Site:	CMIQ - Proposed Hub
Client:	Copeland Borough Council
Job Number:	784-B034367
Survey Type(s):	Ecological Appraisal
Date of Reviews(s):	March 2022
File Location:	\\lds-dc-vm-101\Data\Projects\784-B034367 CMIQ Proposed Hub\60 Project Output\61 Work in Progress

INTRODUCTION

BACKGROUND

Tetra Tech was commissioned by Copeland Borough Council in January 2022 to undertake a review of existing reports and baseline information in order to compile an Ecological Appraisal report for the Proposed Hub development. This report is in addition to the Cleator Moor Innovation Quarter (CMIQ) Ecological Appraisal Report (Tetra Tech, 2021a) which the current proposal falls within.

This report has been prepared by Assistant Ecologist Lucy Bennison and the conditions pertinent to it are provided in Appendix A.

SITE LOCATION

The proposed Hub site, hereinafter referred to as the 'site', is located in Cleator Moor and is centred at Ordnance Survey National Grid Reference NY 01570 15529 – see Figure 1 for site location plan. The site is 1.83 ha in size and is located within the boundary of the Main Leconfield Site / Leconfield Industrial Estate which is part of the Cleator Moor Innovation Quarter, towards the north-east side. Additionally the site also comprises the existing access road which runs through the centre of the Leconfield Industrial Estate.

The site comprises hard standing / roads, unimproved neutral grassland, semi-improved neutral grassland, marshy grassland, tall ruderal and broadleaved semi-natural and plantation woodland. The land directly adjacent to the site consists of marshy grassland, amenity grassland, dense / continuous scrub, standing water and various buildings with associated hardstanding.

DEVELOPMENT PROPOSAL

The development proposals consist of the erection of a mixed-use hub building with associated car park, road connection to the west and an access path to cycle C2C route to the north- east.

The masterplan showing the proposed site plan is shown in Appendix B (Drawing Reference:ZZ-DR-A-90002-SITE-PROPOSED PLAN_P03).

PURPOSE OF THE REPORT

The purpose of this report is to complete a review of existing reports and baseline information in order to compile a letter report summarising the ecological background information relevant to the CMIQ - Proposed Hub red line boundary, as well as site specific assessment and recommendations.

METHODOLOGY

DESK STUDY

Previous Reports

The following reports have been previously issued to Copeland Borough Council:

- WYG (2020) Leconfield Industrial Estate Ecological Appraisal;
- Tetra Tech (2021a) – CMIQ Ecological Appraisal;
- Tetra Tech (2021b) – CMIQ Bat Roost Assessment Report;
- Tetra Tech (2021c) – CMIQ Breeding Bird Survey Report;
- Tetra Tech (2021d) – CMIQ Great Crested Newt Report;
- Tetra Tech (2021e) – CMIQ Invasive Non-Native Species Management Plan Report;
- Tetra Tech (2021f) – CMIQ Invertebrate Report;
- Tetra Tech (2021g) – CMIQ National Vegetation Classification Report;
- Tetra Tech (2021h) – CMIQ Reptile Report; and
- Tetra Tech (2021i) - CMIQ Habitats Regulations Assessment.
- Tetra Tech (2021j) - CMIQ Biodiversity Net Gain (BNG)

Local Ecological Records Centre

A data search was requested from the Cumbria Biodiversity Data Centre (CBDC) for information on any nature conservation designations and protected or notable species records within 2 km of the Leconfield Industrial Estate / Main Leconfield Site as part of the Ecological Appraisal (WYG, 2020) and was still applicable to this report. Only records post year 2000 were considered in this report.

Online Resources

A search for relevant information was also made on MAGIC www.magic.gov.uk – DEFRA's interactive, web-based database for statutory designations and information on any European Protected Species licence (EPSL) applications that have been granted in the local area.

FIELD SURVEYS

The following data used within this report has been derived from surveys conducted as part of the main CMIQ application process in 2021. Methodologies for the following surveys can be found within their respective reports:

- Habitats – CMIQ Ecological Appraisal (Tetra Tech, 2021a) and CMIQ NVC Report (Tetra Tech, 2021g)
- Great Crested Newts – (Tetra Tech, 2021a; 2021d)
- Bats – CMIQ Ecological Appraisal (Tetra Tech, 2021a) and CMIQ Bat Roost Assessment Report (Tetra Tech, 2021b);
- Reptiles – CMIQ Reptile Report (Tetra Tech, 2021h);
- Badger – CMIQ Ecological Appraisal (Tetra Tech, 2021a);
- Otter & Water vole – CMIQ Ecological Appraisal (Tetra Tech, 2021a);
- Birds – CMIQ Breeding Bird Survey Report (Tetra Tech, 2021c);
- Invertebrates – CMIQ Invertebrate Report (Tetra Tech, 2021f);
- CMIQ Invasive Non-Native Species Management Plan Report (Tetra Tech, 2021e); and

- Habitat Regulations Assessment – CMIQ Habitats Regulations Assessment (Tetra Tech, 2021i).

RESULTS

DESIGNATED SITES/ HABITATS

The following statutory and non-statutory designated sites of ecological importance have been identified within 2km of the site.

