APPENDIX 2 – STRATHY SOUTH AND STRATHY WOOD GRID CONNECTION – NORTHERN SECTION: APPRAISAL OF MODIFIED ALIGNMENT

Table 1 below summarises environmental constraints for the Modified Alignment.

Table 1: Environmental Constraints

Category	Sub-Topic	Summary of Constraints for the Modified Alignment
Natural Heritage	Designations	The Modified Alignment runs in close proximity to the Caithness and Sutherland Peatlands Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site. The area is also designated as the West Halladale Site of Special Scientific Interest (SSSI). The qualifying features for the designated sites include a breeding bird assemblage, marsh saxifrage, otter, freshwater habitats and numerous upland habitats including blanket bogs which are considered as particularly sensitive to water quality. The designated sites encompass a large area in between the River Strathy and Halladale River, generally located to the south of the Modified Alignment, approximately 0.05 km at its closest point. Strathy Point SAC, Strathy Coast SSSI and North Caithness Cliffs SPA also lie to the north of the Modified Alignment. Strathy Point SAC is designated for its vegetated sea cliffs, while Strathy Coast SSSI, which overlaps the SAC but covers a longer stretch of coast, is designated for a range of coastal habitats and its vascular plant assemblage. At the closest point, the Modified Alignment is located approximately 4.5 km south of the SPA and 2.1 km west of the SSSI. North Caithness Cliffs SPA is designated for a number of breeding seabird species, breeding peregrine and its breeding seabird assemblage. At the closest point, the Modified Alignment is located approximately 2.5 km southwest of this SPA. With regards to non-avian ecological features associated with these designated sites, the Modified Alignment is unlikely to affect these, with habitats present not functionally linked to designated sites. However, qualifying avian features of the designations could make use of habitat along and surrounding the Modified Alignment for breeding and/or foraging. Subject to appropriate controls, it is unlikely that works associated with construction of the Modified Alignment would impair water quality and compromise the qualifying interests of a small part of the West Halladale SSSI and Caithness and Sutherland Peatlands SAC / Ramsar. Appropriate boundary marking during construction should also be employed to avoid encroachment by construction works or plant / vehicles and avoid impacts. Mitigation measures would also likely be required to avoid and reduce potential effects on the qualifying interests of other designated sites in the vicinity, particularly on otter and breeding bird populations and SPA bird species.

Category	Sub-Topic	Summary of Constraints for the Modified Alignment
	Protected Species	Otter, water vole, bats and common amphibians were recorded along, and within the vicinity of, the Modified Alignment during the 2012 Ecology Surveys to inform the 2013 EA. These species can reasonably be anticipated to occur along the entire length of the Modified Alignment. Otter spraints and feeding signs were recorded at the east end near the connection with Connagill substation, situated on the east side of the Halladale River. Additional spraints were noted along the Allt na h-Eaglaise (near pole 27 of the existing OHL). Further signs of otter presence, including couches and a holt, were present at the Achridigill Burn (near pole 47 of the existing OHL) and further northwest at the watercourses which passes beneath poles 63 and 64, and 79 and 80. Being situated south of the existing OHL, the Modified Alignment (as per the 2021 Optimal Alignment) is slightly further away from these otter signs than the Strathy North existing OHL. The River Strathy also contained otter spraints, north of Bowside Lodge (and adjacent to pole 128 of the existing OHL). Signs of water vole were recorded at several watercourses crossed by the Modified Alignment, including an unnamed watercourse between poles 40 and 41 (of the existing OHL), the Achridigill Burn (pole 47), and between poles 63 and 64. Being situated to the south of the existing OHL, the Modified Alignment (as per the 2021 Optimal Alignment) would be further away from the majority of these recorded signs. A greater number of signs were recorded at watercourses closer to River Strathy, near poles 96 and 104. Three confirmed and one potential bat roosts were noted in the vicinity of Bowside Lodge, in close proximity to the Modified Alignment, with an additional confirmed roost recorded at Dallangwell House, near the Strathy North substation. During more recent protected species surveys in 2022 and 2023, numerous otter signs were recorded within 200 m of the Modified Alignment, including a small number of holts and several couches. The majority of records were along the Halladale River and its tributaries in the eastern section, concentrated along the Achridigill Burn, Allt na h-Eaglaise, a small unnamed tributary to the south of Loch a' Bhealaich and along the Halladale River itself at the southern tip of the Modified Alignment. Water vole burrows were recorded on the Allt na h-Eaglaise and the Allt na Clèite watercourses. Water vole feeding stations and potential burrows were also recorded in proximity to the southeastern end of the Modified Alignment and suitable habitat was recorded in several additional areas. Low levels of bat activity by three bat species were recorded along the Modified Alignment during recent surveys. Additionally, a small number of badger and pine marten signs were present in the wider area (>200 m away) around the southeastern end of the Modified Alignment. No wildcat signs were recorded. Without appropriate mitigation, potential effects on terrestrial protected species include accidental mortality or injury, damage or destruction of habitat features, and/or disturbance to breeding animals could occur. Additionally, habitat loss could adversely affect protected species, while pollution could adversely affect otter and water vole foraging and breeding habitat.

