Technical Note

CLIENT:	Viberoptix GB
PROJECT:	Cumbria Fibre Optic Cable Route
SUBJECT:	OLT 13
JOB NO.:	GM13161
DATE OF ASSESSMENT:	October 2024
PREPARED BY:	Tess McAlister – Ecologist
REVIEWED BY	Jake Smith – Principal Ecologist
APPROVED BY:	Tosha Allen – Technical Director (Ecology)

Background

Wardell Armstrong (WA) undertook a high-level desk-based assessment of Optical Line Terminal (OLT) 13 in October 2024 to identify potential ecological constraints to the proposed fibre optic infrastructure works. This Technical Note provides a summary of results from a desk-based assessment. OLT13 covers an area between Bigrigg (National Grid Reference (NGR): NX 98868 12121), Cleator Moor (NGR: NY 02921 14450) and Ennerdale Bridge (NGR: NY 04994 15697).

Survey Methods

Desk Study

A desk study was undertaken in October 2024 which included a review of the Viberoptix GB GIS shapefiles of the site location, review of freely accessible online data sources including MAGIC Maps (DEFRA, 2024) as well species records provided by Cumbria Biodiversity Data Centre. The desk study was undertaken to establish potential ecological constraints. MAGIC Maps was used to identify any statutory designated sites (local, national and international) within 2km of the OLT boundary as well as records of priority habitats and European protected species licences (EPSL) within 1km. The species data records were used to identify the locations of any protected and notable species within 1km.

Key Results

Designated Sites

The planned works are within the Impact Risk Zone (IRZ) for several SSSI designations (including the River Ehen (Ennerdale Water to Keekle Confluence) SSSI and Clints Quarry SSSI) and falls under the criteria for 'Infrastructure (Pipelines and underground cables, pylons and overhead cables)'; therefore, the planned works may have an adverse effect on these designations. Table 1 below details the designated sites within 2km of the planned works.

Table 1. Designated Sites Evaluation			
Site Name and Status[1]	**Distance and Direction from Planned Works**	**Reason for Designation**	**Potential Constraints**
River Ehen SAC & River Ehen (Ennerdale Water to Keekle Confluence) SSSI	The planned works will cross these designations at two locations; Hen Beck Bridge at NGR: NY 03170 14452 and through agricultural fields off an unnamed road at NGR: NY 04238 15353.	This Site is designated as an SAC for its Annex II species freshwater pearl mussel *Margaritifera margaritifera* and Atlantic salmon *Salmo salar*. The site is designated as a SSSI for the presence of an outstanding population of freshwater pearl mussel and its status as an oligotrophic river.	**The works may directly impact the designation through accidental pollution through dust and run-off into the River Ehen which could in turn have an impact on the species this site is designated for.**
Clints Quarry SSSI	The planned works are located just inside the boundary of this designation at NGR: NY 00909 12582. The works are also located adjacent.	The Site is designated for its rich limestone flora that is rare within Cumbria. There are species-rich neutral and calcareous grasslands alongside woodland and shrub communities. It is also of geological importance.	**The works may directly impact the designation through temporary and permanent loss of qualifying habitats as well as through pollution from dust and run-off.**
Wild Ennerdale NNR	The planned works are located approximately 1.5km west of this designation.	The Site is designated for containing over 3000ha of water, forest and mountain habitats as well as rare species such as freshwater pearl mussel, red squirrel *Sciurus vulgaris* and arctic charr *Salvelinus alpinus*.	No constraints likely due to significant distance of the works and lack of ecological or hydrological connectivity.

Priority Habitats

The following Priority Habitats are located within 100m of the planned works:

- Open mosaic habitat;
- Ancient woodland;
- Deciduous woodland;
- Purple moor grass and rush pastures
- Ponds and Lakes; and
- Rivers.

[1] **SAC** – Special Area for Conservation, **SSSI** – Site of Special Scientific Interest and **NNR** – National Nature Reserve.

Protected Species

The protected and notable species evaluation is detailed within Table 2 below.