Table 1. Summary of designated sites within 2km of the site

Designation	Site Name	Distance & Direction	Summary of features
Statutory			
Special Area of Conservation (SAC)	River Ehen	1.3km SE	The designated stretch of the river, between Ennerdale Water and the confluence with the River Keekle at Cleator Moor, meanders across a narrow floodplain with areas of riparian woodland and trees. This stretch of the river supports outstanding populations of the freshwater pearl mussel *Margaritifera margaritifera*. In addition, the river supports Atlantic salmon *Salmo salar*, important for the ecology of the river.
Site of Special Scientific Interest (SSSI)	River Ehen (Ennerdale Water to Keekle Confluence)	1.3km SE	A river that supports freshwater pearl mussel populations.
Non-Statutory			
County Wildlife Site (CWS)	Rheda South Park	0.7km NE	No information available.
CWS	Birkhouse Pond	0.9 km SE	No information available.
CWS	Parkside Pond	1.2km E	No information available.
CWS	Dub Beck	1.7km N	No information available.
Site of Invertebrate Significance	Keekle River	0.5km W	No information available.
Site of Invertebrate Significance	Weddicar Hall	1.4km N	No information available.
Site of Invertebrate Significance	Dub Beck	1.7km N	No information available.

Habitats of Principal Importance/ Priority habitats (HPI)

The MAGIC search identified the following HPI types:

- Open mosaic – located in the south of site; and
- Deciduous woodland – located along the northern boundary of site and to the west of the wider CMIQ Site A.

HABITATS

The following habitats have been identified through a review of previous assessments. See Figure 2 for further details.

Broad-leaved Woodland – Semi-natural

Broad-leaved woodland was present in the north and northeast of the site (Figure 2). This habitat appeared to be predominantly semi-natural, but few planted trees were also apparent. The woodland comprised species such as ash *Fraxinus excelsior*, alder *Alnus glutinosa*, silver birch *Betula pendula* and hawthorn *Crataegus monogyna*.

Broad-leaved Woodland - Plantation

Within the site, a line of broad-leaved plantation / young screen planting was present along the north of the site. This was located on the northwards facing slope and transitioned into self-seeded broadleaved semi-natural woodland along the footpath (outside of the site).

Unimproved Neutral Grassland

Secondary unimproved neutral grassland was recorded in the north of the site around the site edges (Figure 2). This was unmanaged and reverting to various degrees from landscaping and natural colonisation of the original slag when the site was created (White Young Green, 2007). The main grass species recorded within the sward included Yorkshire fog *Holcus lanatus*, cock's-foot *Dactylis glomerata*, red fescue *Festuca rubra*, sweet vernal-grass *Anthoxanthum odoratum* and crested dog's tail *Cynosurus cristatus.* The swards also included abundant sedges, including several species of *Carex sp.* (true-sedges). This area also contained ephemeral/short perennial vegetation which was colonising gravels/slag and included the following species: scarlet pimpernel *Lysimachia arvensis*, a stonecrop *Sedum* sp., sun spurge *Euphorbia helioscopia* and red clover *Trifolium pratense*.

A separate area of unimproved neutral grassland was present on the south-west boundary of the site. This area was surveyed in detail during the National Vegetation Classification (NVC) survey (see Tetra Tech 2021g). This was identified as an area of exceptionally species-rich secondary grassland.

Overall, the grasslands on site were species-rich, herb dominated, with an average herb cover of 40% or greater.

Semi-improved Neutral Grassland

Semi-improved neutral grassland was recorded in the south-east corner of the site (Figure 2). This appeared to be managed to some degree and showed signs of agricultural improvement / landscaping. The main grass species recorded included perennial rye-grass *Lolium perenne,* Yorkshire fog, cock's-foot, red fescue and tufted hair-grass *Deschampsia cespitosa.*

Marshy Grassland

Marshy grassland was recorded within the damper sections of the site in the east and occurred predominantly as a mosaic with other vegetation types including scattered scrub, dense scrub and unimproved neutral grassland (Figure 2). These were sedge and rush dominated and included many herb species associated with damp grassland such as meadowsweet *Filipendula ulmaria*, wild angelica *Angelica sylvestris*, ragged robin *Silene flos-cuculi* and valerian *Valeriana officinalis*. Particularly rich areas contained several species of orchid including northern marsh *Dactylorhiza purpurella*, common-spotted *Dactylorhiza fuchsii*, bee-orchid *Ophrys apifera* and common twayblade *Listera ovata*.

Amenity Grassland

Frequently mowed amenity grassland was present on the western edge of the site adjacent to the access road (Figure 2).

Tall Ruderal

Stands of tall ruderal vegetation which comprised mainly willowherb species *Epilobium sp.,* broad-leaved dock *Rumex obtusifolius*, rosebay willowherb *Chamerion angustifolium*, nettle *Urtica dioica*, creeping thistle *Cirsium arvense* and spear thistle *Cirsium vulgare* were recorded to the southwest of site (Figure 2). The ruderal vegetation was predominantly recorded in conjunction with scrub and grassland habitats. In some areas, garden escapes were apparent including garden ladies-mantle *Alchemilla mollis*, Spanish bluebell *Hyacinthoides hispanica* and garden primrose *Primula polyantha.*

Hardstanding

Hardstanding was recorded extensively throughout the site; this comprised predominantly tarmac roads, fenced off industrial yard and a fenced off tip (Figure 2).

PROTECTED SPECIES

Great Crested Newt (GCN)

The desk study returned one record of great crested newt (GCN) *Triturus cristatus* in Cleator approximately 2km south from the site, recorded in 1998 (no post 2000 records were returned).