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		In comparison to wood poles, steel lattice towers will require a longer construction period, which could increase the potential for disturbance to protected species, as well as requiring increased working areas (around the towers) and construction access requirements. As such, careful micrositing of towers and management of construction activities will be required to avoid key habitats and sensitive sites, such as bat roosts.
	Habitats	GWDTE Between Allt na h-Eaglaise (near pole 27 of the existing OHL) to Connagill substation, the Modified Alignment crosses wet heath / acid grassland mosaic, semi-improved neutral grassland, acid dry dwarf shrub heath, planted broadleaved woodland, wet dwarf shrub heath and a small pocket of wet modified bog north of the Halladale River water crossing (between poles 6 and 7 of the existing OHL). Within this section, wet modified bog, wet dwarf shrub heath and wet heath / acid grassland mosaic are deemed most susceptible to change. These plant communities cross the section making it impossible to avoid these habitats by the Modified Alignment. To the north of the Achridigill Burn (between poles 41 and 43 of the existing OHL), the Modified Alignment goes through a more sensitive habitat – a plant community highly susceptible to hydrological change. On interrogating the data, the overriding dominant communities in this location are M17 and M18, which are not dependent on groundwater. A sub-community within the polygon was determined to be M6, which is highly dependent on groundwater. Heading north and west from the Achridigill Burn to the north of Bowside Lodge (between poles 49 and 111 of the existing OHL), the habitats along the Modified Alignment are likely to have experienced significant habitat change / loss as a result of the moorland fire in May 2019. At pole 72 of the existing OHL near Cnoc Eipteil (M20), and between poles 79 and 80 near the Baligill Burn, 94 and 95, and 96 and 97 near the Allt an Reidhe Ruaidh (M6/M6c) the Modified Alignment crosses strips of highly sensitive habitat deemed highly dependent on groundwater influences. Opportunities exist to avoid these through careful placement of towers. The final section of the Modified Alignment between Bowside Lodge to the Optimal 'southern' Alignment, the connection is largely across habitat least susceptible to changes in hydrology. East of pole 134 of the existing OHL, the Modified Alignment skirts another small section of highly sensitive habitat (an M6c flush), however opportunities exist to avoid this via sensible placement of towers. Annex 1

