Cornish Lithium

Submission by Cornish Lithium Geothermal Limited.

Town and Country Planning (General Permitted Development) (England) Order 2015 Notification to the Mineral Planning Authority to carry out a Programme of Exploration Drilling on land near Tolgus, Cornwall

(23rd February 2024)

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1. Introduction

Cornish Lithium Geothermal Limited ("CLGL") wishes to carry out a mineral exploration drilling programme on a site in the Redruth-Tolgus area of Cornwall ("Site"). CLGL plan that one borehole is diamond cored to 2000 m from the Site, (Figure 1). The drilling is estimated to take less than six months to complete.

The purpose of this mineral exploration drilling programme is to target known permeable geological structures at depth. The aim is to intercept naturally circulating Li-enriched geothermal waters and test for their Li concentration.

CLGL are seeking to undertake the mineral exploration drilling programme under Schedule 2, Part 17 (Section K) of The Town and Country Planning (General Permitted Development) (England) Order 2015 ("GPDO"). Under the terms of this Order, CLGL are obliged to notify the Mineral Planning Authority ("MPA"), Cornwall Council, that it wishes to undertake the proposed activities, and for the MPA to confirm that such activities may be undertaken.

This document is CLGL's notification to the MPA as required under this Order ("Notification").

2. Company Overview

Cornish Lithium Plc. ("CLP") is a highly innovative mineral exploration company, focussed on the sustainable extraction of lithium and other battery metals in the historically significant mining district of Cornwall. Metals such as lithium are the key enablers of the transition to clean energy given their role in power storage batteries, making them vital components of the future UK economy. CLGL is a wholly owned subsidiary of CLP.

Cornish Lithium Plc., based in Cornwall, employs c.75 geoscientists, engineers, finance, and administration staff in its offices across Cornwall located in Penryn, United Downs and St Austell. Since CLP's inception in 2016, CLGL have assembled a large data set from both historic and modern sources. CLP have built an extensive digital sub-surface geological model of Cornwall, which are being used to evaluate mineral prospects. CLP has secured extensive mineral rights agreements across Cornwall, enabling CLP to use modern exploration techniques on a regional basis.

More information about CLP can be found on our website – www.cornishlithium.com.

3. Site Overview

CLGL have identified the Site from which to drill one mineral exploration borehole outlined in Figure 1. CLGL have an agreement with the surface landowner and the minerals owner covering the Site. The Site is outlined in Section 3.

A comprehensive photographic record of the proposed drilling site will be compiled prior to drilling, to ensure all areas are suitably remediated to a standard commensurate with their prior state within 28 days of the conclusion of drilling activities.

Drill Site: Land near Tolgus, TR15 3TA (south of the A30 nr. Tolgus): An improved grassland field with surrounding grassland fields consistently used for grazing/hay production or are suburban. Access to the field can be gained via an existing gateway with Cornish Hedge at the roadside. The access to the Site is through a gateway adjoining a suitable minor road. Cornish Lithium will follow the advice contained within the ecological survey when entering the Site (Appendix 4).

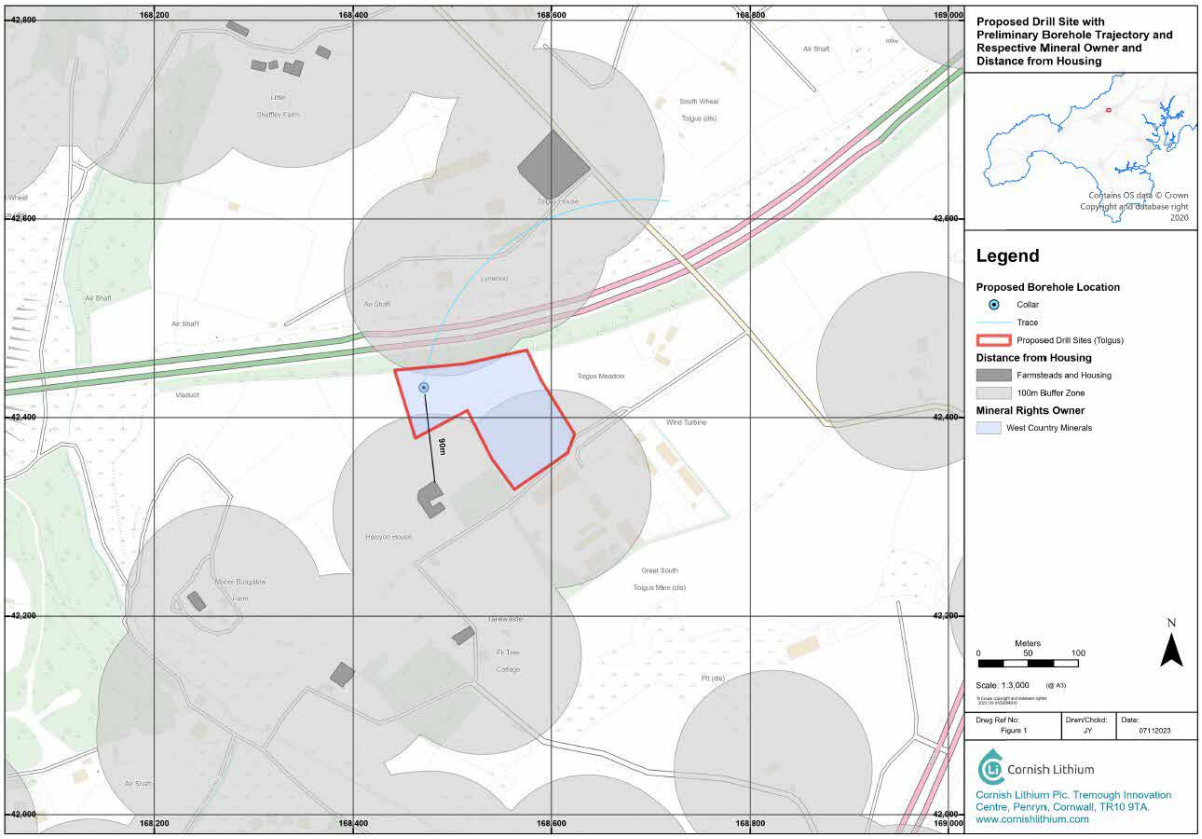

Figure 1: Map of the proposed drilling area and corresponding landowners registered by the land registry. Arrows indicate the distance to the boundary of the nearest noise receptor.

4. Land Ownership and Mineral Ownership

CLGL have entered an agreement with the surface landowner to permit the drilling. Mineral rights of the Site (CL 301422) are owned entirely by Westcountry Minerals Ltd. CLP has entered into an Exploration and Option Deed with Westcountry Minerals to enable CLGL to conduct exploration activities for Lithium in geothermal waters and all minerals (Figure 1).

5. Historic Mining and Mineral Exploration, Tolgus Area

The Site is close to the former Tolgus mines which consisted primarily of Tolgus, South Tolgus, Great South Tolgus and West Wheal Tolgus. It also included amalgamations of several smaller mines including Wheal Tehidy. Most of the mining in the area ceased at the end of the 19th Century (Figure 2).

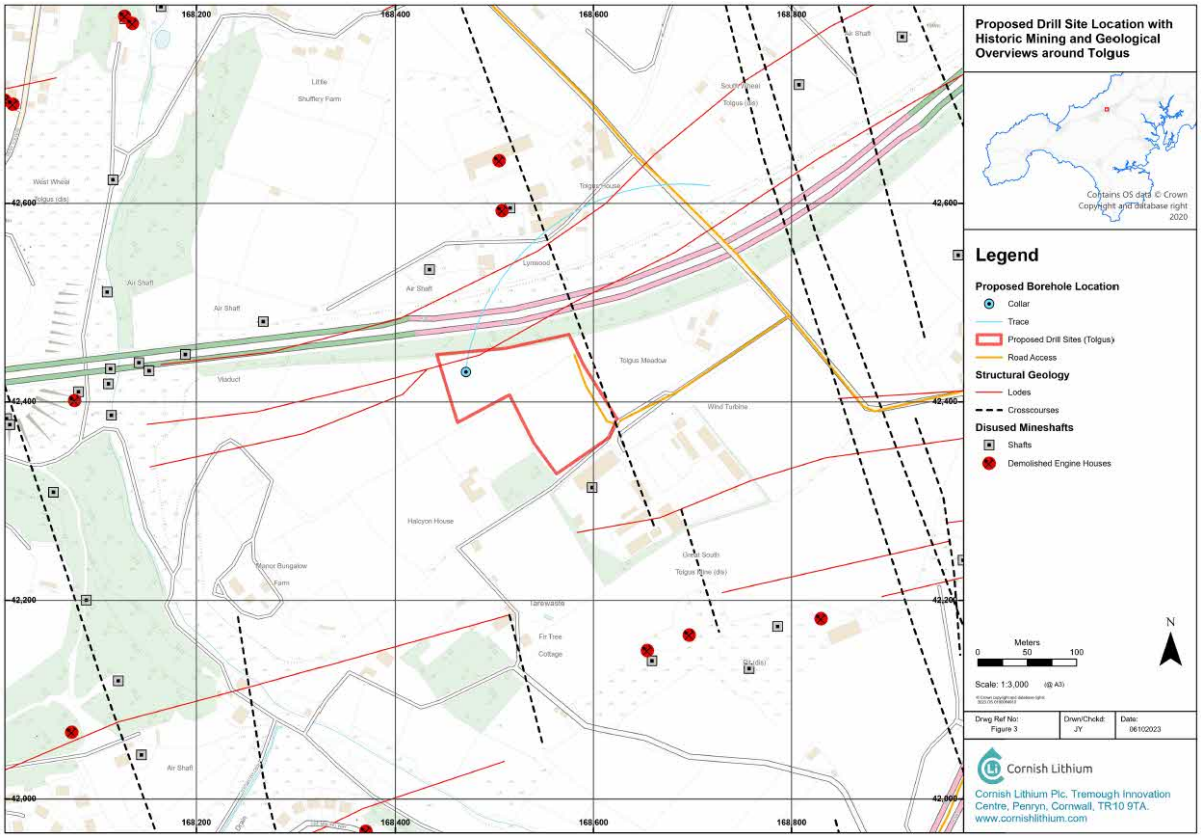

Figure 2: Historic mining and exploration near Tolgus

6. Land Designation over Areas to be Drilled

CLGL have made appropriate checks to ensure that all land designations are respected during the drilling programme. Where contact has been made with the relative stakeholders, discrete sections are given below. For all other land designations refer to Table 1.

6.1. Landscape Characterisation

The Site is situated on land designated under Cornwall Council's Landscape Characterisation system as "a small scale rolling landscape with underlying slates and siltstones", "post industrial mining landscape with many visible mining relics, including old engine houses and revegetating spoil heaps with remnant surviving or developing woodland, heath or wetland" and "pastoral landscape of improved and rough grazing with extensive areas of rough land". Historically the land is classified as 'Post-Medieval Enclosed land'. The land is now a "settled pasture".

6.2. World Heritage Site (WHS)

The planned borehole is located outside and to the north the Cornwall and West Devon Mining Landscape World Heritage Site ("WHS"), area A5i 'the Camborne and Redruth Mining District (A5i) with Wheal Peevor and Portreath Harbour (A5ii)' (Figure 3).

The WHS Management Plan 2013 – 2018, Section 5.2.3 (Protection of Mineral Resource) states;

*"*As the Cornish Mining World Heritage Site is a landscape designation, the whole cultural landscape is significant and requires greater definition and understanding in order to secure its protection, including mineral resource assessments. As an evolving, living landscape, however, it is not our intention to sterilise or deny access to mineral resources for the future, providing that features of Outstanding Universal Value (*"*OUV*"*) are protected."

It is therefore noted that the WHS encourages exploration and mining within the WHS provided that historic mining features of OUV are protected.

Contact was made with the WHS to provide comments on the drilling site (Appendix 1). It was identified that the Site is not within a Cornwall and West Devon Mining Landscape World Heritage Site, the nearest boundary being c. 650 m to the east at Sara's Foundry, Redruth (Figure 3). It is acknowledged that the proposed drilling will not harm the OUV (international importance) of the World Heritage Site.

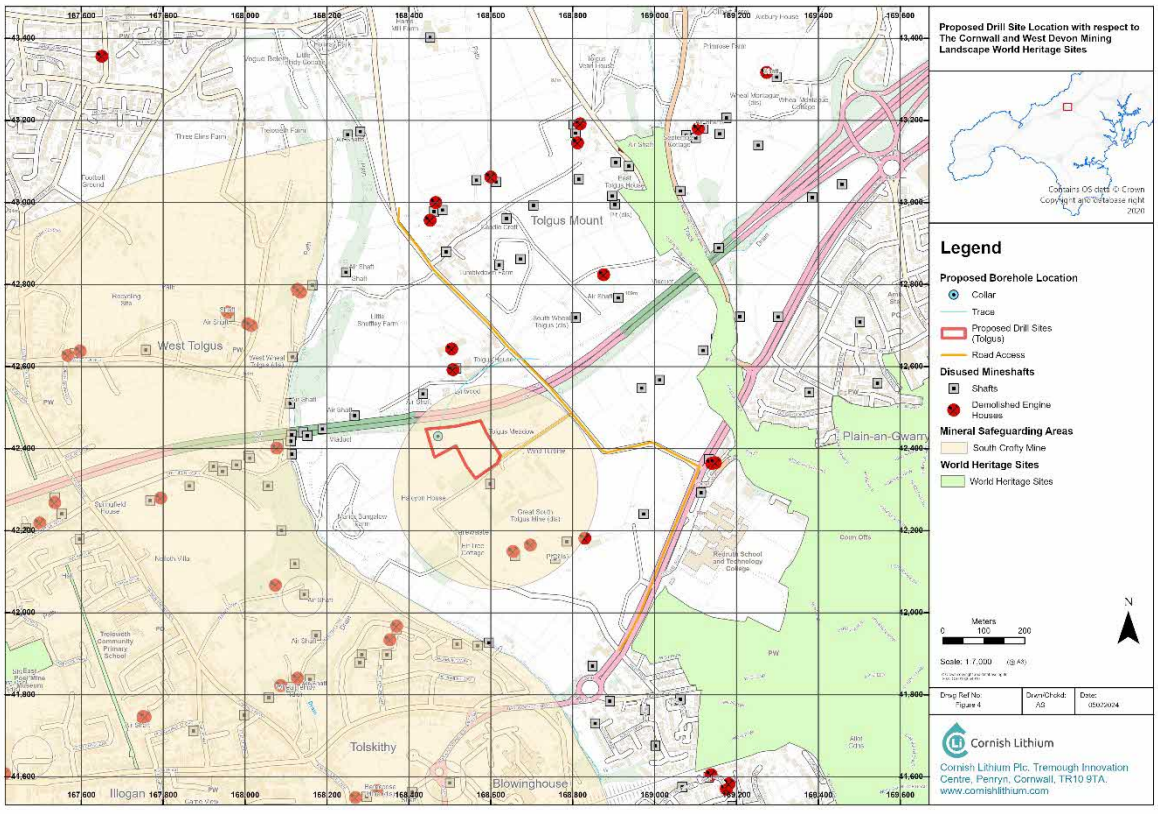

Figure 3 Proposed site location with respect to Mineral Safeguarding Areas and World Heritage Sites

6.3. Mineral Safeguarding

The Mineral Safeguarding Development Plan Document ("DPD") identifies that the proposed borehole collar, and the proposed borehole trajectory are within the mineral safeguarding areas (Figure 4).

The vision of the Mineral Safeguarding Area is outlined in the DPD. The concept draws on the vision and objectives outlined in the Cornwall Local Plan and states "Cornwall will have a world class thriving minerals industry that serves local needs as well as exporting minerals to serve regional and national markets by encouraging the sustainable use of resources." with the objective "To safeguard mineral resources, sites and infrastructure from other forms of incompatible development.".

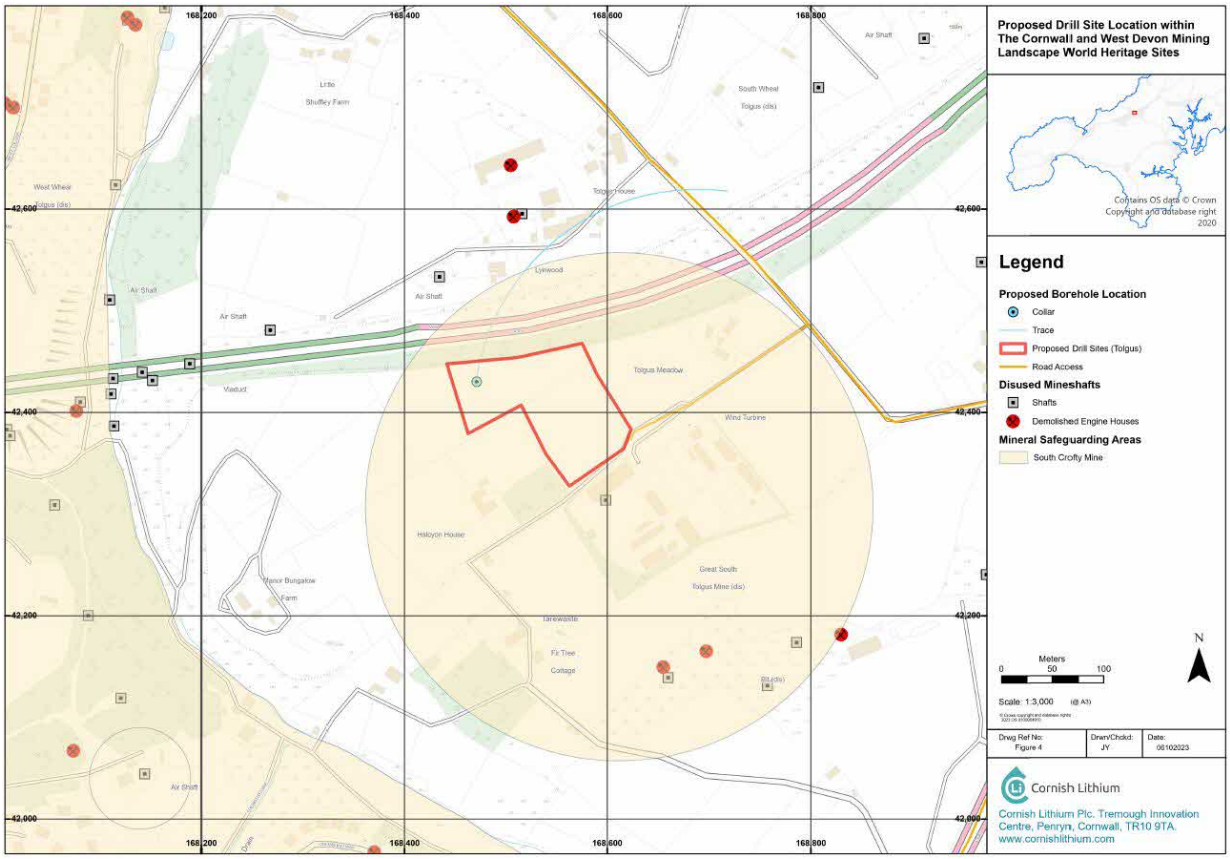

Figure 4 Proposed site and projected borehole trajectory in relation to nearby Mineral Safeguarding Areas

6.4. National Highways Agency

A geotechnical risk assessment is being undertaken by a third-party consultant to assess whether the drilling will affect the affect the A30. The project will not go ahead if the risk is deemed too high. The assessment will be completed before the commencement of the drilling and can be provided to National Highways Agency.

6.5. Other Designations

Table 1: List of land designations for Tolgus:

Designation	Name of Nearest Designation	Distance to nearest Borehole
Ancient Woodlands	Feadon/Nance Woods	2.8km
Area of Outstanding Natural Beauty (AONB)	Godrevy to Portreath	2.9km
Common Land	Carn Brea	1.2km
Conservation Areas	PLAIN-AN-GWARRY DCO92	0.9km
County Wildlife Sites	Carn Brea K7	1.2km
Listed Buildings	Grade II*: DCO6347, Sara's Foundry, Town Mill	0.7km
Local Nature Reserves	Red River Valley	3.1km
National Parks	None	
RAMSAR sites	None	
Royal Society for the Protection of Birds (RSPB) Reserves	Hayle Estuary	11.5km
Schedule of Ancient Monuments	The Tolgus arsenic works 80m south east of East Tolgus House 1021240	800m
Sites & Monuments	The Tolgus arsenic works 80m south east of East Tolgus House 1021240	800m
Sites of Special Scientific Interest (SSSI)	West Cornwall Bryophytes	2km
Special Areas of Conservation (SAC)	Godrevy Head to St Agnes	8.1km
Special Protection Areas (SPA)	Marazion Marsh	
Tree Preservation Orders (TPO)	W2/W6/10/08 – Camborne – Redruth U. D.	0.9km
Zones of Influence Natura 2000	Equidistant to Fal and Helford SAC and Penhale Dunes SAC	1.7km
Ground Susceptible to Surface flooding	Very unlikely	
Ground Susceptible to Groundwater flooding	Unlikely	
World Heritage Sites	Camborne and Redruth Mining District(005i) with Wheal Peevor (005ii)	0.7km
Area of Special Advertisement Control		
Mineral Safeguarding	Within South Crofty Mine Mineral Safeguarding	
Southwest Greenspace		
Contaminated Land	No	

7. Proposed Works

7.1. Target, Timing, and Siting

The proposed mineral exploration drilling programme is planned to commence in April 2024 and is expected to take 6 months to complete. A single diamond cored borehole from the Site is planned (see trace in Figure 1), although if technical issues are encountered, other holes may be drilled from the same location, within the overall programme. The time expected to complete the first borehole with 12-hour drilling is 186 days, which includes set up time, pull down time, testing and standby time (non-drilling time). Therefore, 24-hour drilling, 7 days per week is required to complete the borehole within the 6-month period. This will allow the works to be completed within the constraints of a GPDO, to follow the planned CLGL project timeline and to allow for any unexpected drill rig maintenance.

The planned borehole will be sited at least 103 m from known dwellings. A summary of the planned borehole parameters is given in Table 2 and shown in plan view on (Figure 1). It should be noted that some adjustments may be made to the final borehole location, to meet landowner requirements or because of new information which may become available.

The drill site will include a 26 m x 23 m drill pad around the planned borehole consisting of associated infrastructure. The ground will be covered with gravel or mud mats and walking platforms to prevent excessive damage to the surface of the field. Within the drill pad a sump and trench will be dug, and a submersible pump will be placed in the trench to recirculate drill fluids. Mud mats and/or gravel may be used to facilitate access to the drill pad, and to reduce damage to the surface of the field. Existing, well utilised gateways will afford access to the Site, however, widening of an existing gateway may be required to allow the drill rig entry to the Site. If any topsoil scrape is required as part of the Site preparation works, then this will be stored separately for reinstatement, likely in the form of temporary bunds around the drill pad.

Table 2: Summary of planned mineral exploration borehole. Please note that this is subject to change as and when new information is made available. Position recorded in British National Grid.

Site ID	Easting	Northing	Azimuth	Dip	Length (m)	Distance to nearest dwelling (m)
Planned Borehole	168472	042421.2	005	80	2000	103 m

7.2. Drilling Contractor and Equipment

CLGL have identified Priority Drilling Company Ltd. ("PDL") as the preferred drilling contractor. They have successfully drilled for multiple exploration companies in Cornwall, including the recent drilling at Wheal Vor by Cornish Tin Limited and South Crofty by Cornish Metals Inc. They also successfully completed CLGL's previous drilling programmes at United Downs, Twelveheads, Blackwater and St Austell. PDL have previously demonstrated their ability to safely complete the job required. They have consistently met the environmental and community standards when drilling in proximity to neighbouring stakeholders and have proven compliance with high health and safety standards. PDL use local labour wherever

possible and are compliant with all UK Health and Safety Executive ("HSE") competency frameworks.

A photograph of the DBC S25 drill rig to be used is shown in Appendix 2. It is expected that any drill rig used during this proposed drilling program will be the same machine, or similar, as that shown.

7.3. Borehole Design

The upper 200 m of the borehole will be diamond cored in PQ diameter (122.6 mm Hole Diameter ("HD")), and the lower 1800 m in HQ diameter (96 mm HD). PW (139.7 mm Outside Diameter ("OD")) casing will be used for hole stability between surface and rockhead and will be cemented in place to control surface waters. The borehole will be drilled by rotary diamond drilling, with no pneumatic or percussive drilling required.

7.4. Sampling

During drilling, structures which are believed to be permeable will be isolated using a packer system and their permeability will be tested using standard hydrogeological testing methods. Several water samples will be taken from the isolated intervals for Li analysis using a submersible borehole pump. CLGL will ensure that less than 20 m^3 of water is pumped from the borehole per day, as set by the Environment Agency ("EA"). After receiving the permissions from the MPA for this project, CLGL will submit a Groundwater Investigation Consent (GIC) application to the EA, to increase testing volumes permitted. Water will be stored safely at surface and re-circulated as part of the drilling process and hydrogeological test work. It is planned that 24-hour hydrological testing will be undertaken to allow for accurate characterisation of the reservoir's capabilities.

Drill core will be recovered over the entire length of the borehole. All drill cores will be placed in core boxes and removed from Site for further testing.

7.5. Borehole Completion

The borehole will be adequately capped at surface and the Site will be fully reinstated within 28 days of borehole completion. CLGL are currently in discussion with the EA regarding borehole completion, and access for future test work. It is proposed that if the borehole is unsuccessful, the borehole will be capped at least 60 cm below surface and covered with topsoil to ensure no future damage from agricultural activity. If successful, the borehole will remain open, but made safe and secure, and will be used for ongoing water level monitoring and future test work; the PQ drill rods will remain in the borehole to 200 m MD, to isolate surface waters and for borehole stability. CLGL will approach the MPA and EA with regards to future test work. Any waste material generated from the drilling will be removed from Site and properly disposed of (see Section 8.8).