During the GCN survey conducted by Tetra Tech in 2021 (Tetra Tech, 2021d) no waterbodies were found within the site boundary.

Five ephemeral water features however were located just outside the site boundary to the south of the hard standing area (Figure 2). All the waterbodies were scored as ‘average’ or above (with the exception of one pond which scored below average). All waterbodies were surveyed using eDNA and either returned a negative result for GCN or were dry during the survey window. No GCN adults, juveniles or efts were observed during the torch searches on any of the survey visits. No GCN eggs were observed on any survey visits. The terrestrial habitat both within and surrounding the site was deemed as suitable for GCN. Presence of other amphibians included smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton Helvetica*, common frog *Rana temporaria* and common toad *Bufo bufo*.

Bats

The desk study found records for a variety of bat species with a 2km radius of the site, they are displayed in Table 2.

Table 2. Desk study bat results note only the nearest record have a distance and direction.

Species	No. of records	Date	Recording	Distance & Direction
Natterer's bat *Myotis nattereri*	1	2017	1 count	2 km S
Soprano pipistrelle *Pipistrellus pygmaeus*	1	2011	5 count	1.6 km NE
Noctule *Nyctalus noctula*	1	2011	1 count	1.6 km NE
Common pipistrelle *Pipistrellus pipistrellus*	2	2011	1 count	1.6 km NE
		2012	Count of more than 5 bats	2 km S
Unidentified bat *Chiroptera sp.*	1	2016	Not specified	1.6 km N

There was one bat EPSL granted within 2km of the site. The license was for the destruction of a resting site for whiskered bat, Natterer's bat & Brandt's bat *Myotis brandti* in 2013, located approximately 0.5km west of the site.

As part of the bat roost assessment, buildings and woodland areas located on the wider CMIQ site were assessed for roosting potential in 2021 (Tetra Tech, 2021b). Two buildings located just to the north-west of the red line boundary were recorded as having moderate roosting potential; however no bat roosts were identified in these building during the during emergence and re-entry surveys ; common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were recorded commuting and foraging along the woodland that cuts through the north of the site and along the hardstanding road within the site.

The woodland located at the north and north-west of the site contains several trees with low roosting suitability recorded (Tetra Tech, 2021b).

Based on the BCT Guidelines (Collins, 2016) for habitat suitability the current habitats can be considered to offer moderate value for foraging and commuting bats due to the continuous habitat connected to the wider landscape, surrounding woodland habitats (mixed woodland and wet woodland), grasslands, gardens and allotments. (Tetra Tech, 2021b)

Reptiles

The desk study returned one old record of a slow worm *Anguis fragilis* approximately 1.7km north of the site, recorded in 1997 (no post 2000 records were returned).

No reptiles were recorded within the red line boundary during surveys conducted on the site in 2021 (Tetra Tech, 2021h) however, this may be due to no reptile mats being distributed within the proposed hub red line boundary. The reptile survey did however reveal presence of reptile populations within the wider CMIQ site with a low population of common lizard *Zootoca vivipara* recorded to the south-west of the CMIQ site. Woodland, ruderal vegetation and grassland habitats on site provide suitability to support local reptile populations such as common lizard. There are open areas of derelict hard standing and gravels which may be suitable for basking. The tree / scrub roots, piles of rubble and refuse offer suitable refugia opportunities and over-wintering habitat for reptiles. In addition, the surrounding woodland and scrub appear to offer connectivity to the wider environment.

Badger

The desk study returned one record of badger *Meles meles* within a 2km radius of the site, recorded in 2018.

The habitats within the red line boundary appeared to be of suitability for badgers and are likely to provide good connectivity and foraging features. However, there were no badger setts or other signs of badgers recorded on site (Tetra Tech, 2021a). The grassland and woodland habitat within and surrounding the site are considered to provide suitable features for foraging badgers.

Otter & Water Vole

The desk study returned no records of water vole *Arvicola amphibius* within a 2km radius of the site. The desk study did return 26 records of otter *Lutra lutra*, with majority of these associated with River Keekle that runs approximately 1.2km northwest from the site. The nearest record was approximately 0.7km north of the site; however, the record's location description stated 'River Keekle' and therefore, it is considered that the grid reference for this record may have been mis-recorded.

The closest water feature to the site is the Nor Beck, located immediately adjacent to the north of the site boundary. However, this water feature comprised of a shallow, straightened ditch with generally low suitability to support otter and very limited breeding and resting features. The Nor Beck is also located directly adjacent to a path frequently used by dog walkers therefore it is likely to be subject to frequent disturbance further reducing the suitability for otter.

Shallow pools within the willow / alder carr south-east of the site are likely to be ephemeral and dry-up in the spring / summer. Therefore, these are considered to provide negligible suitability for breeding, resting or foraging otter. No suitable habitat for water voles was observed on site during survey. Nor Beck adjacent north to the site may be potential of suitability, however, this species has very limited distribution in Cumbria with no known current (post 2000) populations in West Cumbria and the core distribution area located in the North Pennines (The Cumbria Evidence Base Information, 2010).

Birds

The desk study returned 1,236 records of 105 bird species within 2km of the site (including 12 sensitive species). Of these a total of 10 are legally protected bird species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), a total of 20 bird species are Birds of Conservation Concern (BoCC) Red List species and a total of 43 bird species are BoCC Amber list species.