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		Given that the Annex 1 habitats (blanket bog, wet heath, etc.) are ubiquitous across the Modified Alignment, it will not be possible to avoid all impacts to these. Towers should be microsited to avoid Annex 1 habitats where possible, with impacts being instead directed towards semi-improved grassland, although opportunities for such avoidance appear limited. Note that, in comparison to wood poles, steel lattice towers will involve a greater span length between towers, which may allow for targeting structures away from sensitive habitats, but a larger footprint (for four foundations per tower) compared to wood pole structures, may result in greater direct habitat loss. Additionally, towers will require permanent ancillary equipment (i.e., tracks) resulting in further loss, damage, degradation and/or fragmentation of habitats in comparison to wood pole structures (which are unlikely to require tracks).
	Ornithology	The 2019 moorland fire likely diminished the abundance of breeding birds, reducing sward height and increasing homogeneity of sward structure and plant species composition. The destruction of mature tall heather would reduce nesting suitability for both hen harrier and merlin, and also for curlew, given these species prefer taller and more structurally diverse vegetation sward. During 2019 surveys, a single occupied merlin nest was recorded just to the south of the western end of the Modified Alignment, near Dallangwell, with a hen harrier territory also present in the area, but presumed abandoned following the 2019 wildfire. Both species are designated features of the Caithness and Sutherland Peatlands SPA and are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Black-throated divers were recorded on Loch Baligill to the south of the Modified Alignment in 2023, while red-throated diver activity was recorded around Loch Sgiathanach. Both diver species are designated features of the Caithness and Sutherland Peatlands SPA, although observations of both species were indicative of breeding territories, no nesting was recorded. Breeding wader territories within 500 m of the Modified Alignment included golden plover, which is another designated feature of the Caithness and Sutherland Peatlands SPA, with a total of five territories present at scattered locations during surveys in 2021 and 2022. As described above under habitats, in comparison to wood poles, steel lattice towers will likely result in increased habitat loss, damage, destruction and/or fragmentation, which could result in reduction and/or degradation of suitable nesting, foraging and/or roosting habitat. As noted above under the protected species appraisal, steel lattice towers will also require a longer construction period than wood poles, which could increase the potential for disturbance to breeding birds, as well as requiring increased working areas and construction access requirements. As such, mitigation measures will be required to protect all breeding birds, with particular consideration of SPA species (hen harrier, diver species and golden plover) and any other species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) or the UK Birds of Conservation Concern Red List (e.g., curlew and lapwing).

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		Additionally, the increased height of the towers compared with wood poles may increase the risk of collision to some bird species. Mitigation measures should be implemented to reduce the risk of mortality due to collision with and electrocution from OHL, e.g., use of line markers to increase visibility of the OHL to birds in flight and design considerations to reduce the risk of electrocution.
	Hydrology Hydrogeology and Geology	The notable difference of the Modified Alignment compared to the 2021 Optimal Alignment is that it would be located slightly closer to the Private Water Supply (PWS) from the Bowside Burn, which serves Bowside Lodge and is also designated as a Drinking Water Protected Area. However, it is anticipated that pollution prevention measures would be implemented through a site-specific Construction Environment Management Plan (CEMP) to reduce the risk of pollution events occurring (during construction). Furthermore, the siting of towers should ensure that they are located a suitable buffer from watercourses and outwith river floodplains. The Modified Alignment would cross areas of deeper peat, (as would the 2021 Optimal Alignment). However, the larger footprint and construction working area of a steel lattice tower compared to a wood pole structure could result in greater impacts on peatland. The requirement for permanent access tracks could also further impact on areas of peatland. Towers and infrastructure should be microsited to avoid deeper areas of peat as far as possible.
Cultural Heritage	Designations	There are a number of designated assets within 5 km of the Modified Alignment. The majority of these are either screened entirely from direct visual impacts by intervening topography and forestry or are subject to very limited visibility and are for the most part domestic or industrial structures with low sensitivity to alterations to their setting or intrusive visual impact on appreciation of these assets. Included in this category, but excluded from further consideration, are Strathy Former Church of Scotland (LB7143), Bailgill Mill (SM4265), Baligill Burn Limekilns (SM4290), Strath Halladale Mission Church (LB7142), Smigel Bridge (LB12915), Smigel Mill (LB7141), Millburn Barrows (SM13622) and Leathaid Carnaich Hut Circles (SM1876). The Modified Alignment has the potential for visual impact (albeit limited) on three listed buildings at Strathy, approximately 2 km to the north-west. These would include Strathy Free Church (LB7144), Strathy former Free Church Manse (LB 7145) and Strathy former Free Church School (LB 7146) and would all have a degree of visibility of an approximately 3 km stretch of the OHL, crossing from west to east. The 2021 Optimal Alignment, as a wood pole OHL, was previously considered only visible in narrow views from these assets and where visible, the OHL would be backdropped by more distant landform. The three buildings, although having a statutory protection against adverse alterations to their setting or intrusive visual impact are not in practical terms sensitive to any visual intrusion, being placed in the landscape for practical purposes of accessibility rather than with any consideration of vistas. Where steel towers of the Modified Alignment are at a height of approximately 46 m, it is likely that they would have a more prominent visual impact where they break the horizon. However, the sensitivity of these assets to an increased visual impact is still considered to be low.