7.6. Public Safety

All Site traffic will take extra care when entering Site and using the Site for access, and the safety of any members of public using road will be ensured at all times. CLGL and PDL staff will be posted at either end of the road during drill rig mobilisation (see Section 8.7), to ensure members of public do not stray into this area and can pass safely for this limited duration.

The drill pad, located within the Site will always be supervised during operation. It will be securely fenced using temporary 'heras' style fencing to restrict Site access. When the drill rig is unattended, motion sensitive security cameras will send alarms and footage to the drilling supervisor if any motion is detected.

8. Environmental Management and Community Relations

8.1. Working Hours

All drilling and sampling operations will be undertaken over two 12-hour shifts (24 hour working period), seven days per week (Monday to Sunday), including both weekends and Bank Holidays. Other operations supporting the mineral exploration drilling programme, including the establishment of drill pads, mobilisation of drill rigs, and all Site restoration works will only be carried out during the day shift, between 07:00 & 19:00. This is necessary for CLGL to meet the project timeline outlined and to allow for unexpected delays which may arise when considering drill rig maintenance and breakdowns, as outlined in Section 7.1. When 24-hour drilling is not required, a 12-hour drilling rota will be used (between 07:00 & 19:00).

All works will be conducted following the recommendations given by the Noise and Ecology surveys and EA liaison, outlined in the sections below:

8.2. Noise

A baseline noise survey was carried out in November 2023 as per Appendix 3. The results established an existing background:

Daytime level of 54 dB L_{Aeq} / 43 dB L_{A90}

Evening level of 50 dB L_{Aeq} / 43 dB L_{A90}

and night-time level of 47 dB L_{Aeq} / 31 dB L_{A90}

at nearby residential properties (Appendix 3).

Inspection of the measured ambient sound levels indicates that noise limits during the respective periods, as derived from the guidance given in the National Planning Practice Guidance for Minerals at the closest receptors, applicable to this noise assessment are (Appendix 3):

55 dB $L_{Aeq,t}$ during daytime hours (07:00-19:00)

55 dB $L_{Aeq,t}$ during evenings hours (19:00-22:00)

42 dB $L_{Aeq,t}$ during night-time hours (22:00-07:00).

The baseline noise survey predicts that sound levels at all the nearest residential receptors are within the proposed noise limits set for day and evening operations. For night operations the erection of an acoustic barrier is necessary for the proposed borehole at the Site so no "unreasonable burden" is placed upon the affected dwelling.

The acoustic report recommended that CLGL suppress the noise levels by using bales stacked up to 4 m around the north, east, and south side of the Site (A30 facing). CLGL will take all appropriate mitigations to drill within the proposed set limits. The drilling contractor will be contractually obliged to meet the set noise limits, and CLGL will liaise closely with local residents to address any perceived concerns.

8.3. Ground Vibrations

It is planned that the borehole will use only rotary diamond drilling which does not cause significant ground vibration. CLGL is confident that no drilling vibrations will be felt or have any effect on local residents or known dwellings. No blasting will be undertaken.

8.4. Health and Safety

The drilling contractor shall be designated as Operator under the Borehole Sites and Operations Regulations 1995, Health and Safety at Work Act and will be responsible for notifying the Health and Safety Executive prior to drilling commencement.

8.5. Buried Cables, Pipelines and Overhead Lines

CLGL have undertaken appropriate checks at the Site to confirm the locations of all buried cables or gas/water/sewage pipelines. CLGL have also checked for clearance of drilling equipment under overhead lines. Due to the presence of overhead High Voltage ("HV") 11 Kv powerlines, National Grid was approached to comment on any height restrictions during operating. The drill rig being used with a 12 m mast must be sited outside of the topple zone equal to its own height plus 10% and height restriction markers will be used. On these recommendations it is safe to use any vehicle with a fixed height of up to 5.7 m.

Wales and West Utilities Ltd. have visited the Site and have determined that the buried intermediate gas mains on Site will not be affected by drilling operations and a buffer of at least 3 m either side of the buried gas mains will be made. No piling of materials will be made on the surface above the buried pipeline.

The guidance for working and excavating near overhead cables is attached in Appendix 5.

The guidance for working and excavating near buried gas pipelines is attached in Appendix 6.

8.6. Mud and Dust

Diamond drilling is a wet operation, and no significant dust will be generated during the programme. If excessive dust is generated by the movement of vehicles, then water will be used as a suppressant.

CLGL will use mud mats or gravel to limit the amount of mud carried onto the road and to limit the damage to the surface of the fields. Any mud carried onto public roads because of the drilling will be cleaned immediately to ensure the safe movement of traffic.

8.7. Transport Management Plan

CLGL anticipate that the mineral exploration drilling programme will start in April 2024, and the following traffic management plan will be put in place for the mobilisation of drilling equipment for this date.

The drill rig and its equipment are the largest to be mobilised. This will only occur once at the beginning of the programme and once at the end. In total, 4 Heavy Goods Vehicles (HGVs) will carry the drill rig and its equipment over a two-day period to/and from the Site. All mobilisation and demobilisation will occur along the route outlined in Figure 5. The HGVs will be unloaded on track off of the B-road adjacent to the Site (Figure 5), with CLGL representatives managing and minimising disruption to traffic. CLGL planned rig is track mounted and can easily move around the Site under its own power. CLGL will ensure that any mobilisation of the rig will not be done at peak times and will aim to avoid busy periods (for example, rush hour, school run times and events etc.). This is to minimise the impact on local communities and the normal flow of traffic. Detailed instructions will be supplied to the drilling contractor before mobilisation.

Light vehicle movements to and from the Site by CLGL personnel and the drill site operators will be limited. Traffic is expected to be via two or three pick-ups, vans or cars, and will not significantly increase the typical flow of traffic. Most movements will be to and from CLGL's Geothermal Water Test site, located at United Downs. See Table 3, for a list of anticipated vehicle movements.

Table 3: List of anticipated vehicle movements

Movement	Size	Contents
Mobilisation/Demobilisation (2 days – start and end of programme, day-time only)	3 HGV Low loaders	Drill rig, equipment, tractor & water bowser +/- telehandler
	1 HGV Rigid	
	2 light vans	
	1 pick-up	
Daily – access to site etc. (infrequent but may occur 24 hrs per day. Frequency will reduce at night)	2 pick-ups	Personnel
	Up to 2 light vans	Personnel / Tools
	1 Car	Personnel
Weekly – transport waste to licenced facility	Tractor & water bowser	Licenced waste from drilling

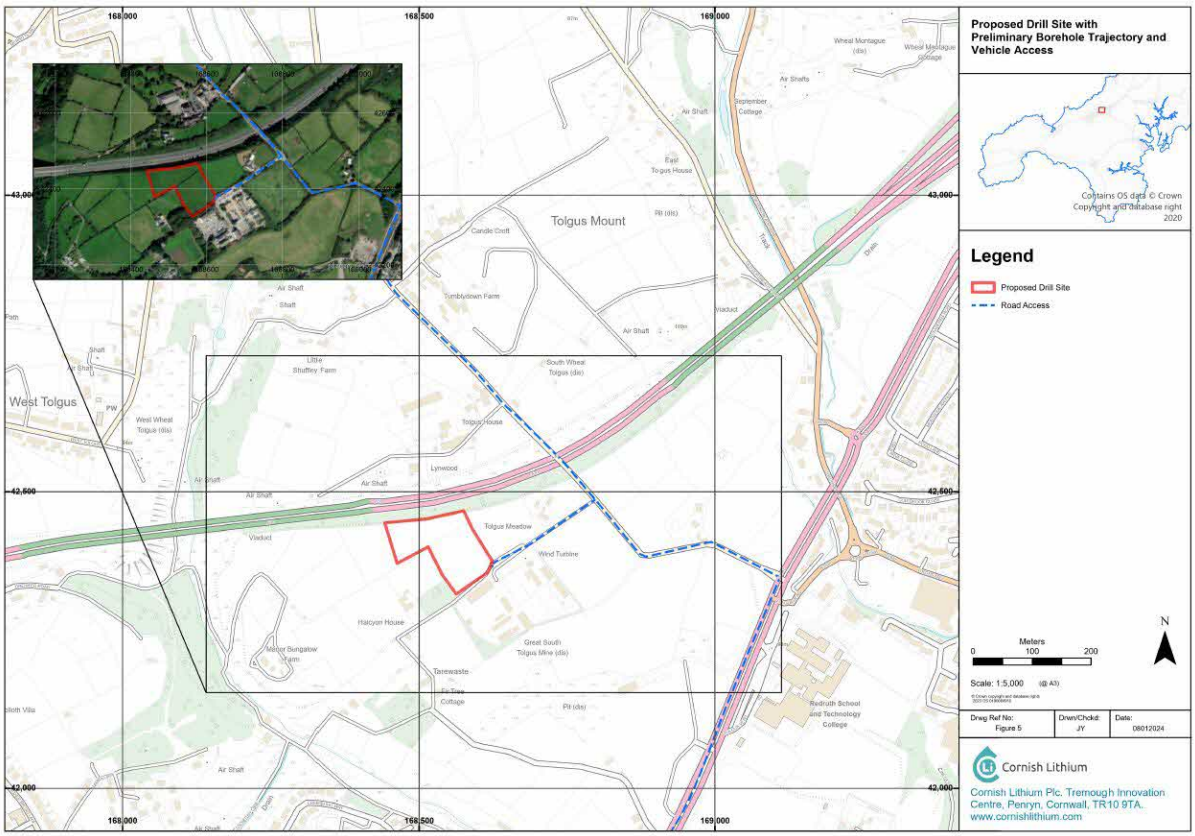

Figure 5 Recommended mobilisation route from the A30. Includes anticipated light vehicle access route from CLGL's Geothermal Water Test site at United Downs. Inset map illustrates access route through the field.

8.8. Water

It is anticipated that a metered spur from the existing mains water connection at the southwest corner of the Site will be installed. The owner of the water supply will then be reimbursed for the water used. Blue alkathene pipe will be laid at surface around the donkey enclosure, from the spur to the proposed drill area. It will trickle feed a water bowser or tank near the borehole and be used for the drilling operations. Water is required during drilling along with drilling additives to lubricate and cool the drill steels and drill bit. It also ensures that the drill cuttings are removed from the borehole and that the walls of the borehole remain stable. The water will return to surface up the outside of the borehole, and be recirculated, reducing the volume of mains water used. All drilling fluids will be collected at the surface in tanks (or bladders) in a closed-circuit system.

A small amount of waste (additives and drill cuttings) will be removed from Site to a licenced disposal site, subject to characterisation, and the water recycled. CLGL are also seeking permission from the EA to discharge abstracted water during test work, described in Section 9.3.

All proximal private water supplies have been identified (Appendix 7) within a 5 km radius of the borehole location. This is so that CLGL can monitor any potential interaction with local shallow boreholes.

8.9. Light pollution

To reduce light pollution at night, the use of external lighting will be lowered to the minimum required to work safely during the operations. CLGL will ensure that the lighting is low level, directional lighting with minimal spill and glare. Lighting towers will be directed away from properties and away from hedgerow and treeline habitats and A30. CLGL endeavour to minimise any light pollution to nearby dwellings or animals living in hedgerows and trees.

The lighting towers that are used by PDL are no brighter than 4200 lumens, which is comparable to a single standard streetlight bulb when subject to no mitigation. The height of the lighting is adjustable, and therefore can be altered appropriately, to maintain a safe working environment and reduce light spill. The lights on the drill site can be shrouded and targeted at the working area, further reducing light spill away from the target area. Additionally, bales will border the northern side of the Site up to 4 m high to block any light spill or glare to the local village and habitats. CLGL will also follow the mitigations outlined in an ecological impact survey of the Site (Appendix 4).

8.10. Ecology

An ecological impact survey was carried out at the Site. The survey concludes that the residual impact of the proposed borehole is likely to be ecologically neutral, providing suitable mitigation measures are implemented. These are outlined in Appendix 4 and include providing ramps for hedgehogs and badgers in any pits/excavations, using low level directional lighting with minimal spill to reduce impacts to nocturnal species and siting the drill pad at least 20 m from hedgerows as well as maintaining as 20 m buffer from the base of hedgerows for any stored materials.

On siting of the drill rig it is stipulated that an ecologist must be present to ensure no nesting birds are present if the drill rig is to be sited between the months of May and September.

CLGL commits to always following best ecological practises and to implement the mitigation recommendations of the ecological impact survey.

9. Public and Stakeholder Consultation

Public and stakeholder engagement is critical to any project and CLGL take this responsibility very seriously. CLGL has begun liaising with the local community and key stakeholders. CLGL have good relations with relevant stakeholders in the nearby areas, and have engaged with the project specific stakeholders for Tolgus, which lies within the Redruth council area, are outlined in the subsections below:

9.1 Town Council

CLGL's principal contact at Redruth Town Council is the relevant Clerk, the council was contacted on the 9th of January 2024 and again on the 30th of January 2024 via the clerk to inform them of this new project near Tolgus, and the engagement and necessary steps surrounding this. As the project area is close to Carn Brea council boundary, an email was sent

to their clerk on the 30th of January 2024 with information of the project and an invitation to attend a council meeting if they wished. The councils have been provided with a fact sheet outlining CLGL and the exploration for lithium from geothermal waters, including a map of the Site area and photos of the drill rig. CLGL have arranged to attend Redruth council meeting in February to detail this project further, and will provide a more information once conditions have been set for the exploration programme. CLGL has previous engagement with Redruth Town council for various project updates and outreach events in the area that have been attended, such as the Mining and Pasty festival. Contact with the council and community in Redruth to date has been positive, and various groups around Redruth have provided advice regarding community engagement in the parish. CLGL plan to maintain good engagement with the council and will inform them of key project updates such as the submission of this GPDO notification.

9.2 Community

CLGL arrange and attend community events throughout the lead up to the mineral exploration drilling programme, as has successfully worked at our previous exploration programmes. CLGL arranged a community presentation event at Redruth Community Centre on the 22nd of February 2024, and following drop-in sessions at Trickys @ the Tolgus Inn in March. Events are booked across a range of dates and times to maximise community engagement. These events are publicised on noticeboards around the community, on CLGL social media accounts, and shared directly with the local councils and key contacts in the area. The community will also be kept informed via updates through the quarterly CLGL newsletter, and project specific updates throughout the project. At all community events, information sheets will be handed out to supply the community with the relevant information and details about our planned mineral exploration drilling programme, and direct contact details should they wish to ask for more information. The community will also get the opportunity to discuss any concerns with CLGL personnel in person and ask for further meetings to discuss any of the project.

Residents and businesses adjacent to the Site identified as being most beneficial of engaging with early on have been informed individually about the mineral exploration drilling programme via a door knocking exercise on the 17th of January 2024 and were generally supportive, with any concerns or queries being addressed as far as possible with each individual. They received a fact sheet outlining CLGL and the exploration for lithium from geothermal waters. Residents in the defined project area received the fact sheet with the project information and contact details via a postal drop on the 2nd of February2024 . This fact sheet also held details of the community presentation on the 22nd of February 2024 for them to attend. Once conditions of the programme have been set a more detailed factsheet will be shared.

CLGL have arranged community information sessions in February and March at the following venues, with more to be booked throughout the programme.

17/01/2024 – Door knocking with information fact sheets;

02/02/2024 – Postal drop of fact sheet and information of project information evening;

22/02/24 – Presentation and information evening for the community at Redruth Community Centre 5-7pm;

26/02/24 – Presentation to Redruth Council;

13/03/24 – Community information event at Tricky's @ The Tolgus Inn 3-5pm.

9.3 Environment Agency

CLGL have a Specific Point of Contact (SPOC) at the Environment Agency, who CLGL have liaised with regarding the proposed works. A pre-notification copy of the required WR-11 notice has been submitted. The notice explains the details of the drilling and sampling programme and how we plan to complete the borehole at the end of the programme.

After receiving the permissions from the MPA for this project, CLGL will submit a Groundwater Investigation Consent (GIC) application to the EA, to increase testing volumes permitted and possibly seeking discharge of abstracted waters onsite in accordance with the GIC and appropriate environmental permits and consent.

10.Complaints Procedure

If there are any issues or concerns at any stage during the drilling campaign, then these can be raised using the complaints portal on our website - https://cornishlithium.com/complaints/.

11. Permitted Development under General Permitted Development Order (GPDO)

11.1. General Permitted Development Order Requirement

The Town and Country Planning (General Permitted Development) (England) Order 2015 Schedule 2, Part 17 (Class K), advises that Permitted Development is;

Development on any land consisting of—

(a) the drilling of boreholes;

(b) the carrying out of seismic surveys; or

(c) the making of other excavations,

for the purposes of mineral exploration, and the provision or assembly on that land or on adjoining land of any structure required in connection with any of those operations.

CLGL wish to undertake an exploratory borehole drilling programme on land near Tolgus in accordance with the above.

Development is not permitted under Section K if;

a) It consists of the drilling of boreholes for petroleum exploration.

The proposed exploration drilling programme is exclusively seeking to test if lithium is present in geothermal waters at depth. This condition is therefore met.

b) The developer has not previously notified the mineral planning authority in writing of its intention to carry out the development (specifying the nature and location of the development).

This submission has been prepared and submitted by the developer (Cornish Lithium PLC) and contains the information required to constitute such notification. This condition is therefore met.

c) The relevant period has not elapsed.

The relevant period will normally elapse 28 days after the notification given to the MPA. This condition will therefore normally be satisfied within this prescribed time period.

d) Any explosive charge of more than 2 kilograms would be used.

No explosive charges are proposed as part of this exploratory borehole drilling programme. This condition is therefore met.

e) Any excavation referred to in Class K(c) would exceed 10 metres in depth or 12 square metres in surface area.

Site levelling for drill site access and drill pad setup may be required, however, any such excavations will be within the area and depth limits defined above. This condition is therefore met.

f) Any structure assembled or provided would exceed 12 metres in height.

All erected structures will be less than 12 meters. The proposed drilling rig has a maximum height of under 12 metres. This condition is therefore met.

Having satisfactorily addressed each of the above points the proposed development is eligible to be undertaken under the terms of Schedule 2, Part 17 (Section K), of the Town and Planning, General Permitted Development Order (England) 2015.

11.2. GPDO Conditions

The GPDO advises that development by Class K is subject to a number of conditions;

a) The development is carried out in accordance with the details in the notification referred to in paragraph K.1(b) unless the mineral planning authority have otherwise agreed in writing;

b) No trees on the land are removed, felled, lopped or topped and no other thing is done on the land likely to harm or damage any trees, unless specified in detail in the notification referred to in paragraph K.1(b) or the mineral planning authority have otherwise agreed in writing;

c) Before any excavation other than a borehole is made, any topsoil and any subsoil is separately removed from the land to be excavated and stored separately from other excavated material and from each other;

d) Within a period of 28 days from operations ceasing, unless the mineral planning authority have agreed otherwise in writing –

i. Any structure permitted by Class K and any waste material arising from other development so permitted is removed from the land;

ii. Any borehole is adequately sealed;

iii. Any other excavation is filled with material from the site;

iv. The surface of the land is levelled, and any topsoil replaced as the uppermost layer, and

v. The land is, so far as is practicable, restored to its condition before the development took place, including the carrying out of any necessary seeding and replanting, and

e) The development ceases no later than a date 6 months after the elapse of the relevant period, unless the mineral planning authority have otherwise agreed in writing.

CLGL will undertake the Tolgus exploration drilling programme as detailed within this notification in accordance with all these conditions.

11.3. Use of GPDO for Similar Minerals Exploration Projects in UK

GPDO's have been successfully used for similar mineral exploration drilling programmes elsewhere in the UK. Notable examples are:

CLGL's previous exploration boreholes which were permitted under a GPDO, and the works proposed within this drilling programme are of similar nature;

Cornish Metals who have completed several drilling programmes in the last 2 years, around United Downs, South Crofty and Carn Brea using a GPDO; and

Cornwall Resources who have completed two phases of exploration drilling on the Redmoor Project near Callington using a GPDO.

CLGL therefore considers that a GPDO can also be used for the mineral Exploration Drilling Programme planned at Tolgus.

11.4. Other Regulatory Notifications

CLGL will also provide standard notifications to the British Geological Survey prior to drilling commencement.

12.Pre-consultation Questions

None received.

1. Appendix 1: WHS Communication

Hello [redacted],

Thank you for your email regarding the proposed exploratory drilling on behalf of Cornish Lithium at the collar site north of Halcyon House, Tarewaste, Redruth, at approximately BNG: SW 68469 42430. I apologise for the extended delay in this reply.

This site is not located within the Cornwall and West Devon Mining Landscape Would Heritage Site, as you note, with the nearest boundary of the Site being some 650m to the east at Sara's Foundry, Redruth. On this basis, and the conclusions of the brief desk-based analysis undertaken, it is considered that proposed drilling will not harm to the Outstanding Universal Value (international importance) of the World Heritage Site.

I hope this is of assistance.

Regards,

[redacted]

[redacted]

Research and Information Officer

Cornish Mining World Heritage Site Office / Sodhva Tyller Ertach an Bys Balweyth Kernewek

Environment and Connectivity
Sustainable Growth and Development

Cornwall Council

Tel: [redacted] (voice activated dialling via Teams)

Email: [redacted]

Web: www.cornishmining.org.uk

CORNISH MINING WORLD HERITAGE

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2. Appendix 2: DBC S25 drill rig

Appendix 2: Example of the DBC S25 drill rig which Cornish Lithium plan to use for this mineral exploration drilling programme. A drill rig with similar specifications may be used.

3. Appendix 3: Baseline Noise Survey

Exploratory Drilling on Land at Tolgus

Noise Assessment for GPDO Application

15th December 2023

inacoustic | truro
Unit 4, The Dry, Mount Wellington Mine, Chacewater, Truro, Cornwall, TR4 8RJ
01872 672400 | www.inacoustic.co.uk | truro@inacoustic.co.uk

Version	1	2	3
Comments	Noise Assessment	Operation Hours Alteration	
Date	28th November 2023	15th December 2023	
Authored By	George Stephens BSc (Hons) TechIOA	George Stephens BSc (Hons) TechIOA	
Reviewed By	Antony Best BSc (Hons MIOA	Antony Best BSc (Hons MIOA	
Project Number	23-512	23-512	

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FIGURES

TABLES

1. INTRODUCTION

1.1 Overview

inacoustic has been commissioned by Cornish Lithium to prepare a noise assessment covering the receptors surrounding the proposed exploration boreholes on Land at Tolgus.

The following technical noise assessment has been produced to accompany the GPDO Application to the Mineral Planning Authority. This report details the existing background sound climate at the nearest receptors, as well as the sound emissions associated with the works during the exploration phase.

This noise assessment is necessarily technical in nature; therefore, a glossary of terms is included in Appendix A to assist the reader.

1.2. Scope and Objectives

The scope of the noise assessment can be summarised as follows:

A baseline sound monitoring survey undertaken in the vicinity of the closest noise-sensitive receptors to the Site;
Detailed sound modelling using the iNoise 2023 modelling suite and ISO9613[1] prediction methodology to predict sound levels at the closest noise-sensitive receptors to the Site;
A detailed assessment of the suitability of the Site, in accordance with relevant standards in respect of sound from the proposed sources; and
Recommendation of mitigation measures, where necessary, to comply with the requirements of the National Planning Practice Guidance in England: Minerals and Noise[2].

[1] International Standards Organisation. ISO 9613-2:1996: Acoustics - Attenuation of sound during propagation outdoors - Part 1: Calculation of the absorption of sound by the atmosphere.
[2] Department for Communities and Local Government (DCLG), 2019. National Planning Practice Guidance for England: Minerals and Noise. DCLG.

2. LEGISLATION AND POLICY FRAMEWORK

2.1. National Policy

2.1.1. National Planning Policy Framework, 2023

The *National Planning Policy Framework* (NPPF)[3] sets out the UK Government's planning policies for England. Planning policy requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise.

The NPPF is also a material consideration in planning decisions. It sets out the Government's requirements for the planning system and how these are expected to be addressed.

Under Section 15; *Conserving and Enhancing the Natural Environment*, in Paragraph 174, the following is stated:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.".

Paragraph 185 of the document goes on to state:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason"

Paragraph 185 refers to the Noise Policy Statement for England, which is considered overleaf.

[3] Department for Levelling Up, Housing & Communities (DLUHC), September 2023. National Planning Policy Framework. HMSO. London.

2.1.2. Noise Policy Statement for England, 2010

The underlying principles and aims of existing noise policy documents, legislation and guidance are clarified in *DEFRA: 2010: Noise Policy Statement for England* (NPSE)[4]. The NPSE sets out the *"Long Term Vision"* of Government noise policy as follows:

"Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development".

The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

> *"Avoid significant adverse impacts on health and quality of life;*
> *Mitigate and minimise adverse impacts on health and quality of life; and*
> *Where possible, contribute to the improvement of health and quality of life".*

The guidance states that it is not possible to have a single objective noise-based measure that defines *"Significant Observed Adverse Effect Level (SOAEL)"* that is applicable to all sources of noise in all situations and that not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.

2.1.3. National Planning Practice Guidance in England: Noise, 2019

Further guidance in relation to the NPPF and the NPSE has been published in the *National Planning Practice Guidance in England: Noise* (NPPG Noise)[5], which summarises the noise exposure hierarchy, based on the likely average response. The following three observed effect levels are identified below:

> Significant Observed Adverse Effect Level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
> Lowest Observed Adverse Effect Level: This is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
> No Observed Adverse Effect Level: This is the level of noise exposure below which no effect at all on health or quality of life can be detected.

[4] Department for Environment, Food and Rural Affairs (DEFRA), 2010. Noise Policy Statement for England. DEFRA.
[5] Department for Communities and Local Government (DCLG), 2019. National Planning Practice Guidance for England: Noise. DCLG.

