## Appendix 2: Strathy South and Strathy Wood Grid Connections - Alternative Northern Section: Comparative Route Appraisal

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| **Environmental** | **Natural Heritage** | Designations | The route is not directly located within any natural heritage designations. However, it is located between the Caithness and Sutherland Peatlands Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar and the underlying West Halladale Site of Special Scientific Interest (SSSI) to the south and the Strathy Coast SSSI, North Caithness Cliffs SPA and Strathy Point SAC and SSSI to the north. There is potential for indirect effects to ornithological receptors associated with the SPAs and Ramsar to occur when passing between the designated sites, with the linear structure of an OHL causing potential risk of collision. The route option is unlikely to affect the ecological features of the designations, as habitats present are not functionally linked to the designated sites, and although some protected species (e.g. otter) are qualifying interests of the Caithness and Sutherland Peatlands SAC, the use of watercourses along this route option are limited and therefore the population associated with the SAC are unlikely to be affected.<br>The wider area surrounding the route option is currently under consideration for WHS. There is potential for impacts to affect biodiversity through habitat loss and degradation, and loss of foraging and breeding habitats for key species, however these effects, at the scale of the WHS status application, are minimal. | The route would overlap the Caithness and Sutherland Peatlands SPA, SAC, Ramsar and the underlying West Halladale SSSI for a short extent and would require careful siting at alignment stage to avoid ingress into the protected areas. Ornithological receptors associated with the SPA and Ramsar would be reduced given the use of UGC for a portion of this route option. As per Route Option SN-C ALT 1 in relation to potential effects to the Candidate WHS. | The route crosses the Caithness and Sutherland Peatlands SPA, SAC and Ramsar and the West Halladale SSSI for approximately 2.2 km. This route option has potential to affect qualifying habitats associated with these sites through direct habitat loss. However, protected species which are qualifying interests of the SAC (e.g. otter) are unlikely to be affected as their use of watercourses across the route option are likely to be limited given the distance from the River Strathy and Halladale River which form the core resources of otters throughout the wider area. There is potential for collision risk of ornithological receptors associated with the SPA and Ramsar as they pass between the designated site and their breeding location, and the sea to the north. Similarly, foraging by SPA qualifying species may be affected across this route option. The route options passes in close proximity to lochans within the SPA which have been known to be used by breeding divers. As per Route Option SN-C ALT 1 in relation to potential effects to the candidate WHS. | As per Route Option SN-C ALT 1 for the majority of its length where it provides a potential collision risk to SPA qualifying species passing from breeding areas of the SPA to forage in the sea to the north. Where the route deviates in the east, the potential barrier risk lessens as the distance from the SPA increases. The route does pass in close proximity to designated areas to the east, however there is unlikely to be a barrier effected caused by the presence of an OHL in this area. As per other route options in relation to potential effects to the Candidate WHS. |
| | | Protected Species | Some habitats surrounding watercourses were identified across the route to be suitable for protected species. Evidence of otter and water vole was present. | As per Route Option SN-C ALT 1 however survey work identified limited evidence across the bulk of the route by otter or water voles. The Melvich wind farm would likely already have had a disturbance effect and would continue to cause minimal effect to protected species in the area, a route through the operational wind farm could potentially, in the long term, minimise the overall disturbance to protected species in the wider area. | There are fewer watercourses and these are smaller than those in proximity to the more northern route options, which offers less potential to support foraging and commuting otters moving up the watercourse from the coast, the River Strathy and the Halldale River in search of food. Habitats across this route option are also less suited to water voles, or other protected species such as badger, pine marten or wild cat due to the deeper and | Similar to those described for Route Option SN-C ALT 1. There is one water crossing of the Halladale River although this is further north, but the potential effects to protected species are likely to be similar. Habitats suitable to support protected species are similar to those for Route Option SN-C ALT 1. |

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| | | | | | more waterlogged peatland habitats present. | |