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		There is also the potential for visual impact on the group of listed buildings at Bighouse, approximately 2.5 km to the north-east. The A listed Bighouse garden pavilion and walled garden (LB7160), B Listed ice house situated on the far side of Bighouse from the OHL, the B Listed barracks (LB7161) and Bighouse Mains Steading (LB7140) would all have a degree of visibility at points along an approximately 4 km stretch of the OHL crossing from west to south, where not screened by intervening topography. The 2021 Optimal Alignment is unlikely to break the horizon. None of the Listed structures are particularly sensitive to alterations to distant vistas, particularly from the south west as the only significant vista would be considered to be south up the Halladale River. The Modified Alignment has the potential for greater visibility in a few short sections where it breaks the horizon. However, this visual impact will still be very low and the sensitivity of these assets to an increased visual impact is still considered to be low. There is a similar potential for visual impact on the Scheduled Monument Halladale Bridge hut circles (SM3304). This prehistoric settlement, although having a statutory protection against adverse alterations to its setting or intrusive visual impact, is not in practical terms sensitive to any visual intrusion, being placed in the landscape for practical purposes of settlement and land use rather than with any consideration of vistas. While the 2021 Optimal Alignment is unlikely to be significantly visible from this designated asset, the increased height of the Modified Alignment means that the steel lattice towers would stand against the western horizon for a short section. However, at a distance of 2 km, this visibility would not be to a significant level and the sensitivity of these assets to an increased visual impact is still considered to be low.
	Cultural Heritage Assets	The Modified Alignment has the potential for direct impacts on three non-designated heritage assets, as follows: • Airigh an Leathaid, (MHG13407) at NC 8419 6230. The majority of visible structures in this Early Modern farmstead group lie to the south of the Modified Alignment and would be unaffected, but there is the potential for minor and sub-surface features to be affected. This asset would be considered to be of Regional significance and therefore moderate sensitivity to direct impacts. • Bowside Lodge Cairnfield (MHG9521) at NC8312 6094. The Modified Alignment would pass to the east of the asset. Originally recorded as hut circles but redefined as field clearance cairns, this area of prehistoric cultivation is of Local significance and low sensitivity. Best practice would recommend avoiding damage to visible features and this should be achievable through sensitive placement of tower structures and other mitigation (e.g. asset marking) during construction. • Havaig Fort (MHG9696) at NC 8910 6032 and associated cairnfield. The Modified Alignment passes very close to this heritage asset. This structure measures approximately 40m in length north east to south west, occupying the summit of a rocky knoll, with a contemporary field system to the east. This site would be considered to be of Regional significance and therefore has greater sensitivity to impacts on its setting. As a defensive site, it is also sensitive to intrusions onto significant vistas to north and south along the strath. A visual impact from the Modified Alignment would be unavoidable, although this, and direct