A total of 31 bird species were identified during breeding bird surveys completed on the CMIQ site. Of these species, seven BoCC Red List and seven BoCC Amber List species were recorded. In addition, three species listed as Species of Principal Importance (SPI) under the Natural Environment and Rural Communities (NERC) Act 2006 were recorded. Of the 31 species recorded, six species were confirmed breeders, while 10 were probable breeders and 15 were possible breeders.

16 bird species were recorded within and adjacent to the site boundary including two BoCC Amber listed species and two BoCC Red listed species. One species listed as Species of Principal Importance (SPI) under the NERC Act was recorded.

Breeding birds recorded on site included predominantly common passerine species breeding within the woodland edge habitats located in the north and north-east of the site. (Tetra Tech, 2021c)

Invertebrates

The desk study returned 168 records of 34 invertebrate species in the 2km search radius. There are seven insect species listed under the NERC Act (SPI). Species are displayed in Table 3.

Table 3. Favoured food plant of NERC insect species within the desk study

Species	Foodplant preferences

Butterflies	
Dingy skipper *Erynnis tages*	Common bird's-foot-trefoil *Lotus corniculatus*
Wall *Lasiommata megera*	Grasses; Tor-grass *Brachypodium pinnatum*, false brome *Bromus sylvaticum*, cock's-foot *Dactylis glomerata* and Yorkshire fog *Holcus lanatus*
Small heath *Coenonympha pamphilus*	Fine grasses; fescues *Festuca* spp., meadow-grasses *Poa* spp., and bents *Agrostis* spp.
Grayling *Hipparchia semele*	Sheep's-fescue *Festuca ovina*, red fescue *F. rubra* and early hair-grass *Aira praecox*
Small pearl-bordered fritillary *Boloria selene*	Common dog-violet *Viola riviniana* and marsh violet *V. palustris*
Moths	
Latticed heath *Chiasmia clathrate*	Clovers *Trifolium* spp. and lucerne *Medicago sativa*
Cinnabar *Tyria jacobaeae*	Ragwort *Jacobaea vulgaris*

The habitat types recorded within the red line boundary offer a variety of niches that can be exploited by invertebrates. During the survey of the wider CMIQ site (Tetra Tech, 2021f) 54 invertebrate species were recorded. Of these only the cinnabar moth *Tyria jacobaeae* is protected under the Section 41 of the NERC Act. Two recordings of cinnabar moth were made within the red line boundary of the site.

During the invertebrate survey the locations of common bird's-foot trefoil and kidney vetch *Anthyllis vulneraria* were recorded, these being the food plants for dingy skipper. The locations of these plants were found at several points along the boundary of the proposed hub site (Tetra Tech, 2021f).

Due to the mosaic of habitats recorded on the site, there is likely to be a diverse range of invertebrates associated with the site. Given the number of species that were recorded during the two invertebrate surveys and the presence of a Species of Principal Importance the entire CMIQ site has 'provisionally' been assessed as being of Local importance for invertebrates (Tetra Tech, 2021f).

Other species

Red Squirrel

The blocks of broad leaved semi-natural woodland located at the north and north-east of site were considered to be suitable for red squirrel *Sciurus vulgaris* as they had numerous mature trees present and good connectivity to other suitable woodland blocks and residential gardens. No obvious signs of red squirrel dreys were observed within the trees on site. (Tetra Tech, 2021a)

West European Hedgehog

The site has the potential to support hedgehog *Erinaceus europaeus* and the woodland and grassland on site provide suitable habitat for foraging and may contain hedgehog nests. (Tetra Tech, 2021a)

Invasive Species

The desk study returned three plant and three animal species listed under the Schedule 9 of the W&CA and three animals. Table displays each species and the nearest record to the site.

Table 4. Invasive species identified in the desk study

Species	Number of records	Distance & Direction
Montbretia *Crocosmia pottsii x aurea = C. x crocosmiiflora*	1	2.5 km SW
Indian balsam *Impatiens glandulifera*	4	2 km SE
Japanese knotweed *Reynoutria japonica*	10	0.8 km SW
Canada goose *Branta canadensis*	1	Grid ref not accurate enough
American mink *Neovison vison*	1	1.3 km N
Grey squirrel *Sciurus carolinensis*	26	0.6 km E

The Invasive Non-Native Species survey conducted on the CMIQ site in 2021 recorded wall Cotoneaster *Cotoneaster horizontalis* located within the southern hardstanding area (Figure 2). (Tetra Tech, 2021e)

IMPORTANCE OF ECOLOGICAL FEATURES

In line with the CIEEM PEA Guidelines, and based on the above baseline information, the importance of each ecological feature recorded within the study area is given in Table below. The categories used are those which are defined in Section 4 of the CIEEM EcIA Guidelines (2018 v1.1):

Table 5. Importance of Ecological Features

Feature	Importance	Rationale
River Ehen SAC	International	Designated for freshwater pearl mussel *Margaritifera margaritifera* population and Atlantic Salmon *Salmo salar.*
River Ehen (Ennerdale Water to Keekle Confluence) SSSI	National	Designated for freshwater pearl mussel *Margaritifera margaritifera* population
Dub Beck CWS; Rheda South Park CWS; Parkside Pond CWS; Birkhouse Pond CWS	County	Designated County Wildlife Site
Dub Beck; Weddicar; Keekle River Site of invertebrate significance	Local	Locally designated Site of Invertebrate Significance.
Brood-leaved Woodland	Local	Habitat is common and widespread but it is likely to support a diverse range of fauna including invertebrates, small mammals and nesting birds.