| | | Habitats | Habitats are typical of the wider area. The habitat type is primarily driven by peat depth, the topography and drainage and the level of human activity that has modified habitats quality. Potential for GWDTE habitats in areas surrounding watercourses and there is a section of native woodland near Loch Earacha at Haviag. Potential effects could be minimised through careful placement of infrastructure at the alignment stage. | Habitats as per Route Option SN-C ALT 1 however the influence of human activity is reduced for this route option. Opportunities to restore habitats that are disturbed by the section of UGC, however, associated permanent infrastructure required for construction and operation of the UGC would also impact on habitats. There is a section of native woodland near Loch Earache at Havaig, which could be avoided through careful placement of infrastructure at alignment stage. There would be no interaction with areas of AWI. | This route crosses more sensitive habitats in designated areas. The topography through much of the area is flatter allowing deeper peats to form which in turn provides conditions for more sensitive blanket bog habitats. There is less degraded mire due to the increased distance from the A836 meaning grazing livestock has been less and evidence of historical peat cutting is not recorded. Due to the quality of habitats and deeper peat, effects to habitats are greater for this route option. | Similar to Route Option SN-C ALT 1 where these diverge and remain consistent where the options share the same route. Habitats comprise primarily upland peatland habitats with the exception of where it crosses the Halladale River where fenced areas of grassland are likely used for grazing livestock. Potential effects are likely to be from habitat loss and indirect hydrological alterations. This route option would interact with a short section of native woodland near Connagill substation, to the west of Loch Ackran but subject to careful placement of infrastructure this area could be avoided. |
| | | Biodiversity | As one of the longer routes, it has the greatest potential to impact on biodiversity through habitat loss, disturbance and change. | Habitat loss and disturbance focussed on modified habitats. Use of UGC reduces the potential impact on biodviersity in the longer term through opportunity to restore habitats, however, associated permanent infrastructure required for construction and operation of the UGC would impact on biodiversity. | Although the shortest route, it passes through the Caithness and Sutherland Peatlands SAC so the habitat quality will be higher. | As an extension of SN-C ALT 1 this is likely to have a similar impact on biodiversity. |
| | | Ornithology | This route is the most northerly and offers more limited disturbance to birds given the increased distance from the SPA allowing time for sensitive diver species to gain sufficient height to reduce the risk of collision with an OHL. There is also potential for disturbance through the construction phase to SPA qualifying species. Mitigation measures would be required to minimise effects through construction and operation (e.g. timing of construction works outwith the breeding bird season, the implementation of SSEN's Species Protection Plans and use of bird flight diverters). | Similar effects to Route Option SN-C ALT 1. However, the use of UGC for a portion of this route might reduce potential collision risk to SPA qualifying species passing from the SPA in the south to foraging areas to the north during operation, by removing a linear barrier. | This route passes through the SPA designated site and is in proximity to a number of lochans known to have historically supported breeding divers, increasing the potential to affect populations of qualifying species There is potential for habitat loss and degradation reducing breeding habitat to wader species, and the OHL will carry an associated collision risk when in operation. The proximity of the route to the lochans increases collision risk, as species such as diver will potentially be at a lower height than for other route options, having only just taken off. | As per Route Option SN-C ALT 1. Given the increased distance of this route option from the boundary of the SPA, there may be a slightly reduced risk to birds. |
| | | Geology, Hydrology and Hydrogeology | This route option is within the surface catchment of the River Strathy to the east, Baligall Burn and Allt na Cleite in the central portion, and the Halladale River to the west. The River Strathy and Halladale River are important fisheries. The route crosses a number of watercourses. SEPA | As per Route Option SN-C 1, but where the route deviates in the central part, it would cross the Allt na h-Eaglaise surface water catchment. According to SEPA floodplain mapping, this route option would not cross any mapped floodplains. This route option cross 4.8 km of Class 1 | As per Route Option SN-C ALT 1, but where the route deviates in the central part, it would cross the Allt na h-Eaglaise surface water catchment. SEPA mapping shows a floodplain associated with nearby lochs however flooding extents are confined to their banks and could be | As per Route Option SN-C 1, but where it deviates it would be entirely within the surface water catchment of the Halladale River which is an important fishery. It also crosses additional watercourses including the Ackran Burn and Connagill Burn. SEPA mapping shows a floodplain |

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| | | | floodplain mapping shows flood plains associated with the Allt ns Cleite, Allt na h-Eaglaise and the Halladale River but flood extents are largely confined to watercourse channels, however a wider flood extent is associated with the Halladale River. Due regard will be made to flood risk at al alignment stage. This route crosses Class 1 and 2 priority peatland areas. The route is potentially downstream of a private water supply at Kirkton Farm. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated. | priority peatland and 0.6 km of Class 2. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated. | avoided as part of alignment studies. The majority of this route crosses Class 1 priority peatland with a small area of Class 2 within the western extent of the route. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated. | associated with the Halladale River, Ackran Burn and Connagill Burn but flood extents are largely confined to the watercourse channels. Approximately 3.5 km of this route option is within Class 2 priority peatland. There are no private water supplies near or downstream of this route option. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated. |