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		damage, could be mitigated by the careful placement of towers to maximise the open vista northwards plus other mitigation (e.g. asset marking) employed during construction to ensure no accidental damage.
People	Proximity to Dwellings	The Modified Alignment would be located approximately 65 m and on the eastern side of Bowside Lodge, which is understood to be currently used by Bowside Fisheries and is not a permanent residence. This would be in much closer proximity compared to the 2021 Optimal Alignment. Given the steepness of topography to the east, there appears to be little opportunity to increase distance from this property. The alignment would however be at an increased distance (175 m), and on the opposite side of the access track, from two holiday cottages at Bowside. Previous surveys have noted that these properties are surrounded by vegetation on their eastern side. The property at Kirkton is located at the foot of Creag Chailein and approximately 850 m to the east of the Modified Alignment, which is slightly increased from the 2021 Optimal Alignment. The property sits at a lower elevation than the Modified Alignment and given the height of the towers at this point (approximately 46 m), there is potential that an OHL could appear prominent in views from this property. A new property is situated on the northeast bank of Loch Earcha, which was constructed in 2019. Based on the orientation and design of the building, it has clear views across the loch towards the Modified Alignment, approximately 780 m to the south-west at its closest point. The Modified Alignment would be located on more elevated, hummocky topography compared to the 2021 Optimal Alignment, although there will be an element of the lower sections of the towers being backdropped by the more elevated ground to the south-west. Construction effects would be limited at this distance. A property at Calgarry Beg is located alongside the A897 to the south-west of Connagill substation. This property is approximately 715 m from the Modified Alignment, which would be in closer proximity compared to the 2021 Optimal Alignment. However, as previous surveys have noted, intervening vegetation would likely screen views from the Modified Alignment. All other properties identified are over a kilometre from the Modified Alignment, limiting adverse effects as a result of the proximity to the alignment to construction traffic movements along the main roads.
Landscape and Visual	Designations	In regards to potential effects on designated and protected landscapes, the greater height of the steel lattice towers (up to approximately 46 m in height) for the Modified Alignment compared to the wood pole (between 16-18 m in height) for the 2021 Optimal Alignment may increase the prominence of an OHL in views from coastal areas and therefore the likelihood of effects within the Farr Bay, Strathy and Portskerra Special Landscape Area (SLA) would be greater, although these effects would continue to be indirect, and reduced by the fact that the special qualities of this SLA are more focused on the coastline rather than views inland. In terms of effects on Wild Land Area (WLA) 39: East Halladale Flows, the Modified Alignment may be more prominent in views from the WLA as it approaches Connagill Substation, but these effects would also be indirect, and reduced by the context of the substation.

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	Landscape Character	The 2021 Optimal Alignment appears better aligned with the natural topography of the land, while the Modified Alignment sits higher on the hillside in places. The Modified Alignment is therefore likely to appear more skylined in some views from the north, particularly when considering the increased height of the towers. Although it would be located slightly further south than the 2021 Optimal Alignment, setting the OHL slightly further from coastal areas, however, given the height of towers being considered, this would not result in a noticeable difference in terms of the apparent proximity of the towers. As the Modified Alignment diverges further from the existing Strathy North 132 kV wood pole OHL, in comparison to the 2021 Optimal Alignment, effects may increase to the east of the proposed Melvich substation, where two OHL's would remain on the final approach to Connagill substation[1]. Two OHLs would occupy a wider part of the landscape and intrude on the openness of the moorland which is a key sensitivity of the LCT.
	Visual	In terms of impacts on visual receptors, the main difference would be the increased height of the towers of the Modified Alignment which would appear more prominent in views from visual receptors along the coast, including from receptors within the settlements of Strathy, Melvich and Portskerra, as well as the A836 (NC500 / National Cycle Route 1). From receptors within Strath Halladale, the Modified Alignment would be seen running roughly parallel to the existing Strath North 132 kV wood pole OHL, but the increased distance between the two OHLs, would likely increase the field of view occupied by infrastructure, resulting in greater effects within Strath Halladale such as for residential receptors around Kirkton and Loch Earacha, and route receptors: Core Path SU19.03: Kirkton – Upper Bighouse and the A897 public road. From Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy, the Modified Alignment would be aligned on the eastern side of the track (rather than to the west as per the 2021 Optimal Alignment), crossing it south of Bowside Lodge, and would be slightly elevated above the track. While the towers would be taller and more prominent in views for receptors using this track, having only one OHL running alongside (once the existing Strathy North 132 kV wood pole OHL is dismantled), would help reduce some of the impacts on this route receptor.
Land Use	Agriculture	The majority of agricultural land crossed by the Modified Alignment is considered to be of limited agricultural value and is not considered to present a constraint to development.