Criteria related to each of these levels are reproduced in Table 1

TABLE 1: SIGNIFICANCE CRITERIA FROM NPPG IN ENGLAND: NOISE

Perception	Examples of Outcomes	Increasing Effect Lev	Action
No Observed Effect Level			
Not Noticeable	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Noticeable and Not Intrusive	Noise can be heard, but does not caus any change in behaviour, attitude or oth physiological response. Can slightly affect the acoustic character of the area but such that there is a change in the quali life.	No Observed Advers Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and Intrusive	Noise can be heard and causes small changes in behaviour, attitude or oth physiological response, e.g. turning up volume of television; speaking more lou where there is no alternative ventilati having to close windows for some of time because of the noise. Potential for some reported sleep disturbance. Affe the acoustic character of the area suc that there is a small actual or perceive change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and Disruptive	The noise causes a material change in behaviour, attitude or other physiolog response, e.g. avoiding certain activiti during periods of intrusion; where ther no alternative ventilation, having to ke windows closed most of the time becau of the noise. Potential for sleep disturbance resulting in difficulty in ge to sleep, premature awakening and difficulty in getting back to sleep. Qua of life diminished due to change in acou character of the area.	Significant Observed Adverse Effect	Avoid
Present and Very Disruptive	Extensive and regular changes in behaviour, attitude or other physiolog response and/or an inability to mitig effect of noise leading to psychologic stress, e.g. regular sleep deprivation/awakening; loss of appet significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Advers Effect	Prevent

2.1.4. National Planning Practice Guidance in England: Minerals, 2014

Technical guidance on noise was provided in more detail in the accompanying document *Technical Guidance to the National Planning Policy Framework*, dated March 2012, which was superseded in March 2014 by the *Planning Practice Guidance*.

Paragraphs 19 to 22 inclusive of the *Minerals*[6] (NPPG Minerals) chapter of the *National Planning Practice Guidance* are under the heading *Noise Emissions* within the section "*Assessing Environmental Impacts from Mineral Extraction*".

Paragraph 19 states:

"How should minerals operators seek to control noise emissions?

Those making mineral development proposals, including those for related similar processes such as aggregates recycling and disposal of construction waste, should carry out a noise impact assessment, which should identify all sources of noise and, for each source, take account of the noise emission, its characteristics, the proposed operating locations, procedures, schedules and duration of work for the life of the operation, and its likely impact on the surrounding neighbourhood.

Proposals for the control or mitigation of noise emissions should:

> *consider the main characteristics of the production process and its environs, including the location of noise-sensitive properties and sensitive environmental sites;*
> *assess the existing acoustic environment around the site of the proposed operations, including background noise levels at nearby noise-sensitive properties;*
> *estimate the likely future noise from the development and its impact on the neighbourhood of the proposed operations;*
> *identify proposals to minimise, mitigate or remove noise emissions at source; and*
> *monitor the resulting noise to check compliance with any proposed or imposed conditions."*

Paragraph 20 states:

"How should mineral planning authorities determine the impact of noise?

Mineral planning authorities should take account of the prevailing acoustic environment and in doing so consider whether or not noise from the proposed operations would:

> *give rise to a significant adverse effect;*
> *give rise to an adverse effect; and*
> *enable a good standard of amenity to be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure would be above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy."

Paragraph 21 of the Planning Practice Guidance states:

[6] Department for Communities and Local Government (DCLG), 2014. National Planning Practice Guidance for England: Minerals. DCLG.

"What are the appropriate noise standards for mineral operators for normal operations?

Mineral planning authorities should aim to establish a noise limit, through a planning condition, at the noise-sensitive property that does not exceed the background noise level ($L_{A90,1h}$) by more than 10dB(A) during normal working hours (0700-1900). Where it will be difficult not to exceed the background level by more than 10dB(A) without imposing unreasonable burdens on the mineral operator, the limit set should be as near that level as practicable. In any event, the total noise from the operations should not exceed 55dB(A) $L_{Aeq,1h}$ (free field). For operations during the evening (1900-2200) the noise limits should not exceed the background noise level ($L_{A90,1h}$) by more than 10dB(A) and should not exceed 55dB(A) $L_{Aeq,1h}$ (free field). For any operations during the period 22.00 – 07.00 noise limits should be set to reduce to a minimum any adverse impacts, without imposing unreasonable burdens on the mineral operator. In any event the noise limit should not exceed 42dB(A) $L_{Aeq,1h}$ (free field) at a noise sensitive property.

Where the site noise has a significant tonal element, it may be appropriate to set specific limits to control this aspect. Peak or impulsive noise, which may include some reversing bleepers, may also require separate limits that are independent of background noise (e.g. L_{max} in specific octave or third-octave frequency bands– and that should not be allowed to occur regularly at night.)

Care should be taken, however, to avoid any of these suggested values being implemented as fixed thresholds as specific circumstances may justify some small variation being allowed."

Interpreting the guidance given in the NPPG Minerals, with consideration of the guidance given in the NPSE and NPPG Noise, an estimation of the impact of the rating sound is summarised in the following text:

> A rating sound level greater than $L_{Aeq,1h}$ 55 dB is likely to be an indication of a Significant Observed Adverse Effect Level;
> A rating sound level that is +10 dB above the background sound level, up to a maximum of $L_{Aeq,1h}$ 55 dB, is likely to be an indication of a Lowest Observed Adverse Effect Level; and
> The lower the rating sound level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating sound level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, and would therefore classified as a No Observed Adverse Effect Level.

Finally, Paragraph 22 of the NPPG Minerals recognises that some operations may give rise to particularly noisy short-term activities, and states:

"What type of operations may give rise to particularly noisy short-term activities and what noise limits may be appropriate?

Activities such as soil-stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, construction of new permanent landforms and aspects of site road construction and maintenance.

Increased temporary daytime noise limits of up to 70dB(A) $L_{Aeq,1h}$ (free field) for periods of up to eight weeks in a year at specified noise-sensitive properties should be considered to facilitate essential site preparation and restoration work and construction of baffle mounds where it is clear that this will bring longer-term environmental benefits to the site or its environs.

Where work is likely to take longer than eight weeks, a lower limit over a longer period should be considered. In some wholly exceptional cases, where there is no viable alternative, a higher limit for a very limited period may be appropriate in order to attain the environmental benefits. Within this framework, the 70 dB(A) $L_{Aeq,1h}$ (free field) limit referred to above should be regarded as the normal maximum."

2.2. Discussion and Assessment Criteria

This GPDO Application is being considered by the Mineral Planning Authority, so it is therefore clear that NPPG Minerals should be the predominant consideration in this assessment.

Following on from correspondence with Tim Warne, Principal Development Officer for Minerals and Waste at Cornwall Council, in April 2022, it was concluded that the following approach should be taken for this type of Application:

"..the approach to assessing the noise impact from future exploratory drilling programmes is very simple; the noise limits and thresholds in the National Planning Policy Guidance for Minerals should be adopted as the basis of the assessment. The noise limits and thresholds discussed in this document are designed to balance residential amenity alongside the economic interests of mineral exploration, whilst not placing "unreasonable burdens" on the mineral operators.

It is important to note that Appendix B of the Cornwall Council Development Sound Standard clearly refers to Mineral Extraction as needing to be assessed in accordance with the Minerals PPG. For that reason, any reference to the applicability of Cornwall Council Development Sound Standard Criterion 1 (BS8233) and Criterion 2 (BS4142), or any other Standard or reference for that matter, generally have no place in the assessment of minerals-related activities. This is principally by dint of them being scoped out of assessing mineral noise in Appendix B of the Development Sound Standard, but also because their impact thresholds, and subsequent correlation to the National Planning Practice Guidance for Noise and Minerals, relate to longer-term impacts, rather than the relatively short-term impacts of mineral extraction and/or exploratory drilling programmes.

Therefore, it is proposed that exploratory drilling programmes should be assessed in accordance with Paragraph: 021 Reference ID: 27-021-20140306 of the National Planning Policy Guidance for Minerals…

..PPG Minerals document neglects to reference a noise level limit not exceeding 10 dB(A) above the prevailing night-time background sound level, and simply states that "noise limits should be set to reduce to a minimum any adverse impacts, without imposing unreasonable burdens on the mineral operator". It is therefore suggested that the impact of noise during the night-time period is assessed on a site-by-site basis, but that a reasonable starting position would be to adopt an operational noise level limit of 5 dB(A) above the typical prevailing night-time background sound level ($L_{A90,15mins}$).

Finally, PPG Minerals discusses the impact of tonality and impulsive noise. In our experience, the drilling rigs, even in close proximity, are not significantly tonal, and they do not have any routine impulsive noise associated with them. It is suggested that routine implementation of specific limits to account for tonality, etc are not necessary on the basis of current working practices and/or drill rig equipment, but that this should be kept under review to ensure Best Practice is always adopted.

It is suggested that the above approach to the night-time period recognises the sensitivity of residential amenity, whilst balancing the economic benefits of the mineral exploration and not placing "unreasonable burdens" on the mineral operators, which is a consistent theme in the PPG Minerals guidance."

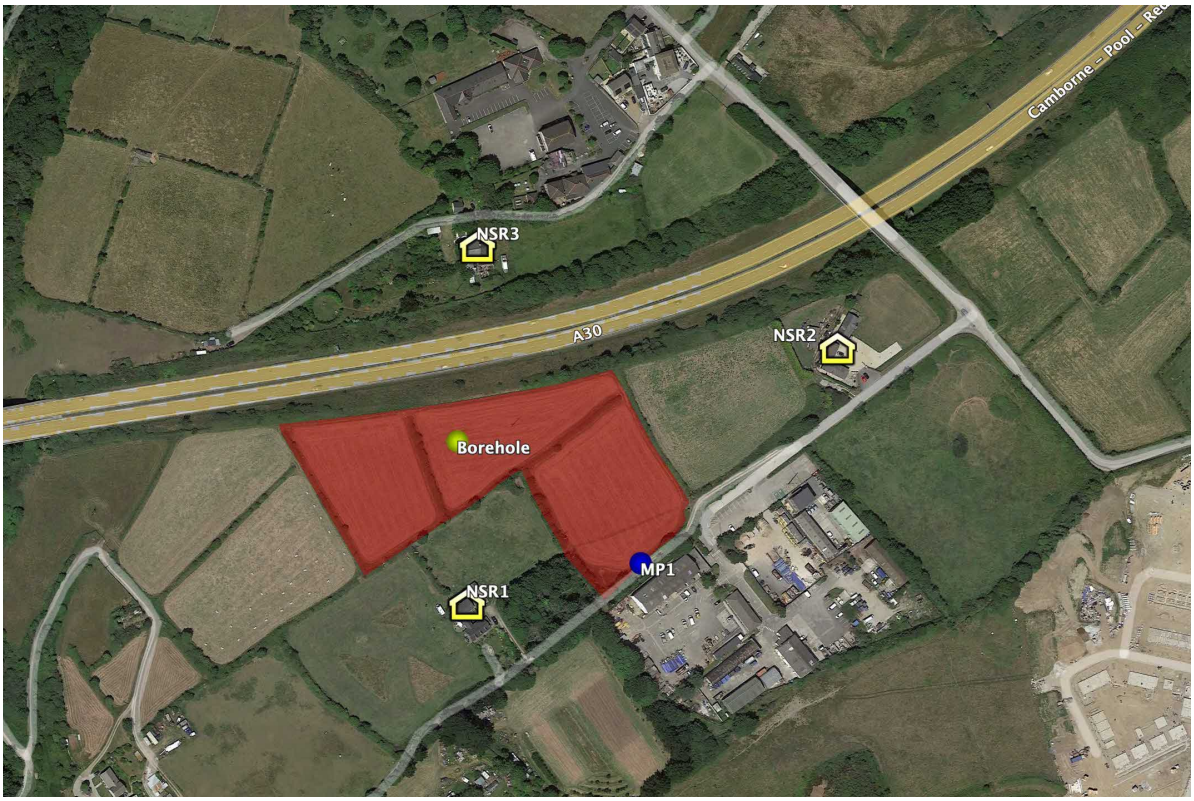
3. SITE DESCRIPTION

The GPDO Application considers one exploratory borehole.

It is proposed to use an Atlas Copco CS14 drill rig or similar. There are two main sources of noise associated with a drill rig; engine and drill noise.

The location of the exploratory borehole can be seen below in Figure 1

FIGURE 1: SITE LOCATION PLAN



The grid reference coordinates associated with the proposed exploratory borehole has been detailed in Table 2, below.

TABLE 2: EXPLORATORY BOREHOLE GRID REFERENCES

Drill Site ID	Grid Reference Coordinates	
	Easting	Northing
1	168472	042421

There are numerous potentially noise-sensitive receptors surrounding the proposed exploratory borehole. The receptors considered in this noise assessment are outlined in Table 3, below.

TABLE 3: NOISE-SENSITIVE RECEPTORS

Noise-Sensitive Receptor (NSR)	Grid Reference Coordinates	
	Easting	Northing
NSR1	168472	042312
NSR2	168703	042465
NSR3	168488	042541

The receptors outlined represent the nearest dwellings to the proposed drill site, on the basis that the predicted noise levels will represent the worst-case scenario at those receptors located closest to the drill site, with receptors located further away from the drill site inevitably having a lower predicted specific sound level.

3.1. Mitigation by Design

It is proposed that a large straw hay bale screens will be erected between the drill site and nearest noise-sensitive receptors, to a height of at least 4 m.

4. MEASUREMENT METHODOLOGY

4.1 General

The prevailing noise conditions in the area have been determined by an unattended environmental noise survey conducted during both daytime and night-time periods between Thursday 9th November 2023 to Monday 13th November 2023.

4.2. Measurement Details

All noise measurements were undertaken by a consultant certified as competent in environmental noise monitoring, and, in accordance with the principles of BS 7445[7]. All acoustic measurement equipment used during the noise survey conformed to Type 1 specification of British Standard 61672[8]. A full inventory of this equipment is shown in Table 4 below.

TABLE 4: INVENTORY OF SOUND MEASUREMENT EQUIPMENT

Make, Model & Description	Serial Number	Calibration Certificate Number	Calibration Due Date
Brüel & Kjær 2238 Sound Level Meter	2160313	1150729	01/10/2025
Brüel & Kjær 4188 Microphone	2427801		
Rion NC-74 Acoustic Calibrator	34904966	1141300	07/03/2024

The sound measurement equipment used during the survey was field calibrated at the start and end of the measurement period. An accredited calibration laboratory has calibrated the field calibrator used within the twelve months preceding the measurements. A drift of less than 0.2 dB in the field calibration was found to have occurred on the sound level meter.

The background sound survey was conducted at wind speeds of less than 5 ms^{-1}. Any periods of precipitation were excluded from the data, as measured on-site with a rain-tipping gauge.

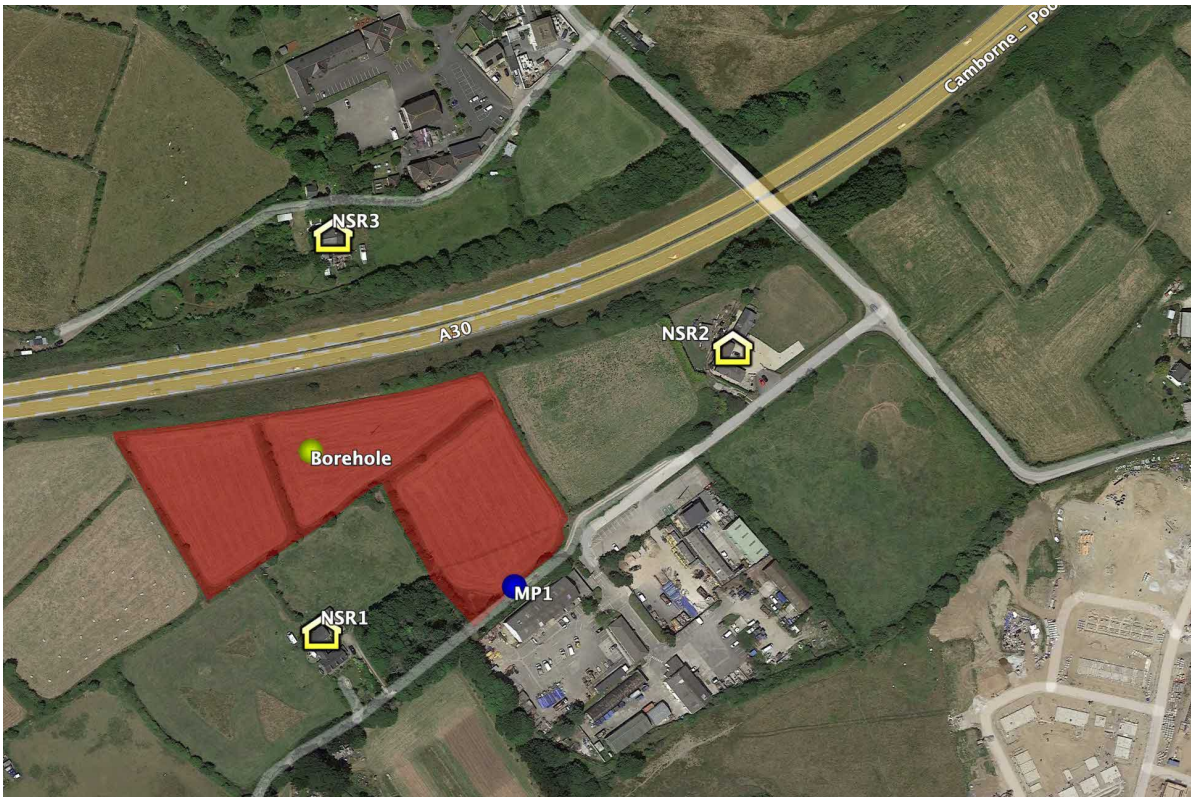
The microphone was fitted with a protective windshield for the measurements, which are described in Table 3, with an aerial photograph indicating the respective location shown in Figure 2.

TABLE 3: MEASUREMENT POSITION LOCATION

Measurement Position	Grid Co-ordinates	
	Easting	Northing
MP1	168580	042340

[7] British Standard 7445: 2003: Description and measurement of environmental noise. BSI
[8] British Standard 61672: 2013: Electroacoustics. Sound level meters. Part 1 Specifications. BSI.

FIGURE 2: MEASUREMENT POSITION



4.3. Summary Measurement Results

The summarised results of the environmental noise measurements are presented in Table 5.

TABLE 5: SUMMARY OF NOISE MEASUREMENT RESULTS

Measurement Position	Period	Sound Level, dB	
		L_{Aeq}	L_{A90}
MP1	Day	54	43
	Evening	50	43
	Night	47	31

5. CALCULATIONS

5.1. Proposed Operations Overview

It is proposed to use an Atlas Copco CS14 drill rig, or similar rig having specifications resulting in no more than equivalent noise levels. There are two main sources of noise associated with a drill rig; engine and drill noise.

It is proposed to operate the drilling rig 7-days a week, during the daytime period 07:00 to 19:00.

5.2. Methodology

5.2.1. Source Data

The source data associated with the Proposed Development, as measured from operational drill rigs, can be seen below in Table 6.

TABLE 6: SOURCE DATA

Noise Source	Sound Power Level (dB)
Drilling Rig	105

5.2.2. Calculation Process

Calculations were carried out using iNoise 2023, which undertakes its calculations in accordance with guidance given in ISO9613-1:1993 and ISO9613-2:1996.

5.2.3. Assumptions

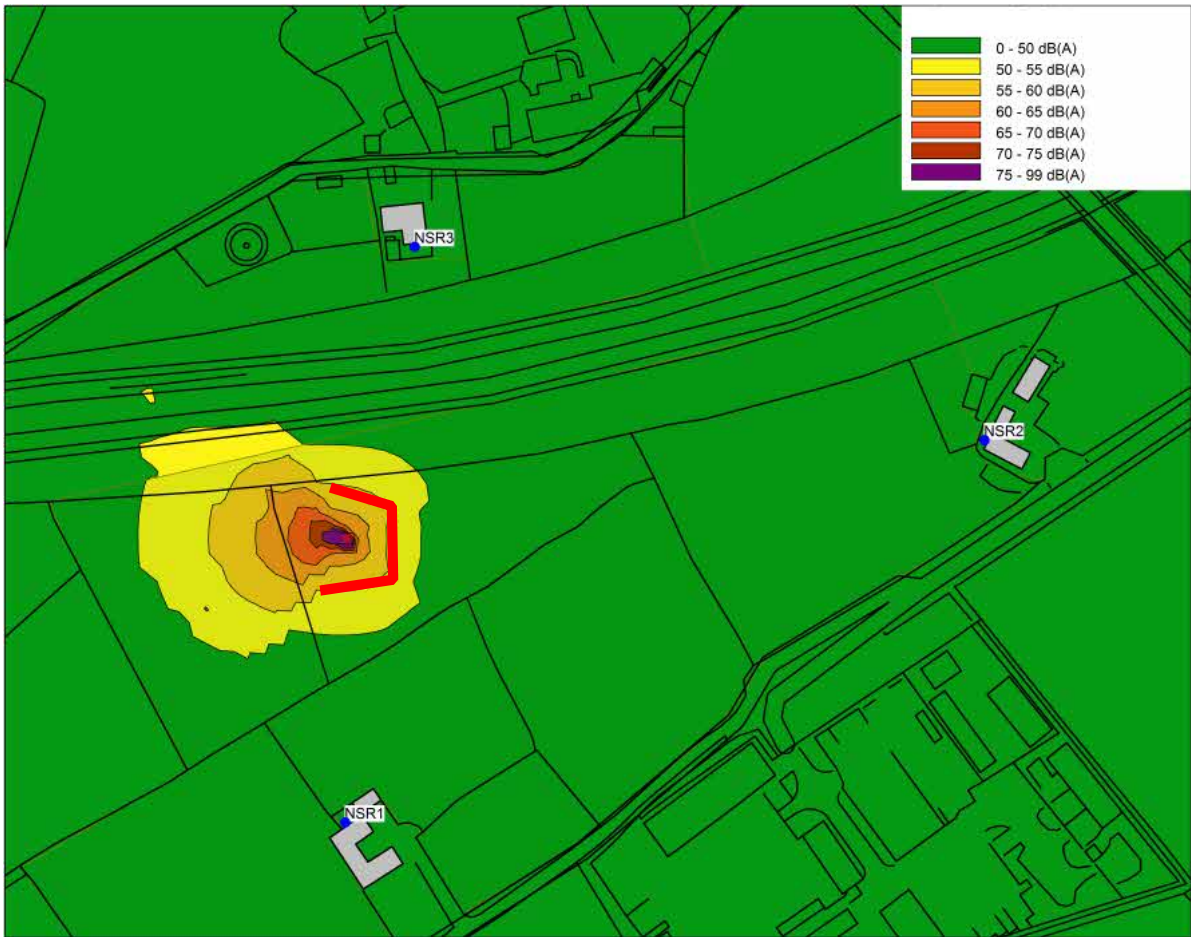
Given that the land between proposed development and nearest receptors is mixed, the ground factor has been set according to ground type, using 'ground areas' in the calculation software.

It has been assumed that all processes will occur simultaneously, representing a worst-case scenario. In order to accurately model the land surrounding the development, an AutoCAD DXF drawing was produced, which was based on data provided by the Ordnance Survey.

5.2.4. Specific Sound Level Map

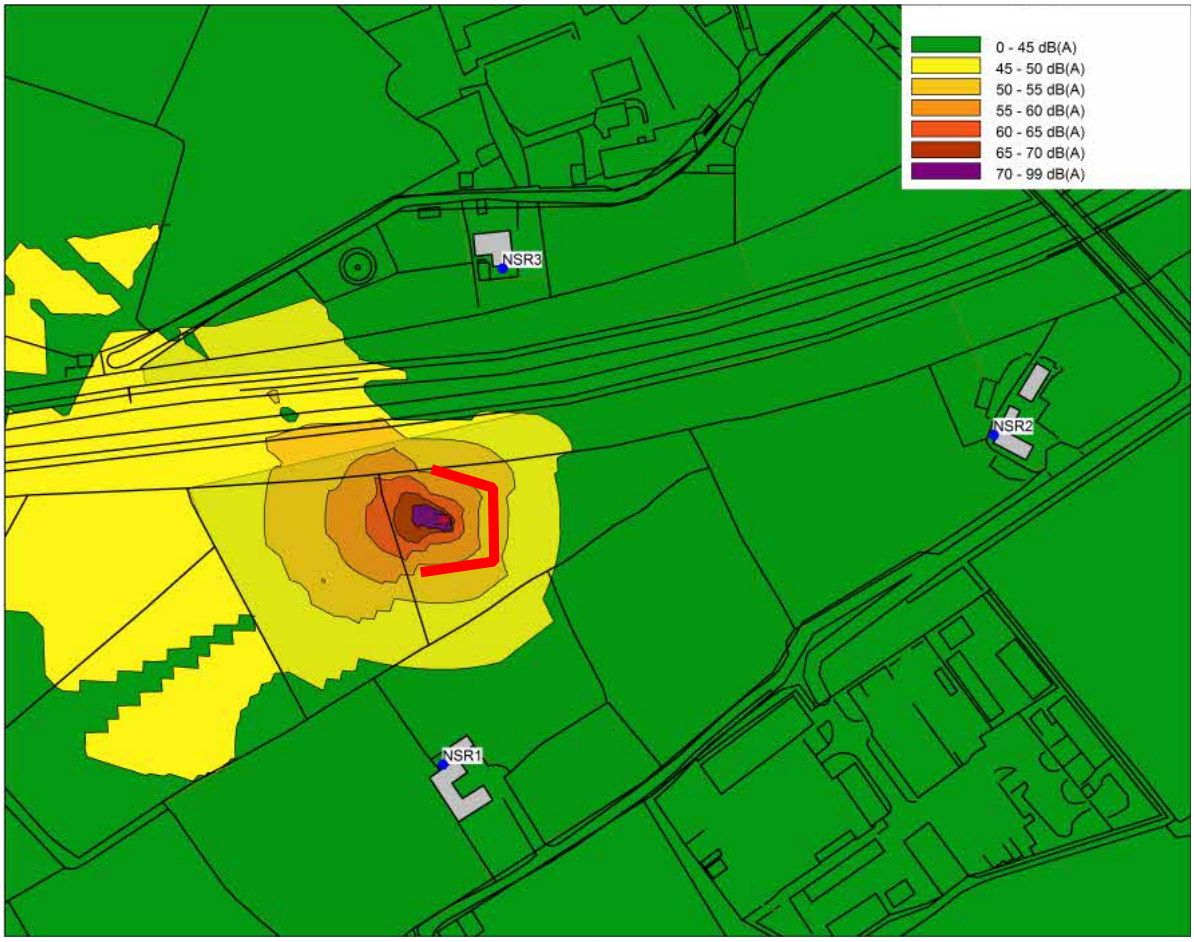
The sound map showing the specific sound level emissions from the site during the daytime period at 1.5 m above ground level, can be seen below in Figure 3.