Feature	Importance	Rationale
Secondary unimproved neutral grassland	Local	Habitats are common and widespread but it is likely to support a diverse range of fauna including invertebrates, small mammals and foraging birds.
Semi-improved neutral grassland and marshy grassland	Local	Habitats are common and widespread but it is likely to support a diverse range of fauna including invertebrates, small mammals and foraging birds.
Tall ruderal and hardstanding	Negligible	Common habitats that are wide spread throughout the surrounding landscape.
GCN	Likely absent from site	All waterbodies adjacent to the site scored average on the HSI. eDNA concluded no presence of GCN within the waterbodies.
Reptiles	Local	A small local population of common lizards were found to be present on the main CMIQ site. The site provides suitable foraging / commuting habitat and potential refugia / hibernacula features.
Bats	Local	The woodland contained trees identified as low potential for roosting bats. The habitats on site with woodland and grassland are considered to be of moderate suitability for foraging and commuting bats.
Badgers	Unknown / Unlikely to be present	No badger setts were recorded within 50m radius of the site. There are no records for badger within the local area. However, as the site provides suitable habitat for this species it is considered possible that local badger populations (if present in the locale) may opportunistically use the site.
Breeding Birds	Local	Habitats within the site are likely to support a wide range of common bird species.
Invertebrates	Local / County	Habitats within the site support a population of cinnabar moths as well as host bird's-foot trefoil which is the foodplant of the dingy skipper.
Red squirrel	Local	The woodland habitat on site may provide suitable breeding / foraging provisions for this species.
Hedgehog	Local	Habitats on site are suitable for foraging and hibernating hedgehog. Hedgehog is a NERC SPI.
Either: International (incl. European) / National / Regional / County / Local / Negligible **Or:** Unknown (i.e. further surveys/information needed)		

RELEVANT PLANNING POLICY & LEGISLATION

Revised National Planning Policy Framework

A revised national planning policy framework (NPPF) was issued on 20th July 2021 (Ministry of Housing Communities and Local Government, 2021) and currently supplements government Circular *06/2005*, *Biodiversity and Geological Conservation: Statutory and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process – refer to Tetra Tech (2021a) for further details on this policy.

Biodiversity 2020: A strategy for England's Wildlife & Ecosystem Services

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act.

Local Biodiversity Action Plan

The Cumbria Biodiversity Action Plan (CBAP) is a list of habitats and species identified under the NERC Act 2006. A list of all 268 SPI which occur in Cumbria is provided at:

https://www.cumbriawildlifetrust.org.uk/sites/default/files/cumbria%20bap%20species%20updated%20list%202009%20web.pdf

Local Plan

Copeland Borough Council holds the following policies relevant to this development in their local plan 2013-2018: Core Strategy and Development Management Policies DPD, adopted in 2013:

- **Policy SS5 – Provision and Access to Open Space and Green Infrastructure**
- **Policy ENV3 – Biodiversity and Geodiversity**
- **Policy DM25 – Protecting Nature Conservation Sites, Habitat and Species**
- **Policy DM28 – Protection of Trees**

Refer to Tetra Tech (2021a) for further details on each policy.

DISCUSSION & RECOMMENDATIONS

DESIGNATED SITES

Natura 2000 Sites – River Ehen SAC

A Habitat Regulations Assessment was conducted as part of the entire CMIQ site. The River Ehen SAC was screened into this assessment with the possibility of likely significant effects. The River Ehen SAC is located 1.2 km south from the proposed development site as the crow flies. The CMIQ site is directly adjacent to Nor Beck which runs from the northeast of the site and flows via the River Keekle into the River Ehen SAC. The River Ehen is designated for freshwater pearl mussel and Atlantic salmon. As Atlantic salmon are migratory fish any pollution reaching the lower River Ehen could result in deterioration of aquatic habitat, affecting their habitats and food sources, or potentially creating a barrier to migration. The development site is large so increasing the risk of polluting run-off and discharges into the catchment. Potential adverse effects may result from pollution from surface

water run-off, construction de-watering discharges, increases in sewage effluent, accidental spillages, alterations in hydrological characteristics etc. Suitable environmental protection measures should be actioned during construction and site preparation activities to ensure no pollution enters the Nor Beck. **With mitigation, an LSE both alone and in combination, could be ruled out for all pathways of effect.** (Tetra Tech, 2021i)

Sites of Special Scientific Interest – River Ehen

The site lies within the Impact Risk Zone (IRZ) for River Ehen (Ennerdale Water to Keekle Confluence) SSSI. However, the proposals do not fall into a category of likely risk and therefore consultation between Natural England and Local Planning Authority in relation to impacts on the SSSI sites is unlikely to be required.

County Wildlife Sites

There are seven county wildlife sites (CWS) within 2km radius of the site. The closest CWS site is the River Keekle at 0.6 km west of the site. As no designation information was available for each of the sites, it is difficult to assess impacts on the particular habitats and species that may be found on site. However, given the distance from the site to the CWS', no adverse effects are considered likely. No further assessment required.