| | **Cultural Heritage** | Designations | Route Option 1 has the potential for the greatest visibility and therefore indirect effects from designated cultural heritage sites passing within 1-2 km including listed buildings within Strathy and at Bighouse, and a scheduled monument at Halladale Bridge. However, while having statutory protection, the listed buildings in question are not particularly sensitive to any alteration of their setting with the exception of Bighouse House, although the route option is not in key vistas from this receptor and views of an OHL within this route would be partially blocked by other buildings. | The overground elements of this route option are at a sufficient distance from identified designated cultural heritage sites at Strathy, Bighouse and Halladale Bridge for visual impact and impact on setting to be considered insignificant. | This route option is at a sufficient distance from identified designated cultural heritage sites at Strathy, Bighouse and Halladale Bridge for visual impact and impact on setting to be considered insignificant. | As per Route Option SN-C ALT 1, but where it deviates the route option would pass very close to the Halladale Bridge hut circles scheduled monument. However rising ground and existing coniferous planting should, for the most part, prevent direct views of an OHL in this Route Option. The scheduled site, while protected by law from alterations to its setting and negative visual impact, is in practical terms of reduced sensitivity as its setting is dictated by requirements of resources and land use. |
| | | Cultural Heritage Assets | This route has a low number of assets which are for the most part minor features of local importance. One site, Havaig Fort should be considered at alignment stage to minimise potential direct impacts through sensitive placement of infrastructure and appropriate mitigation during construction. | This route has a low number of assets which are locally important and of low sensitivity. | This route crosses one asset considered of regional importance, the multi period site at Airgh an Leathaid. This asset should be considered at alignment stage to minimise potential direct impacts through sensitive placement of infrastructure and appropriate mitigation during construction. | There are a number of recorded features in the landscape within this route option to the east of the Halladale River in proximity to Golval, the Ackran Burn and Deasphollag. |
| | **People** | Proximity to Dwellings | It is anticipated that a 100 m separation buffer applied to all properties could be observed for the entirety of the option. However, this route is in proximity to settlement in the north and along the A897 through Strath Halladale, which may experience some degree of disruption during construction. | It is anticipated that a 100 m separation buffer applied to all properties could be observed for the entirety of the option. | It is anticipated that a 100 m separation buffer applied to all properties could be observed for the entirety of the option. | This route option would encroach into the 100 m buffer of several dwellings within the strath. |

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| | **Landscape and Visual** | Designations | This route would be seen as a prominent feature within the backdrop to the Farr Bay, Strathy and Portskerra SLA. | This route would be seen within the backdrop to the Farr Bay, Strathy and Portskerra SLA but is unlikely to lead to any notable constraint. | This route would be unlikely to interact with any designated landscape areas or otherwise protected areas. | As per Route Option SN-C ALT1. Where it deviates, this route would be seen in the context of the East Halladale Flows WLA but given proximity to existing similar infrastructure, it's unlikely to present a major constraint. |
| | | Character | This route would present a prominent linear feature within LCT 134: Sweeping Moorland and Flows and LCT 142: Strath. While micrositing of towers at alignment stage could mitigated some of these effects, the prominence of towers wihen crossing the strath could not be avoided. | Similar to Route Option SN-C ALT 1. Through LCT 134, there is potential for an OHL to appear as a prominent linear feature within the horizontal landscape which could affect perceptions of scale and distance and sub-divide the landscape, reducing its expansiveness. However, an OHL would be seen against a backdrop of inland hills and unlikely to form a notable constraint. Within LCT 142 through strath Halladale, the OHL may have the potential to be prominent and distracting and diminish the scale of the enclosing landscape. Consideration of tower placement at alignment stage may help to mitigate some of these effects, the prominence of towers when crossing the strath could not be avoided. | As per Route Option SN-C ALT 2. | As per Route Option SN-C ALT 1, although this route option passes through a landscape of lower sensitivity in LCT 134 where other similar infrastructure is present on the eastern side of the strath. |
| | | Visual | This route option would be viewed against a backdrop of hills from Strathy and would be a prominent feature on the western side of Strath Halladale and as it crosses the strath. | This route option would appear less prominent in views from Strathy, although may be seen along the skyline when descending towards Melvich from an elevated section of the A836. The route option would also likely be very prominent in views in the strath. | As per Route Option SN-C ALT 2. | As per Route Option SN-C 1, although would appear prominent in westerly views from the eastern side of the strath. |