FIGURE 3: SPECIFIC SOUND LEVEL MAP - DAYTIME



The sound map showing the specific sound level emissions from the site during the night-time period at 4.0 m above ground level, can be seen below in Figure 4.

FIGURE 4: SPECIFIC SOUND LEVEL MAP – NIGHT-TIME



5.2.5. Specific Sound Level Summary

A summary of the predicted specific sound levels at the NSRs, based on the sound maps shown in Figures 3 to 5, can be seen below in Table 7.

TABLE 7: PREDICTED SPECIFIC SOUND LEVEL SUMMARY

Receptor	Specific Sound Level (dB)
NSR1	41
NSR2	32
NSR3	41

6. PPG MINERALS ASSESSMENT

6.1. Limits

The noise limits applicable to this noise assessment are defined in Tables 8-10, below, as derived from the guidance given in the National Planning Practice Guidance for Minerals, as referenced in Section 2 of this report.

TABLE 8: PPG MINERALS DERIVED NOISE LIMITS - DAYTIME

Receptor	Representative Measurement Position	Daytime Background Sound Level (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)
NSR1	MP1	43	53	55
NSR2	MP1	43	53	55
NSR3	MP1	43	53	55

TABLE 9: PPG MINERALS DERIVED NOISE LIMITS – EVENING TIME

Receptor	Representative Measurement Position	Evening Time Background Sound Level (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)
NSR1	MP1	43	53	55
NSR2	MP1	43	53	55
NSR3	MP1	43	53	55

TABLE 10 : PPG MINERALS DERIVED NOISE LIMITS – NIGHT TIME

Receptor	Representative Measurement Position	Night Time Background Sound Level (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)
NSR1	MP1	31	36	42
NSR2	MP1	31	36	42
NSR3	MP1	31	36	42

6.2. Assessment

The assessment of the predicted specific sound levels from the drill site at the nearest noise-sensitive receptors, during the daytime period, can be seen below in Table 11.

TABLE 11: PPG MINERALS ASSESSMENT – DAYTIME

Receptor	Predicted Specific Sound Level, L_{Aeq} (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)	Excess of PPG Minerals Noise Limit (dB)	Excess of Upper PPG Minerals Noise Limit (dB)
NSR1	41	53	55	-12	-14
NSR2	32	53	55	-21	-23
NSR3	41	53	55	-12	-14

It can be seen that, at all receptors, the derived PPG Minerals noise limits have been comfortably met at all the nearest noise-sensitive receptors during the daytime period.

The assessment of the predicted specific sound levels from the drill site at the nearest noise-sensitive receptors, during the evening time period, can be seen below in Table 12.

TABLE 12 : PPG MINERALS ASSESSMENT – EVENING TIME

Receptor	Predicted Specific Sound Level, L_{Aeq} (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)	Excess of PPG Minerals Noise Limit (dB)	Excess of Upper PPG Minerals Noise Limit (dB)
NSR1	41	53	55	-12	-14
NSR2	32	53	55	-21	-23
NSR3	41	53	55	-12	-14

It can be seen that, at all receptors, the derived PPG Minerals noise limits have been comfortably met at all the nearest noise-sensitive receptors during the evening time period.

The assessment of the predicted specific sound levels from the drill site at the nearest noise-sensitive receptors, during the night time period, can be seen below in Table 13.

TABLE 13 : PPG MINERALS ASSESSMENT – NIGHT TIME

Receptor	Predicted Specific Sound Level, L_{Aeq} (dB)	PPG Minerals Noise Limit (dB)	Upper PPG Minerals Noise Limit (dB)	Excess of PPG Minerals Noise Limit (dB)	Excess of Upper PPG Minerals Noise Limit (dB)
NSR1	41	36	42	+5	-1
NSR2	32	36	42	-4	-10
NSR3	41	36	42	+5	-1

It can be seen that the lower PPG Minerals limit has been exceeded by up to 5 dB during the night time period. Given the inherently time-limited nature of the drill sites, the incorporated mitigation measures, and the adherence to the upper PPG Minerals limit, it is recommended that the operator has demonstrated best practicable means, and therefore no further *"unreasonable burdens"* should be placed upon them for the exploration of the proposed drill site.

7. CONCLUSION

inacoustic has been commissioned by Cornish Lithium to prepare a noise assessment covering the receptors surrounding the proposed exploration borehole on Land at Tolgus.

Current guidelines on noise are contained in the Planning Practice Guidance, dated March 2014.

Noise limits at the nearest noise-sensitive receptors to the Site are presented, based on adopted levels, and having regard to the measured background sound levels at locations representative of the dwellings selected for this assessment.

The specific sound levels comply with the relevant guidance contained within the National Planning Practice Guidance, without placing *"unreasonable burdens"* on the operator of the Site.

Providing that the cumulative sound level from the plant items does not exceed the stated source levels in Table 6, whether through the application of noise control techniques or otherwise, the impact of sound from such sources is predicted to be at the *Lowest Observed Adverse Effect Level* (LOAEL), but not exceeding this threshold.

Finally, given that the Proposed Development is inherently time-limited, this further reduces the impact significance upon the surrounding area.

Since the Proposed Development conforms to the advice set out in the Planning Practice Guidance, it is considered that the exploratory boreholes can be drilled while keeping noise emissions to within environmentally acceptable limits, as such; it is recommended that noise should not be a constraint to the approval of this GPDO Application.

8. APPENDICES

8.1. Appendix A – Definition of Terms

Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the s ambient pressure.
Sound Pressure Level (Sound Level)	The sound level is the sound pressure relative to a standard refere pressure of 20µPa ($20x10^{-6}$ Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sou pressure and sound power. The difference in level between two sou and s2 is given by 20 log10 (s1 / s2). The decibel can also be usec measure absolute quantities by specifying a reference value that fixe one point on the scale. For sound pressure, the reference value is 2(µPa.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary t consider an average or statistical noise level. This can be done in se ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level ove time period T. This is the level of a notional steady sound that wc contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the p T. L_{max} is sometimes used for the assessment of occasional loud nois which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is meas using the 'fast' sound level meter response.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time ov period T. L_{90} can be considered to be the "average minimum" noise l and is often used to describe the background noise.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time ov period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the gr usually taken to mean at least 3.5m
Facade	At a distance of 1m in front of a large sound reflecting object such building façade.
Fast Time Weighting	An averaging time used in sound level meters. Defined in BS 596

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0 dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

TABLE 14 : TYPICAL SOUND LEVELS FOUND IN THE ENVIRONMENT

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

The ear is less sensitive to some frequencies than to others. The A-weighting scale is used to approximate the frequency response of the ear. Levels weighted using this scale are commonly identified by the notation dB(A).

In accordance with logarithmic addition, combining two sources with equal noise levels would result in an increase of 3 dB(A) in the noise level from a single source.

A change of 3 dB(A) is generally regarded as the smallest change in broadband continuous noise which the human ear can detect (although in certain controlled circumstances a change of 1 dB(A) is just perceptible). Therefore, a 2 dB(A) increase would not be normally be perceptible. A 10 dB(A) increase in noise represents a subjective doubling of loudness.

A noise impact on a community is deemed to occur when a new noise is introduced that is out of character with the area, or when a significant increase above the pre-existing ambient noise level occurs.

For levels of noise that vary with time, it is necessary to employ a statistical index that allows for this variation. These statistical indices are expressed as the sound level that is exceeded for a percentage of the time period of interest. In the UK, traffic noise is measured as the $L_{A\,10}$, the noise level exceeded for 10% of the measurement period. The L_{A90} is the level exceeded for 90% of the time and has been adopted to represent the background noise level in the absence of discrete events. An alternative way of assessing the time varying noise levels is to use the equivalent continuous sound level, L_{Aeq}.

This is a notional steady level that would, over a given period of time, deliver the same sound energy as the actual fluctuating sound.

To put these quantities into context, where a receiver is predominantly affected by continuous flows of road traffic, a doubling or halving of the flows would result in a just perceptible change of 3 dB, while an increase of more than 25%, or a decrease of more than 20%, in traffic flows represent changes of 1 dB in traffic noise levels (assuming no alteration in the mix of traffic or flow speeds).

Note that the time constant and the period of the noise measurement should be specified. For example, BS 4142 specifies background noise measurement periods of 1hour during the day and 15 minutes during the night. The noise levels are commonly symbolised as $L_{A90,1hour}$ dB and $L_{A90,15mins}$ dB. The noise measurement should be recorded using a 'FAST' time response equivalent to 0.125 ms.

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4. Appendix 4: Ecological Impact Survey

Ecological Impact Assessment (EcIA)

Site:

Tolgus Drill Site, Tolgus, Redruth, Cornwall

Grid Reference: SW 68534 42420

15th December 2023

Version 2

Plan for Ecology Ltd

Tremough Innovation Centre

Tremough Campus, Penryn, Cornwall, TR10 9TA

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Document Control:

Site Name:	Tolgus Drill Site, Tolgus, Redruth, Cornwall TR15 3SY
OS Grid Reference:	SW 68534 42420
Report Author:	John Blackburn BSc (Hons) MSc MCIEEM
Document Approved By:	Nicola Dyer BSc (Hons) MSc MCIEEM
Client:	Cornish Lithium Ltd
Report Reference Number:	P4E3225
Version:	02
Date:	15th December 2023

Declaration:

"The information, evidence and advice, which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology & Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions."

John Blackburn	
Nicola Dyer	

Report Lifespan:

Ecological features can change over time, particularly if site management/ use changes. At the time of writing, Cornwall Council considers reports to be valid for 12 months (until November 2024), unless stated otherwise.

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1.0 Non-Technical Summary

Cornish Lithium Ltd commissioned Plan for Ecology Ltd to undertake an Ecological Impact Assessment (EcIA) of land at Tolgus, Redruth, Cornwall TR15 3SY (OS Grid Ref: SW 68534 42420) in November 2023. The applicant proposes to submit a General Permitted Development Order to permit exploratory drilling at this location.

The Ecological Impact Assessment (EcIA) comprised a comprised a desk study and a Phase 1 survey, including a UK Habitat Classification survey and an assessment of the potential of the site to support protected species. This EcIA report describes and evaluates the results of the desk study and survey and assesses the impacts of the proposed works in accordance with the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2017; 2018).

The site, measuring c. 1.35 ha, comprises land within the red line boundary shown on Map 1 below. The site is located on the outskirts of Redruth, c. 3.5 km southeast of Portreath, and c. 3.6 km northeast of Camborne, Cornwall. It comprises two fields of species-poor modified grassland bound by hedgebanks. The fields are currently used for dog walking, with mown paths around the margins.

The site does not lie within or adjacent to any designated wildlife sites, and there are no designated areas within a 1km radius. Of the habitats within the site, the native Cornish hedgerows (h2a6) are considered to be of significant ecological value. The site has the potential to support the following notable species: badger, hedgehog, bats (foraging and commuting), dormouse, birds, reptiles, amphibians, invertebrates and vascular and non-vascular plants. One non-native invasive plant species that requires legal control was recorded on-site.

Ecological constraints and opportunities are detailed on the accompanying 'Ecological Constraints and Opportunities Plan' (ECOP; Map 1) (below). The proposed development incorporates the following mitigation measures:

- Hedgerow (degradation): Following consultation with Cornwall Council, drilling locations and compounds have been positioned as far away from hedgerows as is feasible within the small field compartments. The proposed drilling location at Tolgus is located c. 15m from the nearest hedgerow and all hedgerows will be retained.
- Proposed access routes should use existing gateways and maintain an absolute minimum 5m buffer from the hedgerows. Access routes must be demarcated prior to the drilling works and adhered to during the works. Any materials kept on site must be stored at least 20m from the base of hedgerows, and within designated, fenced storage areas.
- Hedgerow trees will be protected with the implementation of the minimum 5m wide hedge buffers, in accordance with BS5837: 2012 Trees in relation to design, demolition and construction. A detailed arboricultural assessment will be required if BS5837 cannot be followed.
- Badger, hedgehog and other mammals: All excavated pits associated with the proposed development must be covered overnight and all trenches must have sloping planks (no greater than 45° angle) placed in them as a means of escape so that animals will not become trapped.
- All fences (temporary and permanent) must have a minimum 25cm gap below at regular intervals to permit movement of faunal species.
- Badger: As badger has been recorded locally, a pre-construction post-planning walkover survey for badger is required to check that no badger setts have been created if drilling

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commences more than 8 weeks from the date of the most recent site survey (12th November 2023). If any setts are found within 30m of a drilling location, a Natural England badger licence is likely to be required. NB: Natural England will only grant licences for works which disturb badger setts between 1st July and 30th November.

- Bats (foraging and commuting): Detailed bat surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact foraging and commuting bats. The drilling location is located c. 15m from the nearest hedgerow and no or very little artificial lighting is required to facilitate drilling. Bat habitats should be protected by following the recommendations for hedgerows above.

- Dormouse: Detailed dormouse surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact this species. The drilling location is located c. 15m from the nearest hedgerow and no or very little artificial lighting is required to facilitate drilling. Dormouse habitats should be protected by following the recommendations for hedgerows above.

- Birds: Detailed breeding bird surveys are not recommended but a precautionary approach to works is required. If drilling is to be undertaken between May and September, then an ecologist will walk the proposed access route on the day of site set-up to ensure that no ground nesting birds are present. The route will then be mowed, slowly and in a single direction to a height of 200mm above ground level. After leaving the mown area undisturbed for a few hours/ overnight, repeat the cut to a height of 100mm. This process will ensure that the access track is not suitable for nesting birds (and reptiles). If an active bird nest is uncovered, then works within 5m of the nest must stop until nesting activity has ceased/ the access track re-routed to avoid the nest. Works are most likely to be delayed during the main bird breeding period between April and July.

- Reptiles and amphibians: Detailed surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact foraging and hibernation habitat for reptiles. The drilling location is located c. 15m from the nearest hedgerow and the grassland is currently of limited value for reptiles. Adopt precautionary measures for clearing vegetation along the access route (see breeding birds above) to avoid injury to any individuals. Protect habitats for reptiles and amphibians by following the recommendations for hedgerows above.

- Vascular and non-vascular plants, and invertebrates: Follow recommendations for hedgerows above.

- Invasive Plants: Measures to control invasive plants will be required to prevent spreading them off-site.

- Further surveys: No further surveys are recommended to inform the application for a General Permitted Development Order. A pre-construction walkover immediately prior to commencement of works is recommended to identify any new badger setts or invasive plants. An Ecological Clerk of Works (ECoW) will be required to inspect vegetation prior to clearance if undertaken during the breeding bird season.

- Biodiversity Enhancements: There is opportunity to incorporate some features to enhance aspects of the site for ecology. See the 'Ecological Constraints and Opportunities Plan' (ECOP) below.

The baseline statement of predicted change (habitat losses and gains) resulting from the proposed development is summarised below:

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Table 1: The baseline statement of predicted change (habitat losses and gains)

Ecological Receptor	Ecological Value	Loss (approximate)	Gain (approximate)
Modified grassland (g4)	Within the Zone of Influence	Up to 600m^2 (temporary loss on vehicle access route (c. 200 x 2m wide) and around drilling location (c. 15 x 8m)	Up to 600m^2 (reinstated after works)
Other native hedgerow (h2a6)	Local	None – drilling location lies c. 15m from the proposed drill site and no hedge loss is required for access.	None

The residual impact of the proposed development is predicted to have a neutral impact, at a local scale on the ecology of the site, subject to the successful implementation of the mitigation outlined in this report.

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2.0 Ecological Constraints and Opportunities Plan (ECOP)

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Map 1. Ecological Constraints and Opportunities Plan

Key

- Target note
- Hedgerow trees
- Location of drill site
- h2a - other native hedgerow
- u1e - built linear feature; fence
- g4 81 - modified grassland; ruderal
- g4 - modified grassland

Target Notes

1. Native hedgerow (priority habitat with legal protection). Potential habitat for foraging/commuting bats, nesting birds and reptiles.
2. Invasive plant – montbretia (Schedule 9 WCA 1981)

N

Date: 23.11.23

3.0 Introduction

3.1 Background & Purpose of Survey

Cornish Lithium Ltd commissioned Plan for Ecology Ltd to undertake an Ecological Impact Assessment (EcIA) of land at Tolgus, Redruth, Cornwall TR15 3SY (OS Grid Ref: SW 68534 42420) in November 2023. The applicant proposes to submit a General Permitted Development Order to enable exploratory drilling at this location. The site location plan showing the designated sites of nature conservation importance within a 1km radius of the site boundary is provided at Appendix 1. The UK habitat classification and Ecological Constraints & Opportunities Plan (ECOP) for the site is shown on Map 1 above.

3.2 Site Location & Description

The site, measuring c. 1.35 ha, comprises land within the red line boundary shown on Map 1 above. It is located on farmland, on the northwest outskirts of Redruth, c. 3.5 km southeast of Portreath, and c. 3.6 km northeast of Camborne, Cornwall. The site comprises two fields of species-poor, modified grassland bound by hedgebanks and is used for dog walking, with mown paths around the field margins. A small area of tall ruderal vegetation dominated by nettle is present.

The site is bordered by farmland to the east and west. The A30 dual carriageway less than 50m to the north and a complex of industrial/office buildings borders the site to the south. In the wider area, a wooded stream valley lies c. 0.3km to the west and urban areas of Redruth and Pool lie within 0.5km of the site to the south, west and east. Beyond the A30 to the north, farmland is interspersed with settlements and small wooded areas. The north Cornwall coast lies c. 4.2km to the northwest of the site.

3.3 Proposed Site Plans

The applicant proposes to submit a General Permitted Development Order to enable exploratory drilling at this location. The location of the proposed drill hole is shown at Appendix 2. It will be accessed via existing farm access tracks and gateways and no hedges will be removed to facilitate access.

It is understood that the drill rig is track-mounted and of a size that can be transported by tractor and trailer. Once in situ, the drill rig is enclosed with Heras fencing and screened by straw bales to minimise noise emission. It is understood that a typical diamond drilling compound measures approx. 15 x 8m. Mud mats will be used to minimise disturbance caused by vehicle movements. The drill rigs are self-contained; water is used in the drill holes to recover drill cuttings and the water is recycled from 1000 litre plastic containers; no dust is produced. The drill rigs are diesel driven and suitable fuel storage will be created on-site including spillage kits for oil and diesel. All drilling fluids are captured and removed from site for proper disposal. Drilling is rotary and not percussive (uses no 'hammer') and is, therefore, relatively quiet when in operation. Additional noise attenuation can be installed if drilling near residential dwellings or other noise sensitive sites.

The drill holes will measure c. 125mm in diameter and extend 200 – 300m below the surface. Drilling typically occurs 12 hours per day and 7 days per week between April and October with minimal use of artificial lighting at the beginning and end of days. NB: A reduced drill time, spanning daylight hours only, has been agreed with Cornwall Council for ecologically sensitive sites. Once complete, each exploratory drill hole is plugged to a depth of 2m including c. 1m of concrete and c. 60cm of soil to permit ploughing in the future. This information has been provided by Cornish Lithium Limited.

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3.4 Project Administration

Site Name:	Tolgus Drill Site, Tolgus, Redruth, Cornwall
OS Grid Reference:	SW 68534 42420
Client:	Cornish Lithium Ltd
Planning Authority:	Cornwall Council
Report Reference Number:	P4E3225
Site proposals:	Exploratory drilling
Survey Dates:	12th November 2023 (Phase 1 survey)
Surveyor & Licence Numbers:	John Blackburn BSc (Hons) MSc MCIEEM. Bat licence (level 2,) Barn owl licence, Dormouse licence and white clawed crayfish licence no. 2019-39576-CLS-CLS; Great crested newt licence: 2015-18394-CLS-CLS).

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4.0 Methodology

This assessment has been carried out in accordance with the 'Guidelines for Preliminary Ecological Appraisal' produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017); BS42020-2013 Biodiversity – Code of Practice for Planning & Development, as adopted by local planning authorities (British Standard, 2013); and the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2018).

4.1 Desk study

The desk study is a search of all ecological records and site designations held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS, to 2023) within a 1km radius of the site. The distance between the site boundary and nearby European sites was measured using MAGIC http://www.magic.gov.uk to determine if the site falls within a European site Zone of Influence.

The strategic significance of each habitat feature was determined using the Net Gain Zones on LAGAS Natural Capital Information and Management Hub https://lagas.co.uk/app/product/netgain_vectorzones (accessed December 2023) to identify how the site contributes to the Cornwall Nature Recovery Network.

4.2 Site survey

The Phase 1 survey comprised a UK Habitat Classification survey of the site and an assessment of the suitability of the site to support legally protected species and species of conservation importance. The survey area included all land within the site's red line boundary shown on Map 1.

The UK Habitat Classification Survey identified the habitats present and their associated plant species (UKHab Ltd, 2023). The surveyor recorded any evidence of protected/ notable species and assesses the potential of the site to support these species. The surveyor also noted down the presence of invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) within the site and within c.7m of the site boundary (where access was available), and evidence of badger within the site and within c.30m of the site boundary (where access was available), but a detailed survey for these species/ species groups was not undertaken.

Survey data was collected in the field and mapped using QGIS.

4.3 Evaluation

The Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) recommend an approach to ecological evaluation that utilises available guidance and information, such as the distribution and status of the species or features within the locality of the site, and professional judgment.

The methods and standards for site evaluation within the British Isles are defined in 'A Nature Conservation Review' (Ratcliffe, 2009). They are broadly used across the United Kingdom to rank sites, so priorities for nature conservation can be attained. The criteria are size, diversity, naturalness, rarity and fragility, with secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units.

The assessment judges features within the site in relation to other sites because a number of habitats may be of nature conservation importance when combined.

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The legislative and planning policy context are important and have been given full consideration in this assessment.

There are also a number of other important considerations as follows:

Designated Sites and Features e.g. Special Protection Areas (SPA), Specia Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI; ecologically important hedgerows etc.);

Biodiversity Value (use of Biodiversity Action Plans and local development plans);

Potential Value;

Secondary or Supporting Value;

Social or Economic Value; and

Legal Designation.

Based on the criteria above and professional judgement, the likely value of ecological features is determined within a geographical context in accordance with the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2018). Value is assigned in decreasing order of importance as follows: International (Europe), National (UK), Regional (Southwest), County, District, Parish, Local, Zone of Influence and Negligible.

This evaluation method identifies 'important ecological features' (considered to be of Local value and above) which could potentially be affected by the proposed development.

4.4 Impact Assessment

Where the impact of the proposed scheme on an ecological receptor(s) can be determined without further survey or design information, an ecological impact assessment is undertaken within the Preliminary Ecological Appraisal (PEA) report. Where the impact of the scheme on an ecological receptor(s) cannot be determined, then this is clearly stated.

Where an impact (positive or negative) on the integrity of a defined feature (habitat, species or ecosystem) was identified, the impact significance has been described in the following terms: major, moderate, minor and negligible.

The likelihood of the impact occurring was described as: certain / near certain (probability estimated at 95% chance or higher), probable (probability estimated above 50% but below 95%), unlikely (probability estimated above 5% but below 50%) and extremely unlikely (probability estimated below 5%).

Reference has also been made to the extent and magnitude of impact (i.e., area affected) and duration (short-term impacts associated with construction and long-term impacts associated with the operational phase of the development).

The impact significance of the proposed development on the integrity of the site as a whole has been determined using the framework described above. A significant effect is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general (CIEEM, 2018).

Site integrity has been defined as follows: 'The integrity of a site is the coherence of its ecological structure and function, across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified (CIEEM, 2018).

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Site integrity is dependent on the extent, magnitude and duration of impacts upon each ecological feature (habitats or species). The accumulative impact, across all features, is therefore used to determine overall impact significance on the integrity of the site, and in EIA terms. Available guidance and information, such as the distribution and status of the species or features, and professional judgment have been used to determine impact significance.

4.5 Mitigation Recommendations

Recommendations are provided using the Mitigation Hierarchy (British Standard, 2013; CIEEM, 2018). The Mitigation Hierarchy seeks to avoid impacts, then to mitigate unavoidable impacts, and, as a last resort, to compensate for residual impacts that remain after implementation of avoidance and mitigation measures.

Where an identified adverse impact cannot be fully mitigated, the residual impact remains. This residual impact in combination with similar impacts locally could constitute a cumulative impact. Due to the small scale and nature of the proposed development, only cumulative impact arising from potential development of adjoining land is considered within this assessment.

4.6 Biodiversity Net Gain

This report identifies potential biodiversity enhancements that can be included in the scheme which would contribute to a Biodiversity Net Gain (BNG).

4.7 Limitations

It is possible to undertake take Phase 1 surveys at any time of year, with the optimal period between April – September. Many plant species remain visible all year round and can be readily identified from their vegetative characteristics. It is usually possible to classify habitats, notably hedgerow, scrub and urban habitats, year-round due to the nature of the vegetation present.