[1] As part of Connagill Cluster rationalisation, the intention is for the existing Strathy North 132 kV wood pole OHL to be dismantled between Strathy North (near Dallangwell) to within the vicinity of Melvich substation and thereafter repurposed to connect the proposed Melvich and Kirkton wind farms to Connagill substation.

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	Forestry	No woodland or forestry would be affected by the Modified Alignment in the western extent until Coulbackie woodland. This is a conifer plantation which the Modified Alignment would cross (the very edge of) and would traverse a narrow extension of this plantation, which may require felling for construction and operation. This would largely have been avoided by the 2021 Optimal Alignment. However, subject to careful positioning of towers, due to the greater span length of a steel tower compared to a wood pole, there may be a possibility to limit the removal of vegetation / forest for the construction of structures, although removal may still be required to accommodate wayleaves for conductors. The National Forest Inventory (2020) shows a number of "assumed woodlands" through which the Modified Alignment would traverse and would require clearance. These woodlands include felled and replanted shelterbelts and may include recently planted woodlands of a native character. A young woodland creation scheme is present around Loch a' Bhealaich, to the west of the Halladale River. Like the 2021 Optimal Alignment, the Modified Alignment would cut through this woodland, albeit for a shorter distance. The native woodland creation schemes are young and will not, at this stage, be susceptible to windblow. Furthermore, these woodlands include a higher percentage of open space by design. Any removal of woodland or forestry would result in the requirement for compensatory planting.
	Recreation	The River Strathy and Halladale River are both popular for fishing due to the presence of salmon. The Modified Alignment would be located further from the River Strathy compared to the 2021 Optimal Alignment, particularly near Bowside. The increased distance may reduce disturbance experienced by anglers during construction, however, the length of construction and working area would be greater for a steel lattice tower compared to a wood pole. The Modified Alignment would cross the Halladale River at a similar crossing point as the 2021 Optimal Alignment, and due to the greater span length of a steel tower, may allow for targeting structures away from the river edge, albeit the working area required for a steel tower is greater. It is anticipated that potential impacts of the Modified Alignment on recreational users during construction could be managed through an Outdoor Access Plan, as per the 2021 Optimal Alignment. No long term effects on recreation are anticipated (albeit the visual impact of the steel towers from recreational route receptors should be considered).
Planning	Policy	Compatibility to National, Regional and Local planning policy will in large part depend on avoiding or minimising potential constraints, particularly in relation to potential impacts on the natural environment. It is considered that construction of the Modified Alignment would not compromise the qualifying interests of the small part of the West Halladale SSSI and Caithness and Sutherland Peatlands SAC given it would not be directly located within these statutory designated sites. Nevertheless, the increased height of the steel lattice tower,

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		greater working footprint and longer construction programme could lead to greater impacts on qualifying features, and would require the sensitive placement of towers and application of appropriate mitigation measures at construction and operational stage. It should be acknowledged that this development would be recognised in NPF4 as a National development under ND3 'Strategic Renewable Electricity Generation and Transmission infrastructure'. It therefore forms a vital element to deliver network and grid infrastructure required to deliver the Government's legally binding targets for net zero emissions and renewable energy electricity generation objectives.
	Proposals	In terms of proximity to proposals, the Modified Alignment would traverse directly through the proposed Melvich wind farm, as would the 2021 Optimal Alignment, and would be in closer proximity to the proposed Kirkton wind farm but would not interact with wind turbines or associated infrastructure.