with the 2016 application (see Figure 3.1) but a similar overall footprint for construction will occur. The Proposed Development could result in slightly less overall land take because it is proposed to use floating construction in places to minimise peat removal and this could lessen the road edge habitat loss/change (estimated as 1.72ha in the 2016 assessment). The new road surface, equating to permanent habitat loss, would not be likely to change (estimated as 1.37ha). All habitat change and loss was considered to be permanent in the 2016 assessment, which is a cautious approach in the medium to longer-term as the road edges stabilise and revegetate.
- 8.7.6 In the 2016 assessment breeding territories of three species having High nature conservation importance were predicted to be affected by habitat loss and change: one territory of whimbrel, two of golden plover and one of dunlin. If this is compared to the 2018 survey results the overall numbers of territories present are similar, allowing for year to year variation. The new road alignment is further north by a maximum of approximately 20m in one place in this area. The whimbrel present in 2018 were estimated at approximately 100-200m north of the existing B9075 (Appendix 8.3). Using the 2018 estimated territory centres, the two whimbrel territories closest to the Proposed Development were centred at 85m and 105m from the north edge of the new road. The 2016 assessment which used the estimated territories for whimbrel from the 2015 and 2013 surveys (100-300m north of the existing B9075) indicated one territory was further south than the other(s) during both years. While this was also the case in 2018, both territories were closer than in previous survey years. The previous assessment outcome in 2016 for whimbrel was that one whimbrel territory would be affected with a maximum of 5% of the territory area affected by the Proposed Development. While there is year to year variation in the precise location of territories and the number, if the whimbrel nesting situation of 2018 was repeated in a year construction was due to occur, or occurring, then it would be necessary for the ECoW to halt construction in that area during their breeding season, even providing for the whimbrel protection zone. The 2016 assessment was based on multiple years of surveying, this update adds one additional year of data from 2018. Due to the variability involved, this does not alter the assessment conclusion from 2016 but highlights the importance of all monitoring, mitigation implementation and construction timing in relation to whimbrel breeding in the eastern area of the Proposed Development.

- 8.7.7 The 2018 breeding bird surveys (Appendix 8.3) identified 3 golden plover territories 200-400m to the north of the B9075 and one dunlin territory c. 250m to the north (High nature conservation importance). Three golden plover territories is one more than the previous maximum surveyed, however, one of these is centred significantly further north than the other two (135m, 150m and 300m). The single dunlin territory is less than the previous maximum of three in this area and further away (190m) than the previous closest one. With two golden plover territories and one for dunlin being predicted in the 2016 assessment, then the assessment would remain the same for habitat loss/change for these species, accounting for some year to year variation.
- 8.7.8 In the 2016 assessment the breeding territories of four species rated as having Moderate nature conservation importance were predicted to be adversely affected by habitat loss and change; 5 for lapwing, 11 for curlew and one for Arctic skua and, when present, one of common sandpiper. The 2018 data (Appendix 8.3) indicates no breeding territories for lapwing and Arctic skua and 18 in total for curlew but these are noted as being “spread approximately evenly across bird survey area”. There was no common sandpiper territory close to the Proposed Development in 2018. For curlew, looking at the detail of the 2018 bird data, there were 4 territories within the construction corridor and an additional 5 centred within a further 150m, which approximately accords with the previous assessment. Therefore, for species of Moderate nature conservation importance it is reasonable to conclude that the assessment would not change from that made in 2016.

8.8 Overall Conclusions

- 8.8.1 Previous bird survey work (Appendix 8.2) and the impact assessment for birds from the withdrawn 2016 planning application for the B9075 (Appendix 8.1) have been reviewed against the Proposed Development. Updated breeding bird survey information from 2018 (Appendix 8.3) has also been carefully considered in this review.
- 8.8.2 It is concluded that the previous impact assessment findings, in relation to disturbance of birds and the level of bird habitat loss/change, remain the same for the Proposed Development. The breeding territories for whimbrel and other birds of nature conservation importance in 2018 were similar to previous surveys and within the yearly variation expected. Breeding whimbrel are in a similar area as reported in 2016 and will vary locally from year to year. The revised road alignment is slightly further north (a maximum of approximately 20m in one location, or 15m if accounting for a narrower construction area) and closer to the important breeding area in the Petta Dale valley but the construction and operation of the new road is not likely to increase the number of important bird species and/or territories affected.
- 8.8.3 The previous mitigation measures (Appendix 8.1), will be adopted and taken forward into construction. Several additional measures are proposed and will be implemented by the ECoW, as required (see also Appendix 4.1). All mitigation is included in the Bird Protection Plan. A pre-consultation draft is included as Appendix 8.4. The Bird Protection Plan will be discussed with SNH prior to any implementation/works on site.
- 8.8.4 The adoption and updating of the mitigation measures including the implementation of a Bird Protection Plan (Appendix 8.4), ensures that the conclusion of the impact assessment for birds in relation to the Proposed Development would remain, “*After mitigation the residual effect on all bird receptors is determined to be of negligible or minor significance*”

and therefore judged to be not significant for the purposes of the EIA regulations.”
(Appendix 8.1).

8.9 References

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