Table 2: Protected and Notable Species Evaluation		
Receptor (species/taxa)	**Status[2]**	**Desk Study records**
Badger *Meles meles*	BA	There were two records of badger returned within 1km from the last 10 years and these were individual sightings. No records of badger setts were returned. The closest record was located approximately 500m south of the planned works east of Cleator Moor.
Bats *Chiroptera*	EPS, WCA, s.41,	There are two records of granted EPSLs for bats within 1km, the closest of which is located approximately 230m west (at NGR: NX 99791302) of planned works along Springfield Road. This record related to a resting roost for common pipistrelle *Pipistrellus pipistrellus.* The data search also returned 19 records of the following bat species within 1km from the last 10 years: - Common Pipistrelle - Soprano Pipistrelle *Pipistrellus pygmaeus.* - *Pipistrellus* sp. - Noctule bat *Nyctalus noctula* - Natterer's bat *Myotis nattereri* - Daubenton's bat *Myotis daubentonii* - *Myotis* sp. The closest record was 15m from the planned works along Red Beck Road at NGR: NY 03445 14978 and featured *Myotis sp.,* common pipistrelle and soprano pipistrelle.
Birds	WCA (9), A1, s.41, BoCC	Records of the following Schedule 1 listed species include Scaup *Aythya marila,* kingfisher *Alcedo atthis,* crossbill *Loxia curvirostra* and redwing *Turdus iliacus.* The closest Schedule 1 record was of redwing, 370m north of planned works along Red Beck Road. Records of priority species and species listed as a BoCC include curlew *Numenius Arquata,* cuckoo *Cuculus canorus* and spotted flycatcher *Muscicapa striata.* Species named under the Bird Directive were returned and included sensitive species with their names withheld. There were also records of common and widespread species across the planned works.

[2] **EPS** – European Protected Species, **WCA** – Wildlife and Countryside Act, **WCA (9)** – species listed under Schedule 9, **A1** – Annex 1 (Birds Directive), **BA** – Protection of Badgers Act, **s.41** – species listed under section 41 of the NERC Act as species of principal importance, **BoCC** – Birds of Conservation Concern.

Table 2: Protected and Notable Species Evaluation		
Receptor (species/taxa)	**Status[2]**	**Desk Study records**
Brown hare *Lepus europaeus*	s.41	No records of brown hare were returned within 1km, from the last 10 years.
European hedgehog *Erinaceus europaeus*	s.41	There were 32 records of hedgehog returned. The closest record was within 15m of the planned works in Bigrigg.
Great crested newt *Triturus cristatus*	EPS, WCA, s.41	There are nine waterbodies within 250m of the planned works within the OLT. There are no EPSLs, but one pond survey showing presence of GCN at NGR: NY 9924 1252 (within 85m of planned works). There are two class survey license returns showing presence of GCN, located 300m north of the planned works in Bigrigg (NGR: NX 9910 1270). There are four pond surveys showing absence within 1km. No records of GCN were returned within 1km of the planned works from the past 10 years.
Common toad *Bufo bufo*	s.41	There was one record of common toad returned within 1km of the planned works within the last 10 years, the closest of which was located in Clints Quarry SSSI, 120m west of planned works.
Common Reptiles	WCA, s.41	One record of adder *Vipera berus* was returned within 1km of the planned works within the last 10 years. This record was located 550m south of planned works near Millgill Bridge.
Protected and notable invertebrates	WCA, s.41	There were 140 records of invertebrates, including the following species listed under S.41 of the NERC Act: - Dingy skipper *Erynnis tages*, - Small heath *Coenonympha pamphilus* - Wall butterfly *Lasiommata megera*, - Cinnabar *Tyria jacobaeae* - Latticed heath *Chiasmia clathrata* The closest record of a protected or notable invertebrate was approximately 100m west of planned works by Clints Quarry, north of Egremont. Most of the other notable records were also located here.
Otter *Lutra lutra*	EPS, WCA, s.41	There were three records of otter returned within 1km of planned works within the past 10 years. The closest record was located within 15m of the planned works along Red Beck Road and was associated with Hole Beck.
Eurasian Red Squirrel *Sciurus vulgaris*	WCA, s.41	There were 13 records of red squirrel, the closest of which were located within 50m of the planned works at Hen Beck Bridge, crossing the River Ehen.
Water vole *Arvicola amphibia*	WCA, s.41	No records of water vole were returned.

Table 2: Protected and Notable Species Evaluation		
Receptor (species/taxa)	**Status[2]**	**Desk Study records**
White-clawed crayfish *Austropotamobius pallipes* Freshwater pearl mussel *Margaritifera margaritifera*	EPS, WCA, s.41	No records of white-clawed crayfish or freshwater pearl mussel were returned. Though the River Ehen SAC is designated for the presence of freshwater pearl mussel so this species is likely present.
European eel *Anguilla anguilla* Atlantic salmon *Salmo salar*	EPS, s.41	There were 13 records of European eel, the closest of which was located within 25m of the planned works at Hen Beck Bridge, and was associated with the River Ehen. There are also records associated with the Mere Beck, located within 80m of planned works. There were four records of Atlantic salmon, the closest of which were located in the same locations as European eel, as described above.
Protected and notable plant species	WCA, s.41	There were two records of bluebell *Hyacinthoides non-scripta* returned, which is a protected Schedule 8 listed plant species. The closest record was 330m north of planned works to the west of Cleator Moor (NGR: NY0516).
Invasive non-native species (INNS)	WCA (Sch 9)	There were 17 records of grey squirrel *Sciurus carolinensis* within 1km. The closest record was 370m south of planned works along Briscoe Road, at the following NGR: NY 03103 13799. The following INNS plant species were returned: • Himalayan balsam *Impatiens glandulifera* - closest record 140m northeast of planned works along Main Street, Cleator (NGR: NY 01185 13040) • Japanese knotweed *Fallopia japonica* – closest record 180m northeast of planned works on Main Street, Cleator (NGR: NY 01248 13032) • Montbretia *Crocosmia pottsii x aurea = C. x crocosmiiflora* – closest record is approximately 600m northwest of planned works north of Bigrigg (NGR: NX9914)