HABITATS

Grassland & Woodland Habitats

The Proposed Hub Masterplan (Appendix B) shows that the areas of neutral and marshy grassland and the edge of the broadleaved woodland are to be removed and replaced with areas of hardstanding and a building. The majority of the grassland habitats proposed for removal are unimproved, secondary grasslands, are moderately species-rich and have been found suitable to provide foraging and shelter opportunities for a range of species including nesting birds, bats and invertebrates. The grassland in the north-west of the site is particularly species-rich and was found to support up to four species of orchid, including bee orchid *Ophrys apifera* and as well as common bird's-foot trefoil the food plant of dingy skipper butterfly. This area of grassland (and adjoining grassland outside of the Proposed Hub site boundary, but within the wider CMIQ Site A boundary), was recommended for translocation under the NVC Survey report (Tetra tech, 2021g).

The woodland habitat extent will be largely unaffected by the proposals and in the BNG Report (Tetra Tech 2021j) new areas of woodland planting are recommended within the wider site that will mitigate losses. The site comprises a small section of the greater CMIQ site which aims to provide mitigation for these species (Tetra Tech, 2021a and 2021j).

PROTECTED & NOTABLE SPECIES

Amphibians

The great crested newt and its habitat are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Under the legislation, it is an offence to intentionally kill, injure or take GCN as well as intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a GCN or disturb an animal while it is occupying a structure or place which it uses for that purpose. GCN are also a NERC S41 and Local Biodiversity Action Plan (LBAP) species.

No signs of GCN were found during the surveys with GCN confirmed as likely absent from the ephemeral water features. As the waterbodies present dry seasonally this may hinder a GCN population from becoming established on site (Tetra Tech, 2021d).

In the unlikely event of GCN being recorded during works on site then works should be postponed and advice sought from a suitably qualified ecologist.

Three other amphibian species: a medium population of palmate newt, a small population of smooth newt, a small population of common frog and common toad were observed. Reasonable Avoidance Measures (RAMS) are recommended to protect notable species onsite – refer to CMIQ Ecological Appraisal (Tetra Tech, 2021a).

Reptiles

All species of native reptiles are protected under the Wildlife and Countryside Act 1981 (as amended).

The Tetra Tech reptile survey conducted in 2021 (Tetra Tech, 2021h) indicates that breeding populations of common lizard are present within the entire CMIQ site and likely use the site for foraging and commuting. The proposed development is therefore likely to impact reptiles present on site.

Reptiles observed during surveys were confined to areas of hardstanding with surrounding areas of scrub and grassland margins. Given the scope of the proposed development the habitat loss is likely going to impact reptiles within the wider CMIQ site. However, given the wider landscape of suitable habitat, and the small amount of grassland being removed, the impact on reptiles can be mitigated through the implementation of a RAMS to include restrictions on timing of site clearance to avoid the sensitive hibernation period – refer to Tetra Tech (2021a).

Bats

All bats and their roosts receive full protection both under The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentionally kill, injure or take a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat; or
- Disturb a bat while it is occupying a structure or place which it uses for that purpose.

A detailed bat survey was conducted on site in 2021 by Tetra Tech (Tetra Tech, 2021b). Trees with low bat roost suitability were identified on site within the broad leaved semi-natural and plantation woodland to the north of the site. One tree with moderate bat roost suitability was identified east of the site boundary. As per the current plans (Appendix B) there are no proposals to remove this tree (Figure 2). **If any of the trees identified as low suitability, are proposed for removal, these can be felled using reasonable avoidance measures.**

If a tree with moderate bat roost suitability is proposed for removal, further survey and assessment will be required to inform works. This will include detailed inspection of features that can be used by roosting bats (including aerial / climbed inspections if the features cannot be closely inspected from the ground). Following the detailed inspection survey, further presence / absence surveys may be recommended (these can include nocturnal dusk emergence / dawn re-entry surveys or further detailed inspection at an appropriate time interval).

The proposed plan for the site indicates that the majority of woodland / habitats corridors will be retained post development. Therefore, foraging and commuting bats are unlikely to be significantly affected by the proposal.

However, commuting and foraging bats are highly sensitive to light spill and light pollution. Without a suitable and sensitive lighting strategy, foraging and commuting bats could be adversely impacted. Therefore, it is recommended that that adjacent woodlands on or adjacent to the sites, as well as tree lines, allotments and adjacent residential gardens are protected from light disturbance through implementation of a wildlife sensitive lighting scheme for both the construction and operational phases of the development. Please note that **lighting schemes should be developed in accordance with the Institute of Lighting Professionals (ILP) Guidance Note 08/8 *Bats and artificial lighting in the UK* (ILP, 2018).**

Badger

Badgers are protected and so are the setts (burrows) they occupy. Under the Protection of Badgers Act 1992, in England and Wales it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so);
- Cruelly ill-treat a badger;
- Dig for a badger;
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- Cause a dog to enter a badger sett;
- Disturb a badger when it is occupying a sett.

No badger setts or other signs of badger were recorded within the site (or within a 50m radius of the site). Therefore, it is considered unlikely that badger setts occur within the site boundaries. Parts of the habitat and surrounding area appear suitable for badgers and there are records of this species within 2 km; badger are highly mobile and can rapidly colonise new areas. Therefore, presence of badger may be a potential constraint to the future development works.

It is recommended that a pre-works badger survey of the proposed development area is undertaken at least three months prior to work.

If a badger sett is found during works, an application for a license to disturb or destroy the sett may be required to be completed and approved by Natural England, to avoid contravention of legislation (Tetra Tech, 2021a).

Birds

All wild birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended).