November is a sub-optimal time of year to undertake more detailed vegetation surveys, including invasive plant surveys, because some species will not be visible (remaining quiescent below ground), and few will be in flower or with seed capsules present (important species identification features). It is possible that some plant species may have been missed or under-recorded.

Weather conditions during the survey were in line with seasonal norms. There are no limitations to the survey associated with weather conditions.

A search for Tree Preservation Orders (TPO's) or Conservation Area status does not form part of this assessment.

Ecological features can change over time, particularly if site management/ use changes. At the time of writing, Cornwall Council considers reports to be valid for 12 months (until November 2024), unless stated otherwise.

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5.0 Assessment Results

5.1 Designated Sites and Local Conservation Initiatives

The site is not located within a designated site of nature conservation importance and there are no statutory or non-statutory designated sites within a 1km radius of the site. A designated sites plan is provided at Appendix 2.

The nearest statutory designated site is West Cornwall Bryophytes Site of Special Scientific Interest (SSSI) that lies c. 1.75km northeast of the site. The proposed drilling site lies within a SSSI Impact Risk Zone; this is a zone around the SSSI identified by Natural England which may be affected by development (DEFRA et al, 2023). The nearest European designated sites are the Bristol Channel Approaches Special Area of Conservation (SAC) that lies c. 4.2km northwest of the site, and Godrevy Head to St Agnes SAC, 5.9km to the north.

At this distance from the designated sites, the proposed exploratory drilling is unlikely have any impacts from noise or vibration and the drilling process is not expected to generate any dust which could affect lower plants in West Cornwall Bryophytes SSSI. In the absence of mitigation, exploratory drilling is likely to have a negligible impact on designated sites.

5.2 Strategic Significance

The strategic significance of each habitat feature was determined using the Net Gain Zones on LAGAS Natural Capital Information and Management Hub https://lagas.co.uk/app/product/netgain_vectorzones (accessed December 2023) to identify how the site contributes to the Nature Recovery Network. Those habitat features that fall within Zone 1: Existing Nature Network are categorized as 'within area formally identified in the local strategy'. Those habitat features that fall within Zone 2: Opportunity Area are categorized as 'location ecologically desirable but not in local strategy'. Those features that do not fall within Zones 1 and 2 are categorized as 'area/ compensation not ecologically desirable/ in local strategy'. In some instances, single habitat features sit partially within or outside of Zones 1 and 2. The resolution of the Net Gain Zones on LAGAS is relatively low in comparison to the resolution of habitat features within the Development Site. Where habitats straddle Net Gain Zones, the whole site is classified as the highest net gain zone so to apply the most conservative strategic significance.

The site at Tolgus does not lie within Zone 1 of the existing Nature Network or a Zone 2 Opportunity Area and does not form part of the Nature Recovery Network strategy (Figure 1).

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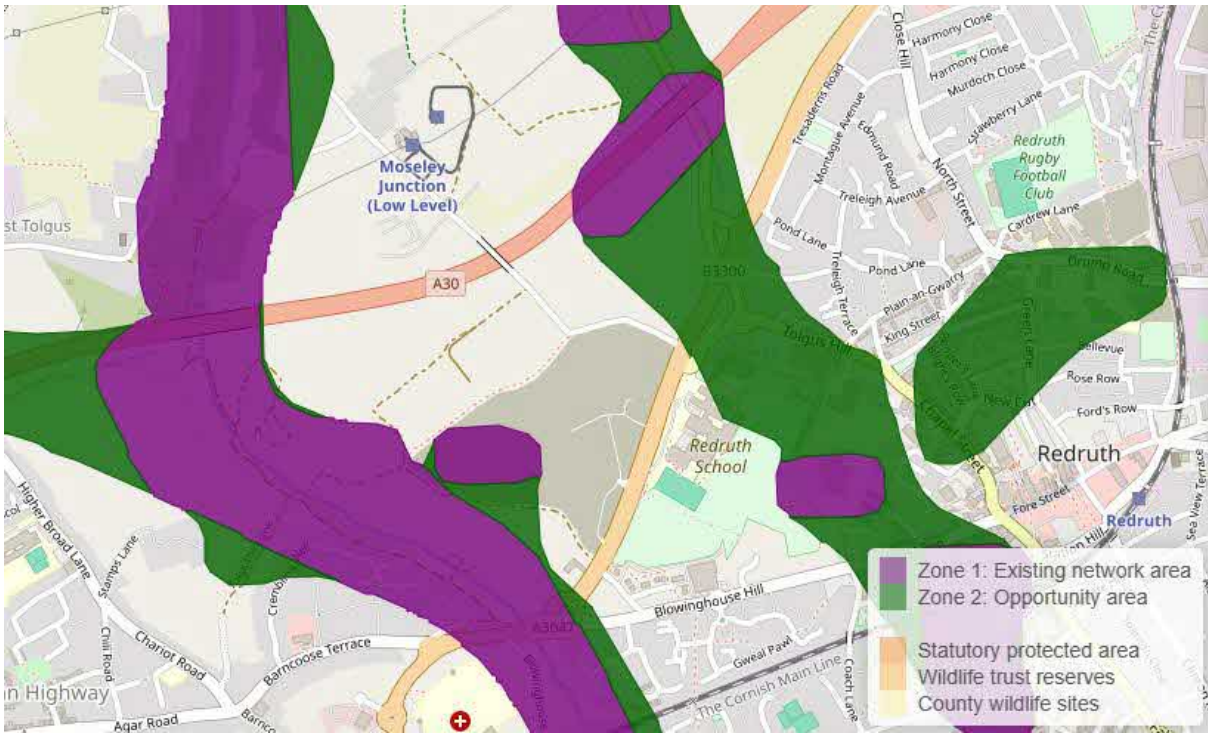

Figure 1: Biodiversity Net Gain Zones falling within the site (LAGAS, December 2023).

5.3 UK Habitat Classification

A total of four UKHab Classification types were recorded within the survey area during the site visit. These are listed below and their distribution is shown on Map 1:

- Other native hedgerow; with bank (h2a6 111)
- Modified grassland (g4)
- Modified grassland; ruderal (g4 81)
- Built linear feature; fence (u1e 612).

Of the habitats within the survey area, the native hedgerows are considered to be of significant ecological value and are described further in section 5.4 Notable Habitats. Habitats of negligible or low ecological value are briefly described below.

The assemblage of plant species associated with each habitat including Latin names is provided in the table at Appendix 3. A description of notable habitats and species is provided below.

Modified grassland (g4)

Both fields are dominated by species-poor, modified grassland (Fig. 2). At the time of the survey, the sward was tall and dominated by coarse grasses such as cocks-foot, Yorkshire fog and perennial rye-grass. A small path has been mown around the margins of the fields for dog walking. Forbs are rare in this habitat common hogweed, common nettle, common sorrel, broad-leaved dock and spear thistle. This habitat is considered to be of ecological value within the 'Zone of Influence'.

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Modified grassland; ruderal (g4 81)

A small area of grassland in the southwest corner of the southern field is dominated by common nettle (Fig. 3). Few other species are present. Overall, this habitat is considered to be of ecological value within the 'Zone of Influence'.

Built linear feature; fence (u1e 612)

A timber fence forms the north site boundary, which adjoins the embankment of the A30. The fence habitat supports locally dominant blackberry/ bramble and ivy. Overall, fence habitat within the survey area is considered to be of ecological value within the 'Zone of Influence'.

The assemblage of plant species associated with each habitat including Latin names is provided in the table at Appendix 3. A description of notable habitats and species is provided below.

Figure 2. The site of the drill location within the field of modified grassland (g4) viewed from the northwest field entrance.

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Figure 3. View south over the field corner dominated by common nettle (g4 81).

5.4 Notable Habitats

Other native hedgerow; with bank (h2a6 111)

Cornish hedgerows form all the field boundaries, with the exception of the northern boundary that is fenced. The hedgerows consist of earth/stone banks, topped with native trees and shrubs (Fig. 4). Hedgerow trees comprise single, early mature sycamores (Fig. 5); these occur rarely and the only hedge with two or more trees (h2a6 111 11) is along the western site boundary. Other woody species present include gorse, bramble, holly, blackthorn, hawthorn and rarely occurring hazel. Hedgerow forbs include frequent foxglove, red campion, herb robert and abundant navelwort. Montbretia, a non-native invasive plant, was recorded on the internal hedgerow that runs across the site (Map 1; target note 2); see section 5.5 for further information.

The hedgerows within the survey area have >80% cover of native trees and shrubs and are classed as a UK Biodiversity Action Plan (BAP) priority habitat (JNCC, 2011). They are protected under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as a habitat of principal importance. The hedgerows enhance habitat connectivity and connect to hedgerows off-site, providing corridors through which wildlife can travel. Hedgerow vegetation provides potential habitat for nesting birds, dormouse, reptile species, invertebrate species, badger, and roosting, commuting, and foraging bat species. Other native hedgerow habitat within the survey area is considered to be of 'Local Value'.

The proposed drilling location is sited c. 15m from the nearest hedgerow and there will be no direct impacts from the works. Access to the drilling location across the fields will use existing hedgerow gaps and no hedge loss is anticipated. Drilling activity is likely cause some disturbance to hedge habitat from increased noise, vibration and human activity. Vehicle movements and the storage of materials or machinery close to hedges may also cause habitat degradation.

In the absence of mitigation, degradation of hedgerow habitat is predicted to have a short-term negative impact of unlikely occurrence, of minor significance on a local scale.

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Figure 4: View southwards of a native hedgerow (h2a6 111) along the western boundary

Figure 5: View eastwards of the internal native hedgerow (h2a6 111), showing hedgerow tree

5.5 Notable Species

Notable species and species groups with potential to use the site are described below:

Badger

Although widespread and common in Cornwall, badgers and their setts are legally protected under the Protection of Badgers Act 1992 (HM Government, 1992) (see Appendix 4 for further information about legislation).

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There are sixteen records for badger (Meles meles) within a 1km radius of the site (ERCCIS, 2023). No badger setts or evidence of badger was recorded on the site or adjacent land within 30m of the site boundary. However, due to the presence of local records, badgers may use the site for occasional foraging, in combination with surrounding farmland. The site is considered likely to be of up to 'Local Value' for badger.

The drilling location is not within 30m of any badger setts. The proposed works could affect the local badger population through minor disruption of badger pathways and low level disturbance. In the absence of mitigation, exploratory drilling is likely to have a short-term, negative impact, of unlikely occurrence, and of minor significance on a local scale on a badger group, and/or individual animals. See Section 6.3 below for mitigation measures.

Bats (Foraging, Commuting & Roosting)

The ERCCIS desk study revealed eleven records for bats within a 1km radius of the site (ERCCIS, 2023). These comprise three records for lesser horseshoe bat (Rhinolophus hipposideros), two records for brown long-eared bat (Plecotus auritus) and six records for unidentified pipistrelle species (Pipistrellus sp.).

In the UK, all bat species are European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017, the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedule 5 of the Wildlife and Countryside Act (WCA) 1981. Some bat species are also UK BAP priority species and protected under Section 41 NERC 2006 (See Appendix 4).

None of the early mature sycamore trees in the hedgerows have any features that could support roosting bats. The grassland and hedgerows may provide some limited foraging habitat and are likely to be unlit at night, so more favourable for bats. In accordance with the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023) the survey area is assessed as being of likely 'low suitability' for foraging and commuting.

Based on the bat species recorded within a 1km radius of the site and the habitats present, the site is considered to be of up to 'Local Value' for foraging and commuting bats.

The process of exploratory drilling is unlikely to negatively impact foraging and commuting bats. The drill location is positioned c. 15m from the nearest hedgerow and will only cause localised, small-scale disturbance to modified grassland. The works will occur in daylight hours with minimal artificial lighting required. Any lighting will be directed onto the drilling compound and away from hedges. In the absence of mitigation, the nature of the identified impacts on foraging and commuting bats is predicted be a short-term negative impact, of unlikely occurrence and of minor significance on a local scale. See Section 6.3 below for mitigation measures.

Dormouse

The hazel dormouse (Muscardinus avellanarius) occurs within woodland, hedges and scrub habitats. The ERCCIS desk study revealed no records for dormouse within a 1km radius of the site; dormice occur in mainly east and central Cornwall and there are few records as far west as the Tolgus site (Cornwall Mammal Group, 2023). However, this may be due to under-recording in this part of the County and there is a low risk that dormouse may occur in suitable habitat.

The hazel dormouse is a European Protected Species (EPS) and protected under the Conservation of Habitats and Species Regulations 2017, Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, Schedule 5 WCA 1981 and Section 41 NERC 2006 (See Appendix 4).

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Hedgerows with dense woody cover offer some potential habitat but the presence of dormouse at this location is unlikely. The site is bordered by the A30 dual carriageway to the north and surrounded by the towns of Redruth and Pool to the southeast and southwest respectively, with limited habitat connectivity off-site. The site is considered to be of no greater value for dormouse than 'within the Zone of Influence'.

The proposed drilling works will retain the hedgerows and the drilling location is situated c. 15m from the nearest hedge. Increased noise, vibration and human activity near hedgerows could potentially cause disturbance to dormouse, if present. In the absence of mitigation, the nature of the identified impacts on dormouse is predicted to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. Precautionary measures to avoid impacts to dormouse are provided in section 6.3 below.

Hedgehog

The ERCCIS desk study revealed thirty-two records for hedgehog (Erinaceus europaeus) within a 1km radius of the site (ERCCIS, 2023), mostly from the urban areas to the south. This species is protected under Schedule 6 WCA 1981 (as amended) and Section 41 NERC Act 2006.

Within the site, the hedgerows and grassland provide potentially suitable foraging and resting and hibernation sites for hedgehog. The site is considered to be of 'Local Value' for this species.

Impacts to modified grassland within the vicinity of the proposed drill site and along access routes may cause disturbance to hedgehogs. The drill location is sited c. 15m from the nearest hedgerow; there will be no loss of hedgerow habitat but increased noise, vibration and human activity may disturb this species. Minimal artificial lighting is required to facilitate drilling and, if required, will be directed away from hedges. The proposals are unlikely to negatively impact the local hedgehog population, but activities have potential to disturb and/ or harm individual hedgehogs (if present). In the absence of mitigation, the nature of the identified impact on hedgehog is considered to be a short-term negative impact, of unlikely occurrence and of minor significance on a local scale. Precautionary measures to avoid impacts to hedgehog are provided in section 6.3 below.

Water vole

There are no records for water vole (Arvicola amphibius) from within a 1km radius centred on the survey area (ERCCIS, 2023). The water vole is a EPS and is legally protected under the Conservation Regulations 2017 (as amended) and Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. It is also a UK and Cornwall BAP priority species for conservation and protected under Section 41 NERC Act 2006.

Water voles were once common across the UK but have declined in recent years. In Cornwall, water vole became extinct in the 1990s but in 2013 one hundred individuals were reintroduced to Bude Marshes in North Cornwall (Cornwall Mammal Group, accessed October 2023). Since this time, at least two further reintroductions have been undertaken at sites near Truro and Redruth, with further reintroductions planned soon (Kernow Conservation CIC, accessed October 2023). Water voles require riparian habitat, wetland and ponds, preferring slow flowing rivers and streams with grassy banks.

The site does not have any rivers, streams or ponds and is located c. 0.3km from the nearest watercourse to the west. Based on the desk study assessment and site survey, the site is considered to be of 'negligible' value for water vole. In the absence of mitigation, the nature of the identified

impacts on water vole is considered likely to be negligible due to the likely absence of this species within the proposed development survey area.

Other mammals

The ERCCIS desk study revealed one record for harvest mouse (Micromys minutus) (S41 NERC Act, 2006; UK BAP). This species could use the site on occasion but the modified grassland has a poor structure to support harvest mouse. Other notable mammal records within a 1km radius include red squirrel (Sciurus vulgaris), water shrew (Neomys fodiens) and common shrew (Sorex araneus). The site is considered to be of value 'within the Zone of Influence' for harvest mouse and common shrew and of negligible value for red squirrel and water shrew.

Exploratory drilling will require disturbance of grassland within the vicinity of the proposed drill site and along access routes. There will be no hedge loss but this habitat could also be disturbed from noise, vibration and activity. In the absence of mitigation, the nature of the identified impacts on harvest mouse and common shrew is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. See Section 6.3 below for mitigation measures.

Reptiles

The ERCCIS desk study revealed one record for adder (Vipera berus) and one record for common lizard (Zootoca vivipara) within a 1km radius of the site (ERCCIS, 2023). The four commonly occurring reptile species in the UK: adder, common lizard, slow worm (Anguis fragilis) and grass snake (Natrix natrix), are protected under Schedule 5 of the WCA 1981 (as amended).

The grassland is of poor structure for reptiles and considered unlikely to be of significant value. However, reptile species could use these hedges for basking and hibernation. The site is considered to be of value for reptiles 'within the Zone of Influence'.

Exploratory drilling will require disturbance of grassland land within the vicinity of the proposed drill site and along access routes. The drill location is sited c. 15m from the nearest hedgerow; there will be no loss of hedgerow habitat but increased noise, vibration and human activity on the site may disturb any reptiles sheltering within the banks. In the absence of mitigation, the nature of the identified impacts on reptile species is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. Precautionary measures to avoid impacts on individual animals are provided in section 6.3.

Amphibians

The ERCCIS desk study returned one record for common toad (Bufo bufo) and one for palmate newt (Lissotriton helveticus) (ERCCIS, 2023). The site lacks standing water, a prerequisite for breeding amphibians, but hedgebank habitats have potential to support amphibians during their terrestrial life phase. The site is considered to be of value for amphibians 'within the Zone of Influence'.

Development of the site is unlikely to impact the local amphibian populations, but drilling activities have potential to disturb and/ or harm individual animals. In the absence of mitigation, the nature of the identified impacts on amphibian species is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. Precautionary measures to avoid impacts on individuals are provided in section 6.3.

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Birds

A high number of bird species have been recorded within a 1km radius of the site (ERCCIS, 2023). Of the species recorded, those of conservation concern with some potential to breed within the survey area are listed in Table 2 below. All birds are legally protected whilst nesting under the WCA 1981 (as amended) (see Appendix 4).

Table 2: Bird species with potential to breed within the survey area.

Species Scientific	Species Venacular	International Designation	National Designation	National Status
Linaria cannabina	Linnet	Bern-A2		Bird-Red, Bird_RedList_GB_post2001-NT_Breeding
Passer domesticus	House Sparrow			England_NERC_S.41, BAP-2007, Bird-Red
Prunella modularis	Dunnock	Bern-A2		Bird-Amber
Turdus philomelos	Song Thrush	BirdsDir-A2.2		Bird-Amber

Key:

RedList_GB_post2001-NT	British Red Data List of near threatened species
England_NERC_S.41	Section 41 of the Natural Environment and Rural Communities Act 2006
BAP-2007	Included in the UK Biodiversity Action Plan (2007)
Bird-Red	Birds of Conservation Concern – Red list
Bird-Amber	Birds of Conservation Concern – Amber list

Within the site, the hedgerows are likely to support several pairs of nesting birds, potentially including notable species. The modified grassland is currently less suitable for ground nesting birds but could potentially be used for nesting. The site is considered to be of 'within the Zone of Influence' for birds.
Exploratory drilling will require disturbance of grassland within the vicinity of the proposed drill site and along access routes. The drill location is sited c. 15m from the nearest hedgerow; there will be no loss of hedgerow habitat but increased noise, vibration and human activity on the site may nesting birds. In the absence of mitigation, the nature of the identified impact on birds is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. Measures to avoid and mitigate the potential impacts on breeding birds are provided in section 6.3.

Invertebrates

The ERCCIS desk study revealed a high number of records for invertebrate species of conservation significance within a 1km radius of the site; all of which have some potential to occur on-site (ERCCIS, 2023). These species are presented in Table 3 below.

The site supports common and widespread habitats that have the potential to support invertebrates but is lacking key invertebrate habitats, such as bare ground, soft cliffs and ancient woodland, that support rarer assemblages. The site is considered to be of 'within the Zone of Influence' for invertebrates.

Impacts associated with exploratory drilling, notably clearance of grassland and movement of vehicles have potential to disturb / kill individual animals but, due to the temporary nature of works and minor land take, negative impacts on a population level are considered unlikely. The drill location is sited c. 15m from the nearest hedgerow; there will be no loss of hedgerow habitat.

In the absence of mitigation, the nature of the identified impact on invertebrates is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. See Section 6.3 below for mitigation measures.

Table 3: Invertebrate species of conservation significance recorded within a 1km radius of the site and with some potential to occur within the survey area.

Species Scientific	Species Venacular	International and National Designations	National Status	Local Status
Chrysolina haemoptera	Plantain Leaf Beetle		Nationally Scarce	
Danaus plexippus	Monarch	CMS_A2		
Coenonympha pamphilus	Small Heath		England_NERC_S.41, BAP-2007, RedList_GB_post2001-NT	
Lasiommata megera	Wall		England_NERC_S.41, BAP-2007, RedList_GB_post2001-NT	
Ectobius panzeri	Lesser Cockroach		Nationally Scarce	Cornwall RDB
Andrena humilis	Buff-tailed Mining Bee		Notable-B	Cornwall RDB
Acronicta rumicis	Knot Grass		England_NERC_S.41, BAP-2007	
Melanchra persicariae	Dot Moth		England_NERC_S.41, BAP-2007	
Hepialus humuli	Ghost Moth		England_NERC_S.41, BAP-2007	
Tachystola acroxantha	Ruddy Streak			Cornwall RDB
Acanthoxyla prasina subsp. inermis	Unarmed Stick-insect		RedList_GB_post2001-NE	Cornwall RDB

Key

RedList_GB_post2001-NT	British Red Data List of near threatened species
CMS_A2	Convention for Migratory Species
England_NERC_S.41	Section 41 of the Natural Environment and Rural Communities Act 2006
Nationally Scarce	Occurring in 16-100 10 x 10km hectads of the OS national grid
Notable B	Occurring in 31-100 10 x 10km hectads of the OS national grid
Cornwall RDB	Cornwall Red Data Book

Vascular Plants

The desk study found records for four vascular plant species of conservation significance within 1km of the site and with potential to occur within the survey area (ERCCIS, 2023). These are listed in Table 4 below.

A total of 29 vascular plant species were recorded within the site during the Phase 1 survey (see Appendix 3). The native hedgerow with trees was the most diverse habitat recorded on-site. No species of conservation significance were found. The site is considered to be of value 'within the Zone of Influence' for vascular plant species.

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Table 4: Species of conservation significance recorded within 1km of the site and with potential to occur within the survey area.

Species Scientific	Species Venacular	International and National Designations	National Status	Local Status
Hyacinthoides non-scripta	Bluebell	WCA-Sch8		
Fragaria vesca	Wild Strawberry		RedList_ENG_post2001-NT,RedList_GB_post2001-LC	
Vicia sativa subsp. segetalis	Common Vetch		WL	
Oxalis acetosella	Wood-sorrel		RedList_ENG_post2001-NT,RedList_GB_post2001-LC	

Key

WCA-Sch8	Wildlife and Countryside Act 1981 (as amended) - Schedule 8
RedList_ENG_post2001-NT	England Red Data list of near threatened species
RedList_GB_post2001-LC	British Red Data List – species of least concern
RedList_ENG_post2001-WL	England Red List – on waiting list for designation

Impacts associated with exploratory drilling, notably the movement of vehicles over modified grassland, have potential to disturb/kill plants but this habitat is species-poor and unlikely to support any notable plant species. No hedgerow habitat will be lost and the proposed drilling works will not generate any dust that could impact on plant health. In the absence of mitigation, the nature of the likely impact on vascular plants is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. See Section 6.3 below for mitigation measures.

Invasive Plants

In the UK a number of non-native invasive plant species are listed on Schedule 9 of the WCA 1981 (as amended) making it an offence to cause them to spread to the wild. The ERRCIS desk study revealed multiple records for six invasive plant species listed on Schedule 9 within a 1km radius of the site (ERCCIS, 2023): Japanese knotweed (Fallopia japonica), montbretia (Crocosmia x crocosmiiflora), three-cornered garlic (Allium triquetrum), Himalayan balsam (Impatiens glandulifera), Himalayan cotoneaster (Cotoneaster simonsii) and wall cotoneaster (Cotoneaster horizontalis).

One plant species listed under Schedule 9 WCA 1981 was observed on-site during the Phase 1 survey: montbretia was noted in the internal hedgerow that runs through the site (Target Note 2 on Map 1).

Four plants listed as injurious (harmful) under the Weeds Act 1959 are present within the grassland on-site: broad-leaved dock, spear thistle, common ragwort, and creeping thistle. Under this legislation, injurious weeds must be controlled to prevent harm to agriculture. Mitigation recommendations to control invasive species are given in section 6.3.

Non-Vascular Plants

The ERCCIS desk study revealed many records for non-vascular plants of conservation significance within a 1km radius of the site (ERCCIS, 2023). Species include the nationally rare bryophytes: tongue copper-moss (Scopelophila cataractae) and lesser copperwort (Cephaloziella massalongi); tongue copper-moss and greater copperwort (Cephaloziella nicholsonii) which is also found locally,

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are both protected under S41 NERC Act 2006. Two nationally rare lichens have also been recorded: Stereocaulon leucophaeopsis and Stereocaulon nanodes.

A specialised survey for non-vascular plants was outside the scope of the Phase 1 survey. The site has no metalliferous mine spoil, ancient woodland or other habitats that support rare species. Based on the size of the site, habitats present, and the species recorded locally, the site is considered to be of value 'within the Zone of Influence' for non-vascular plant species.