Potential Impacts and Mitigation

Designated Sites

The planned works within OLT13 are due to cross the River Ehen SAC/SSSI at two locations: Hen Beck Bridge at NGR: NY 03170 14452 and through agricultural fields off an unnamed road at NGR: NY 04238 15353. The planned works are due to cross the river via planned poles by Hen Beck Bridge so no works within the river channel are required. Where the planned works cross the river at NGR: NY 04238

15353 the duct is proposed to lead up to the river and it is assumed that no works within the river channel are required as there is a planned pole on the southern bank of the river. Groundworks and vegetation clearance associated with the planned duct may directly impact the designation. At both locations, the planned works may impact the designation indirectly through accidental pollution via dust or run-off. Therefore, it will be necessary to produce a Habitats Regulation Assessment (HRA), which will assess any likely significant effects of the planned works on the SAC designation. It is considered any potential indirect impacts could be mitigated through the implementation of an Ecological Management Plan (EMP).

The planned works are located just inside the boundary of Clints Quarry SSSI at NGR: NY 00909 12582. The works are also located adjacent along the road. The works within the boundary will require consultation with the LPA through a SSSI notification as they may result in temporary and permanent loss of qualifying habitats or species. This may necessitate an ecological walkover to identify the habitats at the location of the works and support the notification. It is recommended the works are redesigned to be located outside of the SSSI. The works may impact the designation and the qualifying habitats through pollution from dust and run-off, though these impacts can be mitigated for through the implementation of an EMP.

Priority Habitats

There is potential for works to impact deciduous woodland, ancient woodland and traditional orchards via encroachment of tree root protection zones and direct loss of woodland habitat. Of most concern is the planned works located within deciduous woodland at Clints Quarry SSSI (NGR: NY 00909 12582). It is recommended the works should be redesigned to place them away from woodland parcels to avoid or minimise the need for pruning or clearance and to avoid root systems. It is recommended that where works are to take place within or in close proximity to priority woodland parcels, that Arboricultural Impact Assessments (AIA) are undertaken to identify the necessary mitigation required and avoid adverse impacts upon ancient and priority woodland.

There may also be indirect impacts to all priority habitats listed above via incidental pollution and dust arising from the works. There are several watercourses directly adjacent or in close proximity to OLT13, where accidental pollution may impact priority habitats downstream. Pollution prevention measures will be detailed within an EMP to avoid or minimise pollution.

Protected Species

Bats

The desk study revealed records of bat within 1km of planned works and suitable roosting, foraging and commuting habitats are present adjacent and in close proximity to the planned works. Therefore, bats may be present in close proximity to the works and may be impacted e.g. via a temporary increase

in noise or artificial lighting. It is also recommended that nighttime working is avoided to further avoid impacts to roosting, commuting and foraging bats. Where the works are located within woodland at Clints Quarry SSSI, roosting bats may be impacted if trees are to be felled/pruned or if commuting routes are fragmented e.g. lines of trees. Most of the planned works are within existing infrastructure and are unlikely to require vegetation clearance. Tree felling should be avoided and pruning minimised, where this is not possible, a Daytime Bat Walkover (DBW) will be required to assess the potential of the trees in question to support roosting bats and identify if further survey or mitigation is required. The EMP will also provide protection measures for bats.

Birds

Records of several notable and protected bird species were returned in the desk study. To avoid works affecting nesting birds, it is recommended that any vegetation clearance should avoid the nesting bird season (March – August inclusive). If such timescales cannot be accommodated, a check for the presence of active nests and nesting birds should be undertaken by a suitably qualified ecologist no more than 48hrs prior to the commencement of works. Any active nests should be identified and protected, subject to the relevant legal provisions, until the nesting attempt is complete or abandoned.

Badger, brown hare & hedgehog

The desk study revealed records of badger and hedgehog and there is suitable habitat in close proximity to the planned works. Although no records of brown hare were returned, there is also suitable habitat and this species is likely to be present. Therefore, there may be impacts to these species during construction works, especially in locations where the planned works cut through vegetation such as grassland, hedgerows, trees/woodland and scrub or are located adjacent to woodland parcels, hedgerows and lines of trees, and do not utilise existing infrastructure. Impacts to these species during construction works can be avoided by measures which will be outlined in the EMP and may require a pre-construction walkover survey. Where works cut through or are located within 30m hedgerows, treelines and woodland edges, a pre-construction walkover of these planned works is recommended to identify if these species present and the appropriate mitigation measures required.