A breeding bird survey was carried out within the breeding bird season (May – June 2021) in which a total of 16 bird species were identified within and immediately around the site boundary (Tetra Tech, 2021c). Of these species, two BoCC Amber list species and two Red list species were recorded. Additionally, one species listed as Species of Principal Importance (SPI) under the NERC Act was recorded.

The Breeding Bird Survey conducted by Tetra Tech in 2021 (Tetra Tech, 2021c) revealed that breeding birds recorded on site included predominantly common passerine species breeding within the woodland edge on site. The proposed plan indicates that the majority of this habitat will be retained. **Therefore, it is considered that the proposed development is unlikely to significantly affect local populations of breeding birds through habitat loss and availability of potential breeding territories.**

To avoid committing an offence under relevant legislation any works affecting potential bird nesting habitat (i.e. any vegetation clearance, ground clearance / excavation works) should be carried out outside the main bird breeding season (i.e. considered to be March to September, inclusive). – refer to Tetra Tech (2021c) for detailed recommendations and avoidance measures for vegetation removal works.

Invertebrates

The site is likely to support a range of commonly occurring invertebrate species as well as some LBAP and SPI species that were recorded within 2 km. The site recorded the presence of the cinnabar moth *Tyria jacobaeae* which is protected under the Section 41 of the NERC Act (Tetra Tech, 2021f). The location of host plant species including birds-foot trefoil which is known to be dingy skipper's food plant were recorded along the site boundary.

The invertebrate surveys were conducted after the flight period for dingy skipper, but the site contains the food plant. With the nearest record of dingy skipper being only 200m from the site this is considered to be within the dispersal distance for dingy skipper and its present on site cannot be discounted. (Tetra Tech, 2021f).

Impact on invertebrates should be avoided and reduced, by implementing the following measures:

- Maintain sufficient suitable habitat to support the species in the local area;
- Phase works and restoration activity to provide habitat continuity; and
- Creation of new invertebrate habitat.

The retention of the habitat areas containing ragwort and common bird's-foot trefoil should be considered. If retention of existing habitats is not possible then new habitat areas containing ragwort and common bird's-foot trefoil need to be created. A sufficient number of plants will be required to support sustainable populations of cinnabar moth and dingy skipper and will need to be established prior to clearance of existing habitats.

Refer to Tetra Tech (2021f) for detailed recommendations and avoidance measures. The species-rich grassland in the north-west of the site, which contains the food plant for dingy skipper and where cinnabar moth caterpillars were recorded, is proposed for translocation (Tetra Tech 2021g). As part of the grassland translocation, any caterpillars, larvae or eggs should be moved with the grassland. Any birds-foot trefoil plants located in other parts of the proposed Hub Site, should be identified prior to works and protected and retained if within a retained area, or translocated to another suitable area if proposed to be lost to development. Any caterpillars, larvae or eggs identified should also be translocated with the plants.

Red Squirrel

As a precautionary measure any suitable trees proposed from removal as part of the development should be checked for red squirrel dreys prior to removal. (Tetra Tech, 2021a)

Invasive Species

An invasive non-native species (INNS) walkover survey was carried out during the month of June 2021 in order to assess any INNS within the site. Wall cotoneaster, listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), was recorded during the survey:

Refer to INNS Report (Tetra Tech, 2021e) for recommended working practices to prevent further spread of INNS.

SUMMARY

Habitats & Species

- Habitats suitable for breeding birds;
- Habitats supporting diverse invertebrate assemblages or notable species;
- Habitats suitable for roosting, foraging and commuting bats;
- Habitats suitable for foraging badger and sett building;
- Habitats suitable for foraging and breeding red squirrel;
- Habitats suitable for reptiles;
- Habitats suitable for amphibians including GCN. However, GCN survey confirmed likely absence of this species; and
- Invasive species requiring control/management.

RECOMMENDATIONS

Mitigation

- The species-rich grassland in the north-west of the site, is proposed for translocation (Tetra Tech 2021g). As part of the grassland translocation, any caterpillars, larvae or eggs should be moved with the grassland. Refer to the NVC report (Tetra Tech 2021g) and Invertebrate Report (Tetra Tech 2021f) for further details.
- Any birds-foot trefoil plants located in other parts of the proposed Hub Site, should be identified prior to works and protected and retained if within a retained area, or translocated to another suitable area if proposed to be lost to development. Any caterpillars, larvae or eggs identified should also be translocated with the plants.

Pre-construction Checks

- This list is not exhaustive, and recommendations held within previous reports should be followed.
- Construction should ideally be undertaken outside of the bird breeding season which extends from March to September. Any vegetation to be removed should be checked immediately prior to clearance for bird nests or roosting bats. (Tetra Tech, 2021a, 2021b and 2021c).
- Implementation of a wildlife sensitive lighting scheme for both the construction and operational phases of the development. The design should avoid and minimise light spill on to habitats used by foraging and commuting bats such as the woodland on and adjacent to site. (Tetra Tech, 2021b).
- As per the reptile report (Tetra Tech, 2021h) site clearance should be undertaken outside of the reptile and amphibian hibernation period (October 1st and March 31st inclusive).
- Pre-construction checks for badger and red squirrel. (Tetra Tech, 2021a).
- Reasonable avoidance measures for reptiles and amphibians (Tetra Tech, 2021d and 2021h).
- A toolbox talk should be provided to the contractors at the start of the works. The toolbox talk will detail any RAMs and should also mention other animals and plant species that may be encountered on site during works, such as hedgehog.
- All invasive species must be eradicated from the site prior to the main ground works taking place. Measures for continues prevention of spread and a monitoring programme must be

implemented along with good on-site biosecurity practices during eradication. (Tetra Tech, 2021e).