Impacts associated with exploratory drilling, notably movement of vehicles over grassland have potential to disturb / kill non-vascular plants but, due to the temporary nature of works and minor land take, negative impacts on a population level are considered unlikely. The hedgerows will not be impacted and it is understood that no dust is generated during drilling.

In the absence of mitigation, the nature of the identified impacts on non-vascular plant species is considered to be a short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence. See Section 6.3 below for mitigation measures.

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6.0 Mitigation Recommendations

Recommendations are provided using the Mitigation Hierarchy in accordance with BS42020-2013 (British Standard, 2013). The Mitigation Hierarchy seeks to avoid impacts, then to mitigate unavoidable impacts, and, as a last resort, to compensate for residual impacts that remain after implementation of avoidance and mitigation measures.

6.1 Designated Sites

The site is not located within a designated site of nature conservation importance. There are no statutory or non-statutory designated sites of nature conservation importance within a 1 km radius of the site. No impacts are predicted to designated sites and no mitigation is required.

6.2 Habitats

Of the habitats within the survey area, the other native hedgerows (h2a6 111) are considered to be of significant ecological value. Mitigation recommendations are detailed below.

1. Hedgerow (degradation): Exploratory drilling has potential to degrade hedgerow habitat through storage of materials, vehicle movement and proximity of drilling. Following consultation with Cornwall Council, the drill location and any compounds will be positioned as far away from hedgerows as is feasible within the small field compartments; the drill location is at least 15m from the nearest hedge. All hedgerows will be retained unaltered. To ensure hedges are protected during the works, use existing gateways and maintain an absolute minimum 5m buffer development-free buffer alongside all the hedges to protect vegetation and reduce disturbance from noise and vibration. Provide protective fencing along this buffer at the drill location.

2. Implementation of minimum 5m wide hedge buffers will ensure that hedgerow trees (which are few within the site) are adequately protected in accordance with BS5837: 2012 Trees in relation to design, demolition and construction. Commission a detailed arboricultural assessment if BS5837 cannot be followed.

3. Access tracks across pastures must be demarcated prior to, and followed during the works, to ensure that the 5m development-free hedge buffers are not accidently breached. Any materials must be stored at least 20m from the base of hedges and within designated, fenced storage areas.

6.3 Species

The site proposals have potential to impact badger, hedgehog, otter, dormouse, reptile and amphibian species, breeding and foraging birds, bats (foraging and commuting), invertebrates and vascular and non-vascular plants. Impact on these species/ species groups will be avoided and/or mitigated by following the recommendations detailed below.

4. Badger, hedgehog and other mammals: All excavated pits associated with the proposed development must be covered overnight and all trenches must have sloping planks (no greater than 45° angle) placed in them as a means of escape so that animals will not become trapped.

5. All fences (temporary and permanent) must have a minimum 25cm gap below at regular intervals to permit movement of faunal species.

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6. Badger: As badger has been recorded locally, a pre-construction post-planning walkover survey for badger is required to check that no badger setts have been created if drilling commences more than 8 weeks from the date of the most recent site survey (12th November 2023). If any setts are found within 30m of a drilling location, a Natural England badger licence is likely to be required. NB: Natural England will only grant licences for works which disturb badger setts between 1st July and 30th November.

7. Bats (foraging and commuting): Detailed bat surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact foraging and commuting bats. The drilling location is located c. 15m from the nearest hedgerow and no or very little artificial lighting is required to facilitate drilling. Protect bat habitats by following the recommendations for habitats in Section 6.2.

8. Dormouse: Detailed dormouse surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact this species. The drilling location is located c. 15m from the nearest hedgerow and no or very little artificial lighting is required to facilitate drilling. Protect dormouse habitat and avoid disturbance by following the recommendations for habitats in section 6.2.

9. Birds (breeding): Detailed breeding bird surveys are not recommended but a precautionary approach to works is required. If drilling is to be undertaken between May and September, then an ecologist will walk the proposed access route on the day of site set-up to ensure that no ground nesting birds are present. The route will then be mowed, slowly and in a single direction to a height of 200mm above ground level. After leaving the mown area undisturbed for a few hours/ overnight, repeat the cut to a height of 100mm. This process will ensure that the access track is not suitable for nesting birds (and reptiles). If an active bird nest is uncovered, then works within 5m of the nest must stop until nesting activity has ceased/ the access track re-routed to avoid the nest. Works are most likely to be delayed during the main bird breeding period between April and July.

10. Birds (foraging): Protect habitats for foraging birds by following the recommendations for habitats in section 6.2.

11. Reptiles and amphibians: Detailed surveys are not recommended because the process of exploratory drilling is unlikely to negatively impact foraging and hibernation habitat for reptiles. The drilling location is located c. 15m from the nearest hedgerow and the grassland is currently of limited value for reptiles. However, as individuals may be present in the fields, follow precautionary measures for clearing vegetation along the access route to avoid injury to any individuals (see breeding birds above). Protect habitats for reptiles and amphibians by following the recommendations for habitats in section 6.2.

12. Vascular and non-vascular plants, and invertebrates: Follow recommendations for habitats in section 6.2.

13. Invasive Plants: Montbretia occurs within the central hedgerow; this location will not be impacted by the proposed drilling works and is unlikely to be disturbed by any access routes. As a precautionary measure, it is recommended that montbretia is eradicated prior to the drilling works.

14. In addition, there are numerous non-native plant species recorded in the local area which could spread onto the site if more than 8 weeks elapses between the site survey (12th November 2023) and commencement of the works. A pre-construction invasive plant survey should be undertaken of the vehicle access route and drilling location immediately

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prior to the works to ensure that drilling activities do not inadvertently spread Schedule 9 WCA 1981 invasive plant species.

15. Four plants listed as injurious (harmful) under the Weeds Act 1959 are also present on-site: broad-leaved dock, spear thistle, common ragwort, and creeping thistle. Exploratory drilling will include measures to control these species post-completion. Cut disturbed areas of grassland in September and March post-completion of works. Arisings must be collected and composted on-site. A suitable location for composting will be identified during site set-up. Post-development monitoring will identify if further targeted weed control (i.e. pulling, herbicide application or mowing) is required.

6.4 Biodiversity Enhancements

Biodiversity Net Gain (BNG) is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand. BNG is described as a measurable target(s) for development projects where impacts on biodiversity are outweighed by the mitigation hierarchy approach to first avoid, and then minimise, impact including through restoration and/ or compensation (Baker et al., 2019).

The proposed drilling works are not required to apply for planning approval under a General Permitted Development Order and there is no formal requirement to provide BNG. However, the project could include the following measures to improve the biodiversity of the site:

16. Eradication of Schedule 9 WCA 1981 non-native invasive plant species from within the site.
17. Control of plant species listed as injurious (harmful) under the Weeds Act 1959.
18. Provision of piles of deadwood or stones post-development to improve the value of the site for hedgehog, invertebrates, amphibians, reptiles and lower plants.
19. Reseeding with a wildflower grass seed mix to improve botanical diversity if any grassland habitat restoration is required.

6.5 Further surveys

No further surveys are required to inform the General Permitting Development Order application provided that all of the mitigation recommendations detailed in this report are successfully implemented.

A pre-construction walkover survey is recommended if site set up and drilling are not implemented within 8 weeks of the most recent site survey (12th November 2023). This will identify any new active badger setts that may be created in the interim period and include a search for invasive plants.

An Ecological Clerk of Works (ECoW) will be required to inspect vegetation prior to clearance if undertaken during the breeding bird season (to be avoided wherever possible).

6.6 Monitoring

No further monitoring is required.

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6.7 Habitat Loss/ Gain Summary

Please refer to the habitat loss/ gain summary balance table (Table 1), located within the non-technical summary, for the baseline statement of predicted change resulting from the proposed development.

7.0 Impact Assessment

Table 6: Assessment of Impact of the proposed development on features of ecological importance before and after mitigation.

Feature	Characterisation of unmitigated impact	Effect without mitigation	Mitigation (Points 1 – 15 Sections 6.0 – 6.3)	Significance of effect of residual impact after mitigation
Designated sites	None	None	-	Neutral
Hedgerow	Degradation (construction and operational)	Short-term negative impact of unlikely occurrence, of minor significance on a local scale	1-3	Neutral
Hedgehog and badger	Harm or disturbance to individual animals (construction)	Short-term negative impact, of unlikely occurrence and of minor significance on a local scale	4,5,6	Neutral
Bats (foraging and commuting)	Degradation of potential foraging and commuting habitat (construction and operational)	Short-term negative impact, of unlikely occurrence and of minor significance on a local scale	1-3,7	Neutral
Dormouse	Degradation of potential habitat (construction and operational)	Short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence	8	Neutral
Birds	Loss or disturbance to nesting habitat (construction and operational) Disturbance of foraging activity (construction).	Short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence	1-3,9,10	Neutral
Reptiles and amphibians	Harm or disturbance to individual animals (construction)	Short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence	1-3,11	Neutral
Invertebrates	Loss of or degradation of suitable habitat (construction and operational)	Short-term negative impact, of unlikely occurrence and of minor significance	1-3, 12	Neutral

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Feature	Characterisation of unmitigated impact	Effect without mitigation	Mitigation (Points 1 – 15 Sections 6.0 – 6.3)	Significance of effect of residual impact after mitigation
	Harm or disturbance to individual animals (construction)	within the Zone of Influence		
Vascular and non-vascular plants	Loss of or degradation of suitable habitat (construction and operational)	Short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence	1-3, 12	Neutral
Invasive plants	Potential spread	Short-term negative impact, of unlikely occurrence and of minor significance within the Zone of Influence	13, 14, 15	Positive

7.1 Residual Impacts

The residual impact of the proposed development is predicted to have a neutral impact, within the zone of influence on the ecology of the site, subject to the successful implementation of the mitigation outlined in this report.

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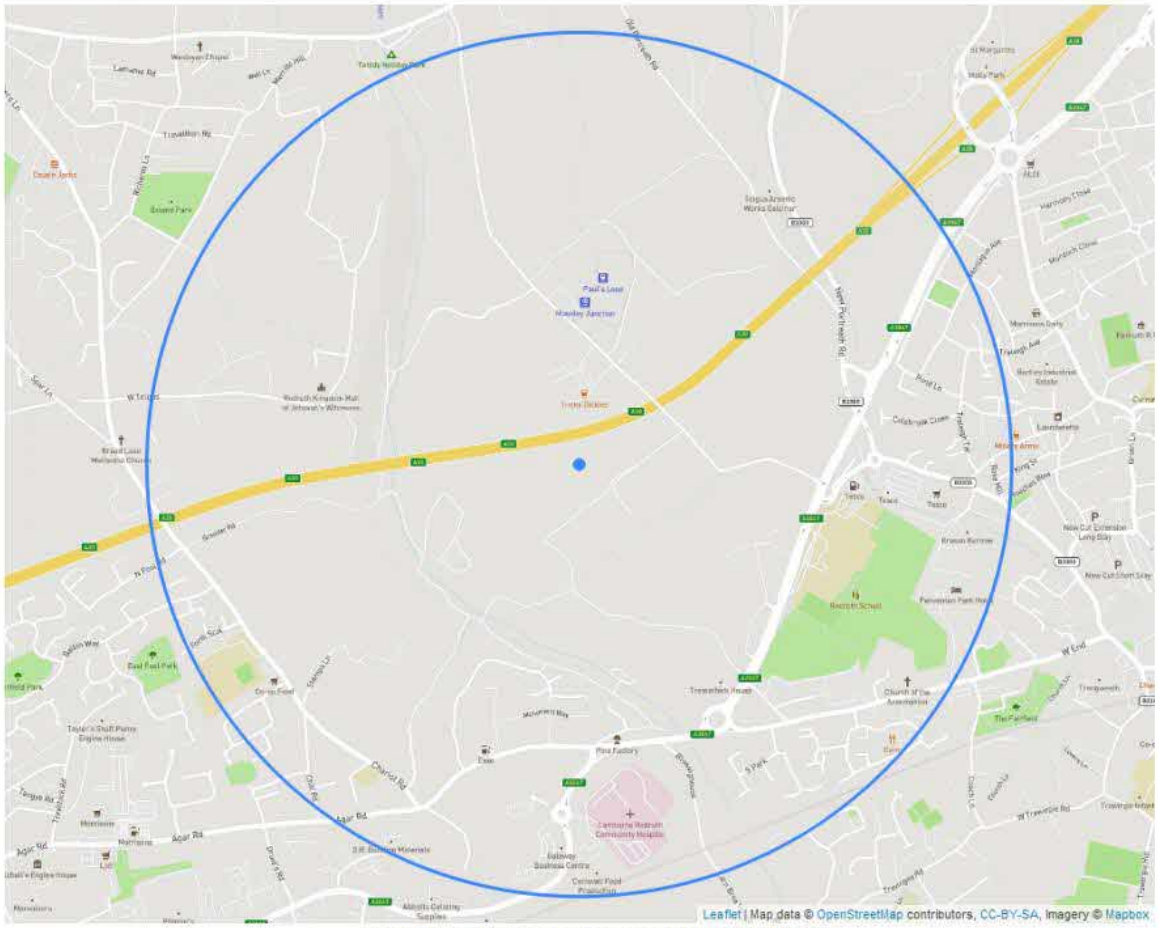
9.0 Appendix 1: Location of Site and Designated Sites of Nature Conservation Importance.

Statutory Sites Map



Location	Site Code	Site Type	Site Name	Colour

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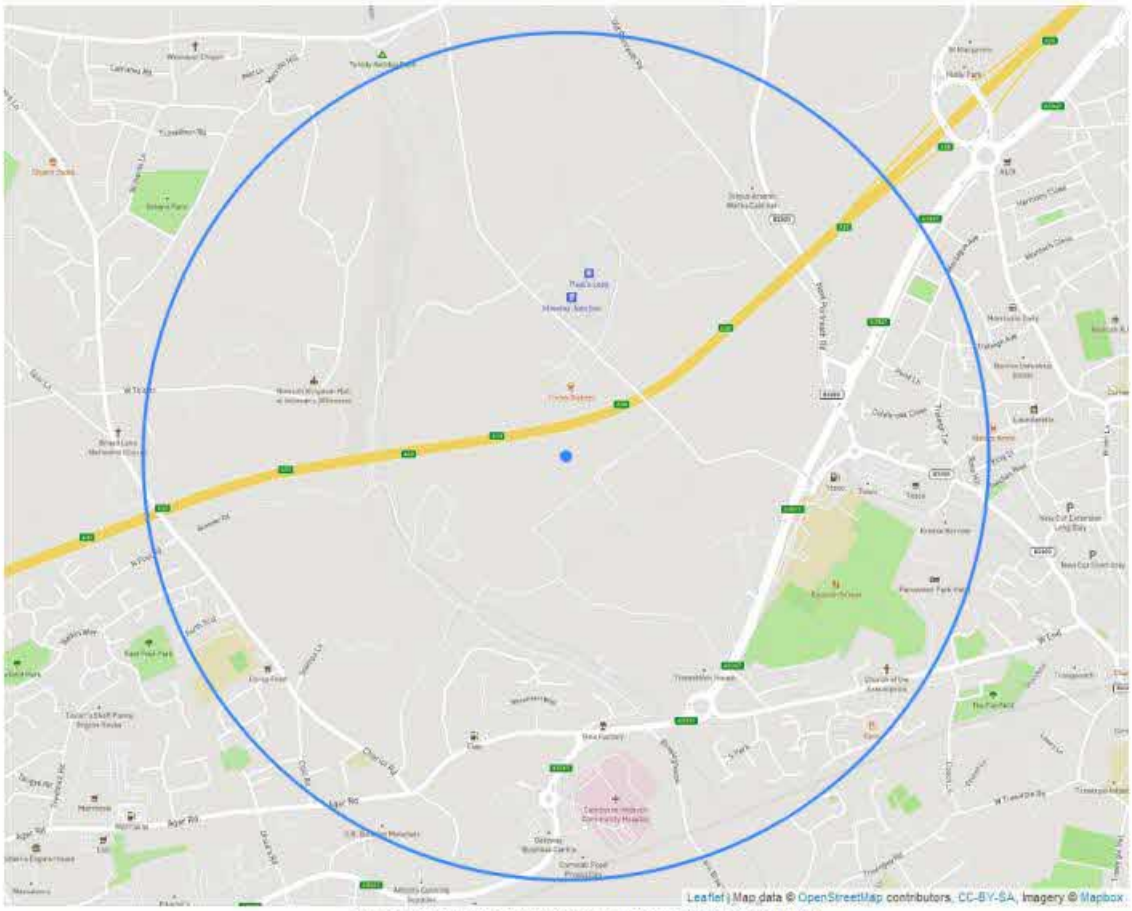
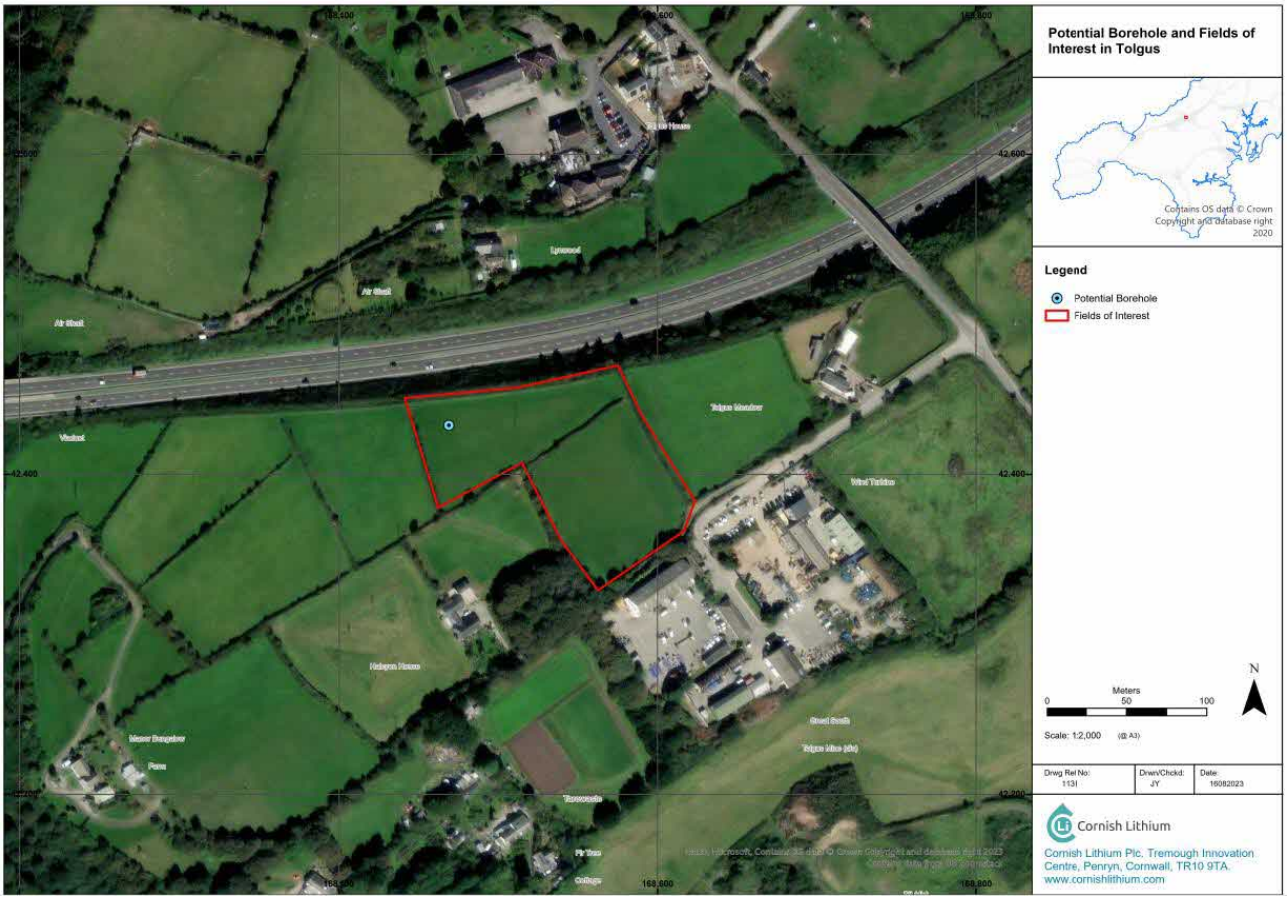
Non-Statutory Sites & Reserves Map



Location	Site Code	Site Type	Site Name	Colour

10.0 Appendix 2: Indicative Site Layout



11.0 Appendix 3: UK Habitat Classification Survey Plant List

Latin Name	Common Name	Modified grassland (g4)	Other native hedgerow (h2a6)
Acer pseudoplatanus	Sycamore		O
Agrostis capillaris	Common bent-grass	R	
Corylus avellana	Hazel		R
Crataegus monogyna	Hawthorn		F
Crocosmia x crocosmiiflora	Montbretia		R
Cymbalaria muralis	Ivy-leaved toadflax		F
Dactylis glomerata	Cock's-foot	O	O
Digitalis purpurea	Foxglove		F
Dryopteris affinis	Scaly male fern		F
Festuca rubra	Red fescue	LF	LF
Galium aparine	Cleavers		LF
Geranium robertianum	Herb-robert	O	F
Hedera helix	Ivy		A
Holcus lanatus	Yorkshire fog	LD	R
Ilex aquifolium	Holly		R
Lonicera periclymenum	Honeysuckle		F
Asplenium scolopendrium	Hart's tongue		F
Poa annua	Annual meadow grass	F	
Prunus spinosa	Blackthorn		LD
Pteridium aquilinum	Bracken		F
Ranunculus repens	Creeping buttercup	LF	
Rubus fruticosus agg.	Blackberry/bramble		A
Sambucus nigra	Elder		R
Senecio jacobaea	Ragwort	R	
Sonchus oleraceus	Smooth sow-thistle	F	
Stachys sylvatica	Hedge woundwort		R
Ulex europaeus	European gorse		F
Umbilicus rupestris	Navelwort		F
Urtica dioica	Common nettle	LD	O

DAFOR is a nominative scale where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare. L = Locally; or combination of. NB: P = present, abundance could not be determined due to poor access.

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12.0 Appendix 4: Legislation and Planning Policy

Protected Habitats, Species and Designated Sites

- The Conservation of Habitats and Species Regulations (HM Government, 2017) (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (HM Government, 2019)), referred to here after as the 'Habitat Regulations', encompasses Special Areas of Conservation (SACs) and provides additional protection for Special Protected Areas (SPA's), RAMSAR Sites and European Protected Species (EPS). Protection is afforded from direct and indirect impacts, particularly where mobile wildlife populations for which the SAC is designated may be significantly affected. A Habitats Regulations Assessment/Appropriate Assessment must be completed by the competent authority, based on sufficient information provided by the applicant, to meet Regulation 63 of the Habitats Regulations. The Waddenzee judgement ruled that a plan or project may be authorised only if a competent authority has made certain that the plan or project will not adversely affect the integrity of the site. A decision can only be reached "where no reasonable scientific doubt remains as to the absence of such effects". Competent authorities must be "convinced" that there will not be an adverse effect. Where doubt remains as to the absence of adverse effects, the plan or project must not be authorised, subject to the procedure outlined in the Habitats Regulations regarding imperative reasons of overriding public interest.
- The Countryside and Rights of Way (CRoW) Act (HM Government, 2000, as amended) The CROW Act places a statutory duty on Statutory Nature Conservation Organisations (SNCO) to have regard to biodiversity conservation and to promote conservation action by others. Section 74 of the Act requires the preparation and maintenance of lists of priority species and habitats. It also places a statutory duty on public bodies to conserve SSSIs and enhance their value, and provides SNCOs with the power to impose Management Schemes on owners of SSSIs. The CROW Act strengthens the legal protection for threatened species with regard to killing, injuring, disturbing or destroying places used for shelter and protection.
- The Hedgerows Regulations (1997) The Hedgerow Regulations 1997 were made under Section 97 of the Environment Act 1995 (HM Government, 1995) and took effect on 1 June 1997. They introduced arrangement for local planning authorities (LPAs) to protect important countryside hedgerows through a system of notification. Such hedgerows are frequently valuable because of their historical, ecological and landscape characteristics.

  Under the Hedgerow Regulations 1997, an offence occurs when:

  - A person intentionally or recklessly removes, or causes or permits another person to remove, a hedgerow in contravention of regulation 5(1) or (9); and when

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  - A person contravenes or fails to comply with regulation 6(2).
  - A hedgerow is a boundary line of shrubs or trees and is 'important', and protected, under the Hedgerow Regulations 1997 if it meets a specific criterion (see Table 1 and Appendix 1). Cornish hedgerows do not necessarily meet the criteria of the Hedgerow Regulations 1997 but are typically of great historic, landscape and biodiversity value. The Hedge (and wall) Importance Test (HIT), developed by the Guild of Cornish Hedgers, is an alternative measure of value and is required to inform planning decisions impacting hedgerows in Cornwall (Cornwall Council, 2018).

- The Natural Environment and Rural Communities (NERC) Act (HM Government, 2006) bestows a legal duty on public authorities to conserve biodiversity. The Section 40 duty requires Local Authorities to have regard to the purpose of conserving biodiversity. This particularly relates to Section 41 Habitats and Species of Principal Importance (sometimes called 'priority habitats' or 'priority species'.
- The Protection of Badgers Act (1992) protects badgers as specified below.
- The Wildlife and Countryside Act (HM Government 1981, as amended) encompasses the protection of wildlife (fauna and flora), SSSIs, SPAs, National Nature Reserves (NNRs) and RAMSAR Sites.

Badgers: Badgers are legally protected under the Protection of Badgers Act 1992. As a result of this statutory legislation it is an offence to:

- Purposely kill, injure or take a badger;
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett;
- Disturb a badger when occupying a sett.

Birds: In Britain the nests (whilst in use or being built) and eggs of wild birds are protected against taking, damage and destruction under the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981).