| | **Land Use** | Agriculture | The agricultural land predominately within the route option is identified as being of Class 5.3. As such, this is not a particularly sensitive or fertile category and any impacts on agriculture as a result of the route option is considered to be low. | As per Route Option SN-C ALT 1. | As per Route Option SN-C ALT 1 except where it deviates in the central section where the route option would predominantly cross agricultural land of Class 6.3. This is not a particularly sensitive or fertile category and any impacts on agriculture as a result of the route option is considered to be low. | As per Route Option SN-C ALT 1. Where it deviates, the route would be situated within Class 4.2 as it crosses Strath Halladale and a combination of Class 5.3 and Class 6.3 on the eastern side of the strath. This is not a particularly sensitive or fertile category and any impacts on agriculture as a result of the route option is considered to be low. |
| | | Forestry | This route has no interaction with commercial forestry. | This route would have limited interaction with plantation forestry to the east of Lochan Coulbackie, which could be avoided through careful placement of infrastructure at alignment stage. | This route would have limited interaction with plantation forestry to the east of Lochan Coulbackie, which could be avoided through careful placement of infrastructure at alignment stage. | This route has limited interaction with forestry to the north-east of Connagill substation and to the west of Loch Ackran which could be avoided through careful placement of infrastructure at alignment stage. |

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| | | Recreation | This route option is in proximity to A836 which forms part of the North Coast 500 (NC500) tourist route and National Cycle Route 1 (NC1), and also A897 which runs between Helmsdale and Melvich and also frequently used by tourists. It includes a Scottish Hill Track between Trantlebeg and Strathy to the west, a Core Path SU19.03 Kirkton to Upper Bighouse to the east, along with salmon fishing in the River Strathy and Halldale River. It is anticipated that subject to best practice construction and mitigation, impacts could be avoided. | Same as Route Option SN-C ALT 1, however this route option is set further from the A836 (forms part of NC500 and NCR1) and may appear less prominent in views. It would continue to be seen prominently for recreational users of the A897. | As per Route Option SN-C ALT 2. | As per Route Option SN-C ALT 1. This route option crosses the Halladale River further north compared to other options, in proximity to the junction of the A836 (forms part of NC500 and NCR1) and A897 and may appear prominent in views from these tourist routes and along the strath. It would have no direct interaction with any core paths. |
| | **Planning** | Policy | Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. | Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence within and proximity to designated sites of international and national importance. | Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence within designated sites of international and national importance. | Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. |
| | | Proposals | The route passes in proximity to two proposed wind farms; Melvich wind farm and Kirkton wind farm although not where the wind turbines are proposed. Any constraints could be avoided through careful siting and design. | This route option passes directly through the proposed Melvich wind farm, albeit as an UGC. There may be potential to share infrastructure during construction and operation. This route also passes in proximity to the proposed Kirkton wind farm, although maintains the required separation distance from the wind turbines. | As per Route Option SN-C ALT 1. | As per Route Option SN-C ALT 1. |
| **Engineering** | **Infrastructure Crossings** | Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline) | Potential to cross the existing Strathy North 132kV OHL, however, considering the width of the route option, with careful siting at alignment stage, there is potential for this to be avoided.<br>This route may cross distribution OHL's (<132kV) at a few locations.<br>This route would not cross major river crossings (200 m+wide), however crosses rivers with narrower widths including the Halladale River. | Potential to cross the existing Strathy North 132 kV OHL, however, considering the width of the route option, with careful siting at alignment stage, there is potential for this to be avoided.<br>This route may cross distribution OHL's (<132 kV) at a few locations.<br>This route would not cross major river crossings (200 m+wide), however crosses rivers with narrower widths including the Halladale River. | Potential to cross the existing Strathy North 132kV OHL, however, considering the width of the route option, with careful siting at alignment stage, there is potential for this to be avoided.<br>This route may cross distribution OHL's (<132 kV) at a few locations.<br>This route would not cross major river crossings (200 m+wide), however crosses rivers with narrower widths including the Halladale River. | Potential to cross the existing Strathy North 132kV OHL, however, considering the width of the route option, with careful siting at alignment stage, there is potential for this to be avoided.<br>This route may cross distribution OHL's (<132kV) at a few locations.<br>This route would not cross major river crossings (200 m+wide), however crosses rivers with narrower widths including the Halladale River. |
| | | Road Crossings | This route would cross one major road crossing (A897) near Connagill Substation | This route would cross one major road crossing (A897) near Connagill Substation | This route would cross one major road crossing (A897) near Connagill Substation | This route would cross one major road crossing (A897). The crossing point is nearer the junction with the A836 compared to other route options. |