Document Control				
Revision:	**V1**	**Status:**	**Final**	
Date:	14/02/2022			
Prepared by: Lucy Bennison Assistant Ecologist		**Checked by:** Patryk Gruba MCIEEM Senior Ecologist		**Approved By:** Laura Holmes MCIEEM Associate Ecologist
Revision:	**V2**	**Status:**	**Final**	
Date:	**31/03/2022**			
Amended by: Elizebeth Wilcox Consultant Ecologist		**Checked & Approved By:** Candice Howe MCIEEM Principal Ecologist		
Description: Updated to account for adjusted masterplan document.				

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- Tetra Tech (2021c) CMIQ Breeding Bird Survey. Project code 784-B029668.
- Tetra Tech (2021d) CMIQ GCN Report. Project code 784-B029668.
- Tetra Tech (2021e) CMIQ INNS Report. Project code 784-B029668
- Tetra Tech (2021f) CMIQ Invertebrate Report. Project code 784-B029668
- Tetra Tech (2021g) CMIQ National Vegetation Classification Report
- Tetra Tech (2021h) CMIQ Reptile Report. Project code 784-B029668
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FIGURES

Site Location Plan

CMIQ Proposed Hub

Copeland Borough Council

Legend

- Site boundary
- CMIQ site boundary

Notes:

Drawn by: JB
Checked by: EW
Office: Southampton

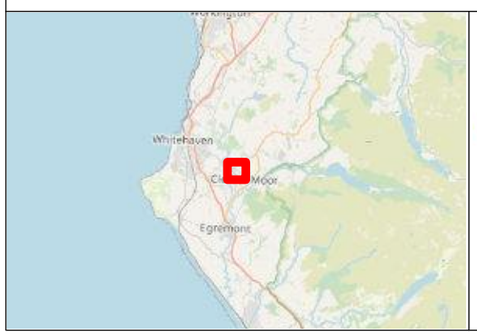
Figure No. 1
Revision No. B

0 50 100 150 200 Meters

Scale 1:5,000 @A3

01 April 2022

NGR: 301690E 515529N



TETRA TECH

The Pavilion, 1st Floor
Botleigh Grange
Office Campus
Hedge End
Southampton
Hampshire, SO30 2AF

Phase 1 Habitat Plan

CMIQ Proposed Hub

Copeland Borough Council

Legend

- Site boundary
- A — Amenity grassland
- Hardstanding
- SI — Neutral grassland - semi-improved
- Neutral grassland - unimproved
- Marsh/marshy grassland
- Broad-leaved semi-natural woodland
- Tall ruderal
- Fence
- Standing water in wheel ruts
- Tree with moderate bat roost potential

Notes:

Drawn by: JB

Checked by: EW

Office: Southampton

Figure No. 2

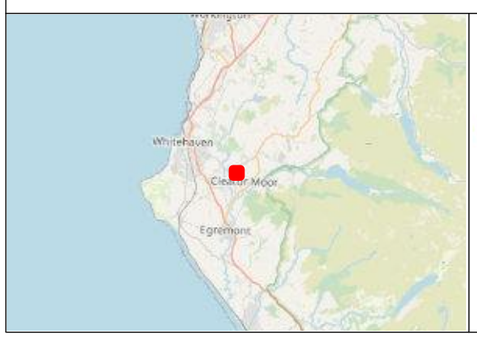
Revision No. C

0 20 40 60 80 Meters

Scale 1:2,000 @A3

01 April 2022

NGR: 301690E 515529N



TETRA TECH

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Office Campus
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APPENDIX A – REPORT CONDITIONS

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The “shelf life” of the Report will be determined by a number of factors including; its original purpose, the Client’s instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

APPENDIX B - DRAWING REFERENCE (CMIQ-NOR-HUB-ZZ-DR-A-90002 - SITE - PROPOSED PLAN_P03)

ISO A0 - 841mm x 1189mm

PROPOSED PLAN

SCALE: 1 : 500

- APPLICATION BOUNDARY
- ADDITIONAL LAND UNDER COUNCIL OWNERSHIP

Layout depicted represents a possible site layout to indicate a potential site use

- GRASS
- EXISTING TREES
- HARDSTANDING / FOOTPATH
- ROAD
- POTENTIAL BUILDING FOOTPRINT

0 2 4 6 10 20 m

DATE	REVISION	REV	DR	CH
20/01/22	REVISION 1	P01	JS	DS
04/03/22	AMENDED RED LINE	P02	JS	DK
15/03/22	AMENDED RED LINE	P03	JS	DS

Keyplan

North Arrow

True North

Consultants

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SET OFFICE INFORMATION

www.norr.com

Client Name: COPELAND BOROUGH COUNCIL		Drawing Title: SITE - PROPOSED PLAN	
Project: CLEATOR MOOR INNOVATION QUARTER (HUB)			
Drawn: JS	Date: 21-12-21	Sheet Status: S3 - FOR REVIEW	
Checked: DS	Date: 21-12-21	Project No.: IANC21-0043	
Scale: As indicated @ A0		Drawing No.: CMIQ-NOR-HUBZZ-DR-A-90002	Rev: P03