Some species (i.e. barn owl) are also listed on Schedule 1 of the Wildlife and Countryside Act (HM Government, 1981 as amended); it is an offence to:

- Intentionally capture, injure or kill a Schedule 1 listed species;
- Intentionally or recklessly disturb a Schedule 1 listed species whilst nesting;
- Intentionally or recklessly disturb a dependent young Schedule 1 listed species.

European Protected Species (EPS) (Bat, dormouse, otter, water vole, sand lizard, smooth snake & great crested newt): EPS are listed on Annex IV(a) of the European Communities Habitats Directive.

In Britain protection of EPS is achieved through their inclusion on Schedule 2 of the Conservation and Habitats Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (HM Government, 2019)), Schedule 5 of the Wildlife and

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Countryside Act 1981 (1981, as amended) and Schedule 12 of the Countryside and Rights of Way Act 2000 (HM Government, 1981, 2000 & 2017).

As a result of this statutory legislation, it is an offence to:

Deliberately capture, injure or kill an EPS;

Intentionally or recklessly disturb an EPS in its place of rest/ breeding Site;

Intentionally or recklessly damage, destroy or obstruct access to a EPS place of rest/ breeding Site (even if the EPS is not occupying the resting / breeding place at the time);

Possess or sell or exchange an EPS (dead or alive) or part of an EPS.

Reptiles (adder, common lizard, slow worm and grass snake): reptiles are protected under Schedule 5 (section 9(1) and 9(5)) of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill and/ or injure reptiles, and sell or transport for the purpose of sale. Sand lizard and smooth snake are also EPS (see above legal protection of EPS).

Invasive plants: The WCA 1981 states that if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence. Anyone convicted of an offence under Section 14 of the WCA 1981 may face a fine of £5,000 and/or 6 months imprisonment, or 2 years and/or unlimited fine or indictment. The following legislation is relevant to invasive plants:

Control of Pesticides Regulations (CoPR) 1986: CoPR 1986 require any person who uses a pesticide to take all reasonable precautions to protect the health of human beings, creatures and plants, safeguard the environment and in particular avoid the pollution of water. For application of pesticides in or near water, approval from the Environment Agency should be sought before use.

Environmental Protection Act 1990 (EPA 1990): EPA 1990 contains a number of legal provisions concerning 'controlled waste', which is set out in Part II. Material containing the propagules of species listed on Schedule 9 is classified as controlled waste and must be safely disposed of at an appropriately licensed landfill site in accordance with the Environmental Protection Act 1990 (Duty of Care) Regulations 1991. Section 33 (1a) and (1b) create offences to do with the deposit, treating, keeping or disposing of controlled waste without a license. Exemptions from licensing are available in some circumstances, and are set out in Schedule 3 to the Waste Management Licensing Regulations 1994 as amended, which makes it an offence to keep, treat or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health. Anyone convicted is subject to a maximum fine of £20,000 and/or 6 months imprisonment and if prosecuted under the Crown court, this escalates to an unlimited fine and/or a maximum of two years imprisonment. Section 34 places duties on any person who imports, produces, carries, keeps, treats or disposes of controlled waste. Waste must be handled responsibly and in accordance with the law at all stages between its production and final recovery or disposal. Waste must be transferred to an authorized person i.e. either a registered carrier or exempted from registration by the Controlled Waste (Registration of Carriers and Seizure of Vehicle Regulations 1991). A waste transfer note must be completed and signed giving a written description of the waste, which is sufficient to enable the receiver of the waste to handle it in accordance with his or her own duty of care. The provisions concerning waste transfer notes are set out in the Environmental Protection (Duty of Care) Regulations 1991(as amended). Failure to comply with these provisions is an offence, with a penalty of a fine not exceeding £5000 up to an unlimited fine in Crown court.

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Hazardous Waste Regulations 2005 (HWR 2005): HWR 2005 contains provisions about the handling and movement of hazardous waste. Consignment notes must be completed when any hazardous waste is transferred, which include details about the hazardous properties and any special handling requirements. If a consignment note is completed, a waste transfer note is not necessary. Material containing knotweed that has been treated with herbicide may be classified as hazardous waste.

Waste Management Licensing Regulations (WMLR 1994): WMLR state that failure to use a licensed operative could leave you liable to prosecution. The 'waste relevant objectives' are described in paragraph 4 of Schedule 4. These objectives require that waste is recovered or disposed of "without endangering human health and without using processes or methods which could harm the environment and in particular without risk to water, air, soil, plants or animals; or causing nuisance through noise or odours; or diversely affecting the countryside or places of special interest".

Statutory Designated Sites

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are of International nature conservation importance.

Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) are of National importance. Development proposals with potential to affect a SAC, SSSI or NNR require permission from Natural England.

Local Nature Reserves (LNRs) are protected from development; the Local authority is responsible for LNRs.

Non-Statutory Designations

Non-statutory Sites include County Wildlife Sites (CWS), Site of Nature Conservation Interest (SNCI), Site of Importance for Nature Conservation (SINC), County Geology Sites (CGS), Roadside Verge Audit Biological Sites and Ancient Woodlands. CWSs, SNCI, SINC and CGSs are of at least county importance for wildlife/geology; all are given increased protection through the planning process.

Biodiversity Action Plans (BAPs): BAPs distinguish National and County level priority habitats and species for conservation. The list of habitats and species of principal importance under Section 41 NERC Act (2006) in England includes 56 habitats and 943 species first identified as priority habitats and species. The Local Authority has a duty to conserve habitats and species of principal importance; these habitats and species were previously identified as UK BAP priority habitats and species under Section 74 of the CRoW Act (2000).

Red Data Books & Lists: detail the status of species in relation to threat.

Planning Context

The local planning authority has a statutory obligation to consider impacts upon protected species resulting from development. Paragraph 99 ODPM Circular 06/2005 states: 'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there

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is a reasonable likelihood of the species being present and affected by the development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place, through conditions and/or planning obligations, before the permission is granted'.

National Policy: The National Planning Policy Framework (NPPF) was revised in September 2023 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012, revised in July 2018, 2019 and updated in September 2023.

Chapter 15 of the NPPF (2023) 'conserving and enhancing the natural environment' sets out how the planning system should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Of particular note are the following paragraphs:

NPPF Paragraph 174 states. Planning policies and decisions should contribute to and enhance the natural and local environment by:

> a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
>
> b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
>
> c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
>
> d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

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e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

NPPF Paragraph 175 states. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

NPPF Paragraph 176 states. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks. Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

NPPF Paragraph 177 states. When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;

b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and

c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

NPPF Paragraph 178 states. Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character. Habitats and biodiversity

NPPF Paragraph 179 states. To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

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b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity. English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters. For the purposes of paragraphs 176 and 177, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined. Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system. Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

NPPF Paragraph 180 states: When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons63 and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

NPPF Paragraph 181 states. The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

NPPF Paragraph 182 states. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Local Policy - Cornwall

Cornwall Local Strategic Plan Policies 2010 - 2030

The latest Local Plan was adopted on 22nd November 2016. The key relevant policies from the Local Plan relating to ecology and nature conservation are Policy 22 (European Protected Sites) and Policy 23 (Natural Environment).

Policy 22 is detailed below:

For residential development and student and tourist accommodation, mitigation measures for recreational impacts on European Sites will be required where development is proposed within the identified zones of influence around those European Sites that are vulnerable to adverse recreational impacts. Residential development, student, and tourist accommodation within these zones of influence will be required to provide for appropriate management, mitigation and monitoring on Site, and/ or financial contributions towards off site mitigation and management. This will need to be agreed and secured prior to approval of the development.

Policy 22 is reinforced with the pending Cornwall Council European Sites Supplementary Planning Document (SPD).

Policy 23 comprises a number of measures for development proposals including:

Development should conserve, protect and where possible enhance biodiversity and geodiversity interests and soils commensurate with their status and giving appropriate weight to their importance (3).

All development must ensure that the importance of habitats and designated sites are taken into account and consider opportunities for the creation of a local and county-wide biodiversity network of wildlife corridors which link County Wildlife Sites and other areas of biodiversity importance (3).

The highest level of protection will be given to potential and existing Special Protection Areas, candidate and existing Special Areas of Conservation and listed or proposed RAMSAR sites (3a).

Development proposals within or outside an SSSI or Marine Conservation Zone which would be likely to adversely affect the site (either individually or in combination with other developments) will not be permitted unless the benefits of the development, at this site, clearly outweigh both the adverse impacts on the site and any adverse impacts on the wider network of SSSI and Marine Conservation Zones (3b).

Development likely to adversely affect locally designated sites, their features or their function as part of the ecological network, including County Wildlife Sites, Local Geological Sites and sites supporting Biodiversity Action Plan habitats and species, will only be permitted where the need and benefits of the development clearly outweigh the loss and the coherence of the local ecological network is maintained (3c).

Adverse impacts on European and UK protected species and Biodiversity Action Plan habitats and species must be avoided wherever possible (i) subject to the legal tests afforded to them, where applicable (ii) otherwise, unless the need for and benefits clearly outweigh the loss (3d).

Development must avoid the loss or deterioration of ancient woodland and veteran trees, unless the need for, or benefits of, development on that site clearly outweigh the loss (3e).

Development should avoid adverse impact on existing features as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements, and opportunities for geological conservation alongside new development. Where adverse impacts are unavoidable they

must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort (4).

Cornwall Council Planning for Biodiversity Document

This document was adopted on 16th October 2018 by Cornwall Council and is a material consideration in planning decisions. It is supplementary to policies of the Cornwall Local Plan: Strategic Policies (2016). Considering the amended NPPF (2018) and the Council's approach to calculating and securing Environmental/Biodiversity Net Gain, the document will be reviewed alongside engagement on the Council's approach to Net Gain and adopted in a revised form as a Supplementary Planning Document, forming part of a suite of adopted guidance designed to promote good practice in the built and natural environment in Cornwall.

Cornwall Council Terrestrial European Sites Supplementary Planning Document (SPD)

'This SPD provides a solution for Appropriate Assessment and mitigation for those submitting planning applications that fall within the zones of influence of European protected sites in Cornwall, and where recreational disturbance is the only Habitat Regulations issue. It sets out a strategic approach to the provision of mitigation for an increase in potentially harmful recreational impacts arising from new housing and tourism growth. The intention of this strategically led mitigation is to provide the best joined up solution for the European sites management to ensure their future conservation status. This approach addresses the requirements of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and in doing so provides individual developers with a standard solution to Appropriate Assessment and mitigation. This SPD explains where Appropriate Assessment and mitigation of recreational impacts is required and why and sets out the solutions to achieving this'.

Biodiversity Net Gain: A how to guide for the development process - https://www.cornwall.gov.uk/media/muhmug45/draft-biodiversity-net-gain-guidance-for-developers-and-planners-web.pdf

'This aim of this document is to enable developers and planners to understand how Biodiversity Net Gain will apply to planning applications in Cornwall. The document will overview the core concepts of Biodiversity Net Gain and Biodiversity Metrics, describe the typical process for successful validation of planning applications and explain what steps developers need to take to have a successful Net Gain application. It will also give guidance on fulfilling ongoing Biodiversity Net Gain requirements into the future and what to do when struggling to achieve Biodiversity Net Gain onsite'.

Draft Chief Planning Officers Advice Note: Biodiversity Net Gain in Cornwall - https://old.cornwall.gov.uk/media/43031716/draft-chief-planning-officer-note-biodiversity-net-gain.pdf

The Environment Act (2021) requires all developments to achieve a minimum 10% Biodiversity Net Gain. Cornwall Council has adopted this policy as set out in the Draft Chief Planning Officers Advice Note and requires all major developments to quantify and describe habitat loss using the latest Biodiversity Metric and achieve a minimum 10% biodiversity net gain.

Cornwall's Environmental Growth Strategy 2020 – 2065 - https://old.cornwall.gov.uk/media/24212257/environmental-growth-strategy_jan17_proof.pdf

Cornwall's Environmental Growth Strategy provides a long-term framework for Cornwall and the Isles of Scilly to not just conserve, but to grow nature in line with the Environment Act (2021). Environmental growth is about both protecting and enhancing nature, ensuring that there is more

of it, and that it is bigger, better, more diverse, and more connected. A Nature Recovery Network has been identified and mapped by LAGAS Natural Capital Information and Management Hub.

Climate Emergency Development Plan Document (Anticipate adoption date: 21st Feb 2023 - https://www.cornwall.gov.uk/media/1pzjuzln/appendix-3-finalclimate-emergency-dpd-appendix-3-final-with-map_p1.pdf)

Policy C1 - Climate Change Principles: Development in Cornwall should represent sustainable development and manage our natural, historic and cultural assets wisely for future generations. Of particular relevance are the following objectives:

2. Mitigate against and improve resilience to the effects of climate change;

3. Contribute positively to the health, wellbeing and resilience of our communities and the natural world;

4. Use and reuse land efficiently and minimise impact of development on soils through over compaction, pollution or reduction in the quality of soil and encourage regenerative practice to conserve the capacity of soils for sustainable production of food, water, raw materials and energy;

5. Contribute positively to environmental growth, protecting irreplaceable habitats and the integrity of ecosystems, restoring natural processes and strengthening nature recovery networks, and ensuring a net gain for biodiversity.

7. Conserve and enhance our natural and historic environment and cultural heritage according to their international, national and local significance and increase built and natural environment distinctiveness through locally distinctive, high quality and sustainable design and multi-functional green infrastructure provision;

8. Avoid or minimise light, water, air and noise pollution and improve or maintain air and water quality;

9. Protect and enhance carbon storage in our natural environment (including the marine environment); and

10. Regenerate, improve or maintain the natural functioning of coastal and river processes, avoiding areas at risk of flooding and coastal change and further reducing flood risk elsewhere wherever possible.

Policy G1 - Green Infrastructure Design and Maintenance: Green infrastructure should be central to the design of schemes, ensuring permeability of the site for wildlife and people and creating a multi-functional network of spaces and uses. All developments should be planned around the protection and enhancement of nature. Development proposals will be expected, where appropriate to the scale and nature of the development, to meet the following principles of green infrastructure design:

1. The green infrastructure should form a multifunctional network through the creation of linear and other green infrastructure features to provide and enhance natural connections using important local character features, including existing planting, trees, groups of trees, copses, wetland, hedgerows and opportunities for wild food foraging as the key starting point for green infrastructure proposals and retain, reinforce and embed them into the design of the development to create distinctive places with permeable boundaries that reference, reflect and enhance the local environment; and

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2. The green infrastructure shall be accessible for all with high levels of accessibility in public areas, and promote health, wellbeing, community and cohesion and active living; and

3. The green infrastructure shall incorporate sustainable drainage and blue infrastructure wherever possible and create better places for people and wildlife; and

4. The green infrastructure shall be resilient to climate change, minimise the development's environmental impact and enhance the quality of water, soil and air, aiding resilience and adaptation to climate change; and

5. Priority shall be given in landscaping schemes and natural planting to at least 50% pollinator friendly planting of predominantly native species; and

6. Street trees and other greening shall be integrated into street design and public open spaces wherever possible while remaining sympathetic to the historic environment. Streets should be designed to accommodate tree pits, whilst maintaining the space for the necessary runs of services (e.g. water, electric, sewerage); and,

7. The design and maintenance of green infrastructure shall conserve and enhance the historic environment and contribute to local distinctiveness; and

8. Homes should have access to a well-proportioned and well-orientated garden (generally equal in size to the footprint of the house) or other communal green space that provides a cohesive and useable space which is suited to a range of activities and space for nature; and,

9. The development shall make provision for long-term post-development management and maintenance for all green infrastructure, including provision for community representation and management; and,

10. The development proposal shall include a scheme for the provision of bird and bat boxes and bee bricks tailored to habitat conditions existing on or being created on and/or adjoining the site including the location and clustering (as appropriate) of those measures. These should normally be provided at the rate of one measure per unit, provided in the most suitable locations, either as single units or a cluster of such (e.g. close to hedgerows and flightpaths).

Policy G2 - Biodiversity Net Gain: 1. All development proposals (except those defined as exempt in secondary legislation) must achieve a minimum of 10% Biodiversity Net Gain (or any higher percentage mandated by national policy/legislation) over the pre-development site value as measured by the latest version of the DEFRA Biodiversity Metric.

In advance of national mandating of biodiversity net gain this policy shall only apply to major development proposals.

2. Proposals for Biodiversity Net Gain must:

a) be supported by core biodiversity gain information;

b) be secured for at least a 30 year period from the substantive completion of the development;

c) be delivered in accordance with an agreed management plan;

d) follow the mitigation hierarchy set out in National Policy and Local Plan Policy 23(3) and (4) and demonstrate evidence of adequate avoidance and mitigation measures. Biodiversity net gain should be additional to any habitat creation required to mitigate or compensate for impacts; and

e) aim to achieve the required net gain onsite within the site boundary.

3. where a proposal adequately demonstrates in the Biodiversity Gain Plan that the mitigation hierarchy has been followed and the required net gain, or any compensation for lost biodiversity cannot be achieved onsite within the site boundary, it must secure the alternative provision of the required biodiversity units as registered offsite gains through:

a) the purchase of registered offsite biodiversity units to enable provision to be made by an approved biodiversity provider; provided the in-perpetuity management and monitoring of the receptor site can be assured; or

b) direct provision of the habitat types in a suitable location by the applicant provided the in-perpetuity management and monitoring of the offset site can be assured; or

c) a Biodiversity Offset Contribution to the Cornwall Council Habitat Bank.

d) the purchase of statutory Biodiversity Credits from National Government.

4. The receptor site for any local offsite biodiversity gains should have regard to the local priorities for nature as set out in any adopted Local Nature Recovery Strategy to be provided, be in a suitable location where local climatic conditions suit the type of offset offsite habitat to be provided, informed by a comprehensive understanding of habitats and species associated with the site and should avoid the best and most versatile agricultural land.

Minor development (as defined in secondary legislation) shall demonstrate biodiversity net gains in accordance with a Cornwall Council approved Small Site Biodiversity Metric.

Policy G3 – Canopy: 1. All major development should provide, through the retention of existing and or / the establishment of new, canopy coverage equal to at least 15% of the site area (excluding areas of the site that are priority habitat types) in accordance with a Cornwall Council approved calculator or metric.

2. Any proposal to remove canopy on the site should be justified in accordance with the canopy mitigation hierarchy.

3. Where a pre-development site already contains canopy that exceeds the 15% requirement, the development proposal should ensure the retention of as much canopy as possible on site in line with the mitigation hierarchy and should justify the losses proposed. An alternative canopy cover percentage, as evidenced by a council approved canopy metric, should be agreed with the Local Authority.

4. Where there are significant ecological, historical, landscape or operational reasons to justify a canopy requirement of less than 15% on site and this can be fully evidenced, an alternative percentage of canopy provision shall be agreed with the Council.

5. Minor development sites (with the exception of householder development and Change of Use (not creating new dwellings or additional floorspace) are not required to demonstrate the 15% canopy target but should explore all options in relation to canopy provision, and take appropriate measures to both avoid or reduce harm to existing onsite trees. Proposals shall include where appropriate and practicable provision of new canopy.

6. New canopy should provide a mix of species that are resilient to pests, diseases and climate change and should be delivered in sustainable locations, in a manner that supports the growth and

spatial requirements of canopy. New canopy should positively contribute to the climate resilience of the site in a manner which protects and enhances existing canopy.

Policy G4 – Local Nature Recovery Networks: Where development is sited within or adjacent to an adopted Local Nature Recovery Network it should demonstrate how the proposal will maintain and enhance the integrity and connectivity of the network and support the principles of the Local Nature Recovery Strategy.

Policy RE1 – Renewable and Low Carbon Energy: Proposals for renewable and low carbon energy-generating and distribution networks, will be supported in the context of sustainable development and climate change.

Policy CC1 – Coastal Vulnerability Zone: Relevant parts include:

1) New development including replacement buildings (unless classified as exempt) within the Coastal Vulnerability Zone will only be permitted where it can be demonstrated through a Coastal Vulnerability Assessment that it:

a) Is consistent with policy statements for the local policy unit in the current Shoreline Management Plan; and

b) would not impair the ability of communities and the natural environment /biodiversity to adapt sustainably to the impacts of coastal change (including coastal squeeze).

3) Soakaways and other infiltration based sustainable systems within 5 metres of the Cornwall Coastal Vulnerability Map (CCVM) zone or discharge of surface water over or down the face of a cliff will not be permitted unless demonstrated through a Coastal Vulnerability Assessment that the proposed drainage method would not adversely affect coastal stability.

Policy CC3 – Reduction of Flood Risk: Development proposals shall be designed to reduce flood risk to the application site and its surroundings.

Policy CC4 – Sustainable Drainage System (SuDS) Design: SuDS proposals shall prioritise the use of above non-buried SuDS, including retrofit SuDS and where feasible within existing town centres, commercial and retail areas, and redevelopment projects and shall be designed to achieve the following criteria:

1) Maximise the benefits to the sense of place, amenity and biodiversity; and

2) Reduce the overall level of flood risk on the site and the surrounding areas; and

3) Provide attractive, biodiverse and non-buried systems; and

4) Incorporate SuDS within greenspace, blue and green infrastructure, amenity, and biodiversity schemes to manage surface water flows, improve water quality, educate and improve the wellbeing of communities; and

5) Where built into public green or open space have sufficient room to provide a safe, naturalised system without the need for fencing or barriers; and

6) Provide for simple and straightforward maintenance, including the provision of a plan and mechanism for on-going maintenance.

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5. Appendix 5: Guidance for working and excavating near overhead cables

Avoiding danger from overhead power lines

Guidance Note GS6 (Fourth edition)

This general series guidance note is for people who may be planning to work near overhead lines where there is a risk of contact with the wires, and describes the steps you should take to prevent contact with them. The fourth edition makes the advice easier to follow and has brought the supporting visuals up to date. The guidance has not fundamentally changed from the previous version.

It is primarily aimed at employers and employees who are supervising or in control of work near live overhead lines, but it will also be useful for those who are carrying out the work.

Contents

Introduction

1 Every year people at work are killed or seriously injured when they come into contact with live overhead electricity power lines. These incidents often involve:

- machinery, eg cranes, lorry-loader cranes, combine harvesters, and tipping trailers;
- equipment, eg scaffold tubes and ladders;
- work activities, eg loading, unloading, lifting, spraying, and stacking.

2 If a machine, scaffold tube, ladder, or even a jet of water touches or gets too close to an overhead wire, then electricity will be conducted to earth. This can cause a fire or explosion and electric shock and burn injuries to anyone touching the machine or equipment. An overhead wire does not need to be touched to cause serious injury or death as electricity can jump, or arc, across small gaps.

3 One of the biggest problems is that people simply do not notice overhead lines when they are tired, rushing or cutting corners. They can be difficult to spot, eg in foggy or dull conditions, when they blend into the surroundings at the edge of woodland, or when they are running parallel to, or under, other lines.

4 Always assume that a power line is live unless and until the owner of the line has confirmed that it is dead.

5 This guidance is for people who may be planning to work near overhead lines where there is a risk of contact with the wires, and describes the steps you should take to prevent contact with them. It is primarily aimed at employers and employees who are supervising or in control of work near live overhead lines, but it will also be useful for those who are carrying out the work.

Types of overhead power lines and their heights

6 Most overhead lines have wires supported on metal towers/pylons or wooden poles –they are often called ‘transmission lines’ or ‘distribution lines’. Some examples are shown in Figures 1–3.

Figure 1 275 kV transmission line

Figure 2 11 kV distribution line

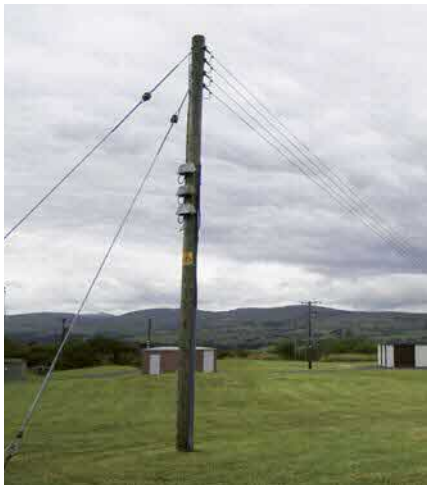

Figure 3 400 V distribution line

7 Most high-voltage overhead lines, ie greater than 1000 V (1000 V = 1 kV) have wires that are bare and uninsulated but some have wires with a light plastic covering or coating. All high-voltage lines should be treated as though they are uninsulated. While many low-voltage overhead lines (ie less than 1 kV) have bare uninsulated wires, some have wires covered with insulating material. However, this insulation can sometimes be in poor condition or, with some older lines, it may not act as effective insulation; in these cases you should treat the line in the same way as an uninsulated line. If in any doubt, you should take a precautionary approach and consult the owner of the line.

8 There is a legal minimum height for overhead lines which varies according to the voltage carried. Generally, the higher the voltage, the higher the wires will need to be above ground (see Figure 4). Equipment such as transformers and fuses attached to wooden poles and other types of supports will often be below these heights. There are also recommended minimum clearances published by the Energy Networks Association (ENA Technical Specification 43-8 *Overhead Line Clearances*)[1] between the wires and structures such as buildings and lamp posts.