Great crested newt & common toad

The desk study revealed one pond survey record of GCN presence and two class survey license returns showing GCN presence within 1km of planned works. One pond with GCN presence was located within 250m of planned works, situated 85m north of planned works (NGR: NY 9924 1252). There were also nine waterbodies identified within 250m of the planned works, but only one within 50m (NGR: NY 03383 14581). There is suitable terrestrial habitat in the form of woodland, hedgerows, scrubland and grassland surrounding and in close proximity to the works. Even though the majority of works are

located within existing infrastructure, works in a few areas are located within suitable vegetation for amphibians. Therefore, environmental DNA analysis of these two waterbodies (NGR: NY 9924 1252 and NY 03383 14581) is recommended to confirm if GCN are present. Where this is not possible, planned works in close proximity to these ponds must be undertaken under supervision from a licenced ecologist and following protection measures detailed within the EMP.

The desk study revealed one record of common toad, but there is suitable terrestrial habitat present to support common toad nearby to some sections of planned works. If vegetation clearance and works are to take place within suitable habitat for amphibians, the protective measures detailed in the EMP must be followed and may include ecological supervision.

Common reptiles

One record of adder was returned, located 550m south of planned works. However, impacts are unlikely due to minimal habitat loss/vegetation clearance taking place as the works are primarily within existing infrastructure. Where works are located within suitable habitats (grassland, scrub, heathland, woodland edge) and vegetation clearance is required, the works must follow protection measures outlined within the EMP.

Red squirrel

The desk study revealed 13 records of red squirrel within 1km of the planned works. It is likely that this species is present across the works, given the presence of suitable priority woodland habitat and trees adjacent and in close proximity to the works. To avoid impacts, tree felling and pruning should be avoided. If tree felling or pruning is required, it is recommended this avoids the breeding season (February – September inclusive). If this isn't possible, then a pre-works check of trees for red squirrel will be required by a suitably qualified ecologist.

Otter, freshwater pearl mussel and European protected fish species

The desk study revealed three records of otter within 1km of the planned works. No records of freshwater pearl mussel were returned; however, they are known to inhabit the River Ehen SAC/SSSI. Several records of European eel and Atlantic salmon were returned, all of which were associated with the River Ehen and Mere Beck. These species may be indirectly adversely impacted by accidental pollution to the River Ehen, Mere Beck and the numerous other connected watercourses. It is considered the pollution prevention measures outlined within the EMP and Viberoptix/Fibrus working documents will mitigate any impacts.

Protected invertebrates and plants

As the majority of the works in OLT13 are to take place utilising existing infrastructure and are not situated in supporting habitat for protected plant and invertebrate species, it is unlikely that the

planned works will have major impacts to these species. However, the works are situated within Clints Quarry SSSI, where several records of s.41 invertebrates were located, e.g. dingy skipper butterfly. If works within the SSSI cannot be avoided, an ecological walkover of these planned works is recommended to identify any suitability to support protected plant and invertebrate species, and the appropriate mitigation measures required.

Invasive non-native species

Records of several INNS were returned during the desk study and the works hold the potential to facilitate the spread of these species, which would be an offence under the WCA. We recommend a pre-construction walkover of works close to records of INNS and close to watercourses or ditches. This walkover will identify any INNS present adjacent to the works and where measures will be required to prevent the spread of INNS. These measures should be outlined within the EMP.

Summary

In summary, the planned works within OLT13 have potential to impact River Ehen SAC/SSSI and Clints Quarry SSSI, and to impact priority habitats (namely open mosaic habitat, deciduous woodland, ancient woodland, purple moor grass and rush pasture, ponds and lakes, and rivers). Measures to avoid impacts to protected species and other wildlife as well as avoid the spread of invasive non-native species are mentioned above.

It is recommended that the following surveys/assessments are undertaken:

- Habitat Regulation Assessment for River Ehen SAC
- Ecological walkover of works located within Clints Quarry SSSI.
- Works follow measures within an Ecological Management Plan.
- Arboricultural Impact Assessments (AIA).
- DBW of any trees that may need to be felled/pruned.
- Vegetation clearance undertaken outside of the bird nesting season and red squirrel breeding season, or a pre-works inspection to be undertaken by a suitably qualified ecologist.
- Pre-construction walkover for badger, brown hare and hedgehog, should planned works cut through or be located within 30m of hedgerows, treelines or woodland edges.
- eDNA survey of GCN suitable waterbodies or supervision of works close to waterbodies.
- Invasive non-native species walkover.

References

DEFRA (2024) *MAGIC Maps* https://magic.defra.gov.uk/MagicMap.aspx