| | **Environmental Design** | Elevation | The altitude is below 200 m AOD along the full length of this route option. | The altitude is below 200 m AOD along the full length of this route option. | The altitude is below 200 m AOD along the full length of this route option. | The altitude is below 200 m AOD along the full length of this route option. |

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| | | Pollution Areas | No high pollution areas identified within this route. | No high pollution areas identified within this route. | No high pollution areas identified within this route. | No high pollution areas identified within this route. |
| | | Contaminated Land | No contaminated land identified within this route. | No contaminated land identified within this route. | No contaminated land identified within this route. | No contaminated land identified within this route. |
| | | Flooding | Minimal interaction with flooding areas although there is flooding risk approaching Connagill Substation from the Halladale River. | Minimal interaction with flooding areas although there is flooding risk approaching Connagill Substation from the Halladale River. | Minimal interaction with flooding areas although there is flooding risk approaching Connagill Substation from the Halladale River. | Approximately 3% of this route option length, with >80% of this route option width within a 1 in 200 year flood zone. |
| | **Ground Conditions** | Terrain | This route passes over undulating terrain with slopes up to approximately 24% gradient. | This route passes over rolling undulating terrain with slopes up to approximately 23% gradient. | This route passes over rolling undulating terrain with slopes up to approximately 20% gradient. | This route passes over rolling undulating terrain with slopes up to approximately 28% gradient |
| | | Peat | This route option is located within Class 1 (approx.. 30% of route) and Class 2 (approx.. 45% of route) priority peatland. The exact extents of the lengths and depth of peat will be determined upon carrying out site investigation works. | This route option is located within Class 1 (approx.. 55% of route) and Class 2 (approx.. 28% of route) priority peatland. The exact extents of the lengths and depth of peat will be determined upon carrying out site investigation works. | This route option is located within Class 1 (approx.. 48% of route) and Class 2 (approx.. 32% of route) priority peatland. The exact extents of the lengths and depth of peat will be determined upon carrying out site investigation works. | This route option is located within Class 1 (approx.. 42% of route) and Class 2 (approx.. 30% of route) priority peatland. The exact extents of the lengths and depth of peat will be determined upon carrying out site investigation works. |
| | **Construction / Maintenance** | Access | There is limited access available across this route option. Some originating from the nearest A road. | Limited access available across this route option. Moreover, if Melvich and Kirkton wind farms are constructed (for which it's assumed Melvich would be for this alternative connection) then the tracks constructed for these wind farms could also be used for access. | There is minimal to no existing access for most of this route option. | There is limited access available across this route option. There is limited access available across this route option. Some originating from the nearest A road. |
| | | Angle Towers | This route option would have an estimate of 10 angle towers. | This route option would have an estimate of 5 angle towers, as a portion of the route is UGC. | This route option would have an estimate of 8 angle towers. | This route option would have an estimate of 12 angle towers. |
| | **Proximity** | Clearance Distance | There are no properties within 250 m of this route option. | There are no properties within 250 m of this route option. | There are no properties within 250 m of this route option | There are a few properties within 250m of this route option. |
| | | Proximity to Windfarms | No Proximity to existing Wind Farms. | Passing through the proposed Melvich Wind Farm. | No Proximity to existing Wind Farms. | No Proximity to existing Wind Farms. |
| | | Communication Masts | One communication mast has been identified along this route option. However, it is considered that the mast can be avoided through careful design at alignment stage. | There are no communication masts identified along this route option. | There are no communication masts identified along this route option. | There are no communication masts identified along this route option. |
| | | Metallic pipes | No known metallic pipes have been identified within the vicinity of this route option. | No known metallic pipes have been identified within the vicinity of this route option. | No known metallic pipes have been identified within the vicinity of this route option. | No known metallic pipes have been identified within the vicinity of this route option. |
| | | Urban Environments | There are no urban environments within this route option. | There are no urban environments within this route option. | There are no urban environments within this route option. | There are no urban environments within this route option. |
| **Cost** | **Capital** | Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations | Second longest route option | Requires section of UGC connection and additional CSE compounds. | Shortest and most direct route option | Longest route option. |

| | Category | Sub-Topic | Route Option SN-C ALT 1 | Route Option SN-C ALT 2 | Route Option SN-C ALT 3 | Route Option SN-C ALT 4 |
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| | **Operational** | Inspections and Maintenance | Comparable with Route Options SN-C ALT 3 and 4 | UGC section increases challenges for inspection and maintenance which could result in significantly longer periods of loss of supply. | Comparable with Route Options SN-C ALT 1 and 4 | Comparable with Route Options SN-C ALT 1 and 3 |