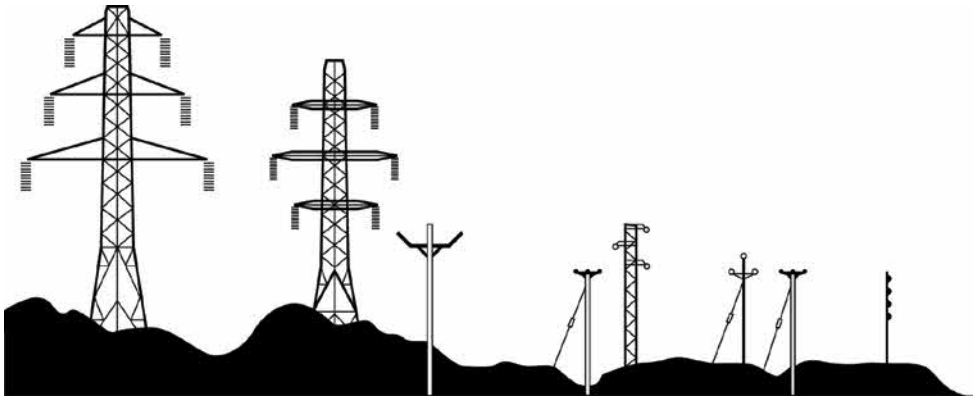

Figure 4 Minimum heights above ground level for overhead power lines

What does the law require?

9 The law requires that work may be carried out in close proximity to live overhead lines only when there is no alternative and only when the risks are acceptable and can be properly controlled. You should use this guidance to prepare a risk assessment that is specific to the site. Guidance on how to carry out a risk assessment is available at www.hse.gov.uk/toolbox/managing/managingtherisks.htm.

10 Businesses and employees who work near to an overhead line must manage the risks. Overhead line owners have a duty to minimise the risks from their lines and, when consulted, advise others on how to control the risks. The line owner will usually be an electricity company, known as a transmission or distribution network operator, but could also be another type of organisation, eg Network Rail, or a local owner, eg the operator of a caravan park. More details about legal responsibilities can be found in Annex 1.

Preventing overhead line contact accidents

11 Good management, planning and consultation with interested parties before and during any work close to overhead lines will reduce the risk of accidents. This applies whatever type of work is being planned or undertaken, even if the work is temporary or of short duration. You should manage the risks if you intend to work within a distance of 10 m, measured at ground level horizontally from below the nearest wire.

Remove the risk

12 The most effective way to prevent contact with overhead lines is by not carrying out work where there is a risk of contact with, or close approach to, the wires.

13 If you cannot avoid working near an overhead line and there is a risk of contact or close approach to the wires, you should consult its owner to find out if the line can be permanently diverted away from the work area or replaced with underground cables. This will often be inappropriate for infrequent, short-duration or transitory work.

14 If this cannot be done and there remains a risk of contact or close approach to the wires, find out if the overhead line can be temporarily switched off while the work is being done. The owner of the line will need time to consider and act upon these types of requests and may levy a charge for any work done.

Risk control

15 If the overhead line cannot be diverted or switched off, and there is no alternative to carrying out the work near it, you will need to think about how the work can be done safely. If it cannot be done safely, it should not be done at all. Your site-specific risk assessment will inform the decision. Things to consider as part of your risk assessment include:

- the voltage and height above ground of the wires. Their height should be measured by a suitably trained person using non-contact measuring devices;
- the nature of the work and whether it will be carried out close to or underneath the overhead line, including whether access is needed underneath the wires;
- the size and reach of any machinery or equipment to be used near the overhead line;
- the safe clearance distance needed between the wires and the machinery or equipment and any structures being erected. If in any doubt, the overhead line's owner will be able to advise you on safe clearance distances;
- the site conditions, eg undulating terrain may affect stability of plant etc;
- the competence, supervision and training of people working at the site.

16 If the line can only be switched off for short periods, schedule the passage of tall plant and, as far as is possible, other work around the line for those times.

17 Do not store or stack items so close to overhead lines that the safety clearances can be infringed by people standing on them.

Working near but not underneath overhead lines –the use of barriers

18 Where there will be no work or passage of machinery or equipment under the line, you can reduce the risk of accidental contact by erecting ground-level barriers to establish a safety zone to keep people and machinery away from the wires. This area should not be used to store materials or machinery. Suitable barriers can be constructed out of large steel drums filled with rubble, concrete blocks, wire fence earthed at both ends, or earth banks marked with posts.

- If steel drums are used, highlight them by painting them with, for example, red and white horizontal stripes.
- If a wire fence is used, put red and white flags on the fence wire.
- Make sure the barriers can be seen at night, perhaps by using white or fluorescent paint or attaching reflective strips.

19 The safety zone should extend 6 m horizontally from the nearest wire on either side of the overhead line. You may need to increase this width on the advice of the line owner or to allow for the possibility of a jib or other moving part encroaching into the safety zone. It may be possible to reduce the width of the safety zone but you will need to make sure that there is no possibility of encroachment into the safe clearance distances in your risk assessment.

20 Where plant such as a crane is operating in the area, additional high-level indication should be erected to warn the operators. A line of coloured plastic flags or 'bunting' mounted 3–6 m above ground level over the barriers is suitable. Take care when erecting bunting and flags to avoid contact or approach near the wires.

Passing underneath overhead lines

21 If equipment or machinery capable of breaching the safety clearance distance has to pass underneath the overhead line, you will need to create a passageway through the barriers, as illustrated in Figure 5. In this situation:

- keep the number of passageways to a minimum;
- define the route of the passageway using fences and erect goalposts at each end to act as gateways using a rigid, non-conducting material, eg timber or plastic pipe, for the goalposts, highlighted with, for example, red and white stripes;
- if the passageway is too wide to be spanned by a rigid non-conducting goalpost, you may have to use tensioned steel wire, earthed at each end, or plastic ropes with bunting attached. These should be positioned further away from the overhead line to prevent them being stretched and the safety clearances being reduced by plant moving towards the line;
- ensure the surface of the passageway is levelled, formed-up and well maintained to prevent undue tilting or bouncing of the equipment;
- put warning notices at either side of the passageway, on or near the goalposts and on approaches to the crossing giving the crossbar clearance height and instructing drivers to lower jibs, booms, tipper bodies etc and to keep below this height while crossing;
- you may need to illuminate the notices and crossbar at night, or in poor weather conditions, to make sure they are visible;
- make sure that the barriers and goalposts are maintained.

Figure 5 Typical passageway through barriers

22 On a construction site, the use of goalpost-controlled crossing points will generally apply to all plant movements under the overhead line.

Working underneath overhead lines

23 Where work has to be carried out close to or underneath overhead lines, eg road works, pipe laying, grass cutting, farming, and erection of structures, and there is no risk of accidental contact or safe clearance distances being breached, no further precautionary measures are required.

24 However, your risk assessment must take into account any situations that could lead to danger from the overhead wires. For example, consider whether someone may need to stand on top of a machine or scaffold platform and lift a long item above their head, or if the combined height of a load on a low lorry breaches the safe clearance distance. If this type of situation could exist, you will need to take precautionary measures.

25 If you cannot avoid transitory or short-duration, ground-level work where there is a risk of contact from, for example, the upward movement of cranes or tipper trailers or people carrying tools and equipment, you should carefully assess the risks and precautionary measures. Find out if the overhead line can be switched off for the duration of the work. If this cannot be done:

- refer to the Energy Networks Association (ENA) publication *Look Out Look Up! A Guide to the Safe Use of Mechanical Plant in the Vicinity of Electricity Overhead Lines.*[2] This advises establishing exclusion zones around the line and any other equipment that may be fitted to the pole or pylon. The minimum extent of these zones varies according to the voltage of the line, as follows:
  - low-voltage line –1 m;
  - 11 kV and 33 kV lines –3 m;
  - 132 kV line –6 m;
  - 275 kV and 400 kV lines –7 m;

- under no circumstances must any part of plant or equipment such as ladders, poles and hand tools be able to encroach within these zones. Allow for uncertainty in measuring the distances and for the possibility of unexpected movement of the equipment due, for example, to wind conditions;
- carry long objects horizontally and close to the ground and position vehicles so that no part can reach into the exclusion zone, even when fully extended. Machinery such as cranes and excavators should be modified by adding physical restraints to prevent them reaching into the exclusion zone. Note that insulating guards and/or proximity warning devices fitted to the plant without other safety precautions are not adequate protection on their own;
- make sure that workers, including any contractors, understand the risks and are provided with instructions about the risk prevention measures;
- arrange for the work to be directly supervised by someone who is familiar with the risks and can make sure that the required safety precautions are observed;
- if you are in any doubt about the use of exclusion zones or how to interpret the ENA document, you should consult the owner of the overhead line.

26 Where buildings or structures are to be erected close to or underneath an overhead line, the risk of contact is increased because of the higher likelihood of safety clearances being breached. This applies to the erection of permanent structures and temporary ones such as polytunnels, tents, marquees, flagpoles, rugby posts, telescopic aerials etc. In many respects these temporary structures pose a higher risk because the work frequently involves manipulating long conducting objects by hand.

27 The overhead line owner will be able to advise on the separation between the line and structures, for example buildings using published standards such as ENA Technical Specification 43-8 *Overhead Line Clearances*.[1] However, you will need to take precautions during the erection of the structure. If the overhead line cannot be diverted or switched off then you should take account of the guidance in paragraphs 23 to 26 relating to working underneath such lines.

28 Consider erecting a horizontal barrier of timber or other insulating material beneath the overhead line to form a roof over the construction area –in some cases an earthed, steel net could be used. This should be carried out only with the agreement of the overhead line owner, who may need to switch off the line temporarily for the barrier to be erected and dismantled safely.

29 Ideally, work should not take place close to or under an overhead line during darkness or poor visibility conditions. Dazzle from portable or vehicle lighting can obscure rather than show up power lines.

Working near overhead lines connected to buildings

30 Sometimes, work needs to be carried out near uninsulated low-voltage overhead wires, or near wires covered with a material that does not provide effective insulation, connected to a building. Examples of such work are window cleaning, external painting or short-term construction work. If it is not possible to re-route or have the supply turned off, the line's owner, eg the distribution network operator, may be able to fit temporary insulating shrouds to the wires, for which a charge may be levied. People, plant and materials still need to be kept away from the lines.

Emergency procedures

31 If someone or something comes into contact with an overhead line, it is important that everyone involved knows what action to take to reduce the risk of anyone sustaining an electric shock or burn injuries. Key points are:

- never touch the overhead line's wires;
- assume that the wires are live, even if they are not arcing or sparking, or if they otherwise appear to be dead;
- remember that, even if lines are dead, they may be switched back on either automatically after a few seconds or remotely after a few minutes or even hours if the line's owner is not aware that their line has been damaged:
- if you can, call the emergency services. Give them your location, tell them what has happened and that electricity wires are involved, and ask them to contact the line's owner:
- if you are in contact with, or close to, a damaged wire, move away as quickly as possible and stay away until the line's owner advises that the situation has been made safe:
- if you are in a vehicle that has touched a wire, either stay in the vehicle or, if you need to get out, jump out of it as far as you can. Do not touch the vehicle while standing on the ground. Do not return to the vehicle until it has been confirmed that it is safe to do so;

- be aware that if a live wire is touching the ground the area around it may be live. Keep a safe distance away from the wire or anything else it may be touching and keep others away.

Industry-specific guidance

32 HSE and other organisations publish industry and sector-specific guidance based on this guidance. The main industries and sectors covered by this are construction, agriculture, horticulture, forestry and arboriculture. The Energy Networks Association (ENA), the body representing transmission and distribution network operating companies, also publishes guidance leaflets (see the References section).

Annex 1 The law

1 The Health and Safety at Work etc Act 1974 (HSW Act) places responsibilities on everyone concerned with work activities, including employers, the self-employed and employees.

Regulations:
www.legislation.gov.uk/ukpga/1974/37/contents

2 The Management of Health and Safety at Work Regulations 1999 require that:

- risks are properly assessed and controlled;
- employees are provided with adequate health and safety training;
- employers who share a workplace consult and co-ordinate with each other.

Regulations:
www.legislation.gov.uk/uksi/1999/3242/contents/made

3 Regulation 9 of The Provision and Use of Work Equipment Regulations 1998 requires all people who use work equipment to have received adequate training in the use of that equipment.

Regulations:
www.legislation.gov.uk/uksi/1998/2306/contents/made

Approved Code of Practice:

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22 (Third edition) HSE Books 2008 ISBN 978 0 7176 6295 1 www.hse.gov.uk/pubns/books/l22.htm

4 The Electricity at Work Regulations 1989 require precautions to be taken against the risk of death or personal injury from electricity in work activities. Regulation 14 addresses live work activities, which include working on, or so near, live overhead lines that there is a risk of injury.

Regulations:

www.legislation.gov.uk/uksi/1989/635/contents/made

Guidance:

Memorandum of guidance on the Electricity at Work Regulations 1989. Guidance on Regulations HSR25 (Second edition) HSE Books 2007 ISBN 978 0 7176 6228 9 www.hse.gov.uk/pubns/books/hsr25.htm

5 The Electricity Safety Quality and Continuity Regulations 2002 require, among other things, owners of overhead lines to ensure that they are at the appropriate height and meet certain standards.

Regulations:

www.legislation.gov.uk/uksi/2002/2665/contents/made

Guidance:

www.berr.gov.uk/files/file26709.pdf

6 The Construction (Design and Management) Regulations 2007 place duties on construction clients, designers and contractors to plan and organise work so as to avoid danger from energy distribution networks.

Regulations:

www.legislation.gov.uk/uksi/2007/320/contents/made

Approved Code of Practice:

Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice L144 HSE Books 2007 ISBN 978 0 7176 6223 4 www.hse.gov.uk/pubns/books/l144.htm

References

1 ENA Technical Specification 43-8 *Overhead Line Clearances* www.energynetworks.org/electricity/

2 *Look Out Look Up! A Guide to the Safe Use of Mechanical Plant in the Vicinity of Electricity Overhead Lines* Energy Networks Association (ENA) www.energynetworks.org/electricity/

Further reading

Agriculture

Working safely near overhead electricity power lines Agriculture Information Sheet AIS8(rev3) HSE Books 2012 www.hse.gov.uk/pubns/ais8.htm

Safety information for farmers and agricultural contractors ENA 2007 http://energynetworks.squarespace.com/agriculture/

Safety information for farmers utilising polytunnels ENA 2008 http://energynetworks.squarespace.com/polytunnels/

Construction

Guidance is published by HSE under the heading *Electricity – Overhead power lines* at www.hse.gov.uk/construction/safetytopics/overhead.htm

Safe use of Lorry Loaders – Best practice guide the Association of Lorry Loader Manufacturers and Importers (ALLMI) and the Construction Plant-hire Association (CPA) www.allmi.com

Safety information for demolition companies ENA 2008 http://energynetworks.squarespace.com/demolition/

Safety information for scaffolders ENA 2007 http://energynetworks.squarespace.com/scaffolders/

Quarries

Guidance is published by HSE at www.hse.gov.uk/quarries/hardtarget/electricity.htm

Arboriculture and forestry

Treework web pages: www.hse.gov.uk/treework/safety-topics/power-lines.htm

Safety information for tree trimming near overhead power lines ENA 2008 http://energynetworks.squarespace.com/tree-trimming/

Landscaping and ground maintenance

Safety information for landscaping and ground maintenance workers ENA 2011 http://energynetworks.squarespace.com/tree-trimming/

Railways

Advice in relation to railways is available at www.rail-reg.gov.uk/upload/pdf/rgd-2011-05-web.pdf

Emergency services
Safety advice for the fire service ENA 2007
http://energynetworks.squarespace.com/fire-service/

Safety advice for the police service ENA 2007
http://energynetworks.squarespace.com/police/

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This document is available at: www.hse.gov.uk/pubns/gs6.htm.

6. Appendix 6: Guidance for working and excavating near buried gas pipelines

T/SP/SSW/22

SPECIFICATION FOR

SAFE WORKING IN THE VICINITY OF PIPELINES AND ASSOCIATED INSTALLATIONS OPERATING ABOVE 2 BARG - REQUIREMENTS FOR THIRD PARTIES

JUNE 2013

CONTENTS

APPENDIX

FOREWORD

This Specification was approved, by Chris Clarke, Director of Asset Management and HS&E Dept on 21st June 2013 for use by managers, engineers and supervisors throughout Wales & West Utilities Limited.

Documents are revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition by referring to the document library available on the company intranet.

Compliance with this document does not confer immunity from prosecution for breach of statutory or other legal obligations.

BRIEF HISTORY

First published as T/SP/SSW22	October 2001	EPSG/L01/283
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Editorial update to comply with GRM	August 2004	
Document revised to remove reference to Transco and replace with WWU Ltd.	May 2006	
Document revised to reflect WWU management structure, include IP pipelines and update letters	June 2013	

KEY CHANGES (Identify the changes from the previous version of this document)

Section	Amendments
1	Scope extended from any pipe operating above 7bar to above 2bar gauge
5 & 6	References added to T/PR/P/18
8	References added to wind turbine development near pipelines

USE

This document is provided by Wales & West Utilities Limited for information and reference.

MANDATORY AND NON-MANDATORY REQUIREMENTS

In this document:

must: indicates a mandatory requirement.

should: indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment must be completed to show that the alternative method delivers the same, or better, level of protection.

ENDNOTE

Comments

Comments and queries regarding the technical content of this document should be directed to:

Asset Management & HSE Dept
Wales & West Utilities Ltd
Wales & West House
Spooner Close
Coedkernew
Newport
NP10 8FZ

Buying documents
Contractors and other external users should direct their requests for further copies of Wales & West Utilities documents to the department or group responsible for the initial issue of their contract documentation.

SPECIFICATION FOR

SAFE WORKING AND DEVELOPMENT IN THE VICINITY OF PIPELINES AND ASSOCIATED INSTALLATIONS OPERATING ABOVE 2 BARG - REQUIREMENTS FOR THIRD PARTIES

INTRODUCTION

This specification is for issue to third parties carrying out work in the vicinity of high pressure gas pipelines (above 2 bar gauge) and associated installations and is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.

Any damage to a high-pressure gas pipeline or its coating can affect its integrity and can result in failure of the pipeline with potential serious hazardous consequences for individuals located in the vicinity of the pipeline if it were to fail. It is therefore essential that the procedures outlined in this document are complied with when working near to a high pressure, above 2 bar gauge, pipeline. If any work is considered by Wales & West Utilities to be in breach of the requirements stipulated in this document then the Wales & West Utilities responsible person will suspend the work until the non-compliances have been rectified.

The Pipelines Safety Regulations state that "No person shall cause such damage to a pipeline as may give rise to a danger to persons" (Regulation 15). Failing to comply with these requirements could therefore also result in prosecution by the Health and Safety Executive (HSE).

The requirements in this document are in line with the requirements of the IGE (Institution of Gas Engineers) recommendations IGE/SR/18 Edition 2 - Safe Working Practices To Ensure The Integrity Of Gas Pipelines And Associated Installations and the HSE's guidance document HS(G)47 Avoiding Danger from Underground Services.

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction and Design Management Regulations and all other relevant health and safety legislation.

WHEN CARRYING OUT WORK IN THE VICINITY OF A HIGH PRESSURE PIPELINE FOLLOW THE FOLLOWING PROCESS

CONTACT WALES & WEST UTILITIES

Contact Wales & West Utilities to obtain formal consent - Section 2 of this document.
Note: at least 7 days' notice prior to commencement of the work is normally required

CONSIDER SAFETY

Consider the safety requirements - Section 3 of this document.

INFORM Wales & West Utilities **AND REQUEST PIPELINE LOCATION**

Inform Wales & West Utilities prior to carrying out work and arrange for Wales & West Utilities to locate the pipeline - Section 4 of this document
Note: at least 7 days' notice is normally required

OBSERVE RESTRICTIONS

Observe Wales & West Utilities restrictions on the allowed proximity of mechanical excavators and other power tools and the measures to protect the pipeline from construction vehicles when carrying out the work – Sections 5, 6 and 7 of this document.
Note: Wales & West Utilities may wish to supervise the work, consult Wales & West Utilities to confirm whether or not this is the case.

SPECIFIC ACTIVITIES

If work involves any of the following activities:

No-Dig Techniques	Hot Work	Landfilling
Increase in Cover	Blasting	Pressure Testing
Piling	Surface Mineral Extraction	Seismic Surveys
		Wind Turbines
Demolition	Deep Mining	

Comply with the requirements in Section 8 of this document

CONSULT WALES & WEST UTILITIES

Consult Wales & West Utilities prior to any backfilling over, alongside or under the pipeline and obtain Wales & West Utilities agreement to proceed. Normally Wales & West Utilities require 48 hours notice prior to backfilling - Section 9 of this document.

IMPORTANT: This flowchart should be used in conjunction with the entire SSW22 document and not in isolation, AND if at any time during the works the pipeline is damaged even slightly then observe the precautions in Section 10 of this document.

IF IN DOUBT CONTACT Wales & West Utilities

1. SCOPE

This specification sets out the safety precautions and other conditions affecting the design, construction and maintenance of services, structures and other works in the vicinity of Wales & West Utilities pipelines and associated installations operating at pressures greater than 2 bar gauge, located in both negotiated easements (see Section 12), in public highways and within the wider area of interest around a pipeline.

2. FORMAL CONSENT

High pressure pipelines are generally laid across country within an easement agreed with the landowner or within the highway.

As the required arrangements for working within an easement and working within the highway differ, this document has been structured to highlight the specific requirements for these two types of area where work may be carried out.

Generally, normal agricultural activities are not considered to affect the integrity of the pipeline, however consult Wales & West Utilities prior to undertaking deep cultivation in excess of 0.5m.

In all other cases no work shall be undertaken in the vicinity of the pipeline without the formal written consent of Wales & West Utilities.

Any documents, handed to contractors on site by Wales & West Utilities must be signed for by the site manager. Wales & West Utilities will record a list of these documents using the form in Appendix A, and the contractor should maintain a duplicate list.

2.1 Within an Easement

The promoter of any works (see Section 12) within an easement must provide Wales & West Utilities with details of the proposed works including a method statement of how the work is intended to be carried out.

Work must not go ahead until formal written consent has been given by Wales & West Utilities. This will include details of Wales & West Utilities protection requirements, contact telephone numbers and the emergency telephone number.

On acceptance of Wales & West Utilities requirements the promoter of the works must give Wales & West Utilities 7 working days' notice, or shorter only if agreed with Wales & West Utilities, before commencing work on site.

2.2 Within the Highway

Work must be notified to Wales & West Utilities in accordance with the requirements of The New Roads and Street Works Act (NRSWA) and HS(G)47.

The promoter of any works within the highway should provide Wales & West Utilities with details of the proposed works including a method statement of how the work is intended to be carried out. This should be submitted 7 working days before the planned work is to be carried out or shorter, only if agreed with Wales & West Utilities. If similar works are being carried out at a number of locations in close proximity a single method statement should be adequate.

Work should not go ahead until formal written consent has been given by Wales & West Utilities. This will include details of Wales & West Utilities' protection requirements, contact telephone numbers and the emergency telephone number.

2.3 Within the Area of Interest

Certain other activities , such as the development of adjacent land with buildings, or other constructions which may have an impact on the safe operation of above 2 bar gauge pipelines, must also be notified to Wales & West Utilities, for example the construction of wind turbines, masts or aerials.

Developers should ensure early consultation with Wales & West Utilities in respect of such development, rather than relying on local authority planning consultation, which may lead to substantial late changes to design or constraints on the planned development.

3. HS&E CONSIDERATIONS

3.1 Safe Control of Operations

All working practices must be agreed by Wales & West Utilities prior to work commencing. All personnel working on site must be made aware of the potential hazard of the pipeline and the actions they should follow in case of an emergency. The Site Document Control Form (Appendix A) should be used to record the list of relevant documents that have been provided by Wales & West Utilities to the contractor.

3.2 Deep Excavations

Special consideration should be given to the hazards associated with deep excavations. The HSE document CIS08 'Safety in Excavations' provides further guidance and is available on the HSE web site www.hse.gov.uk

3.3 Positioning of Plant

Mechanical excavators must not be sited or moved above the pipeline unless written authority has been given by the Wales & West Utilities responsible person.

Mechanical excavators must not dig on one side of the pipeline with the cab of the excavator positioned on the other side.

Mechanical excavators and other traffic must be positioned far enough away from the pipeline trench to prevent trench wall collapse.

3.4 General

Activities associated with working in the vicinity of pipelines operating above 2 bar gauge may have impact on the safety of the general public, Wales & West Utilities staff and contractors, and may affect the local environment. Contractors must carry out suitable and adequate risk assessments prior to the commencement of work to ensure that all such issues are properly considered and risks mitigated.

4. PIPELINE LOCATING

The third party should give 7 working days' notice (or shorter as agreed with Wales & West Utilities) to ensure that the pipeline is suitably located and marked out by Wales & West Utilities prior to the work commencing.

Prior to work commencing on site the pipeline must be located and pegged or suitably marked out by Wales & West Utilities personnel. In exceptional circumstances with the prior agreement of Wales & West Utilities the locating and marking out of the pipeline could be carried out by competent third parties on behalf of the contractor as long as Wales & West Utilities is assured of their competence and the procedures to be followed.

Safe digging practices, in accordance with HSE publication HS(G)47 should be followed as both direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

Previously agreed working practices should be reviewed and revised based on current site conditions. Any changes must be agreed by the Wales & West Utilities responsible person.

The requirements for trial holes to locate the pipeline or determine levels at crossing points must be determined on site by the Wales & West Utilities responsible person.

The excavation of all trial holes must be supervised by the Wales & West Utilities responsible person.

5. SLABBING AND OTHER PROTECTIVE MEASURES

No protective measures including the installation of concrete slab protection should be installed over or near to the Wales & West Utilities pipeline without the prior permission of Wales & West Utilities. Wales & West Utilities will need to agree the material, the dimensions and method of installation of the proposed protective measure. The method of installation must be confirmed through the submission of a formal written method statement from the contractor to Wales & West Utilities.

Where permanent slab protection is to be applied over the pipeline Wales & West Utilities should carry out a survey (Pearson or DCVG Survey) of the pipeline to check that there is no existing damage to the coating of the pipeline prior to the slab protection being put in place. In addition the pipeline records should be consulted to determine whether any other investigations or remedial works would be needed in advance of the slab construction, e.g. reference to T/PR/P/18. Wales & West Utilities must therefore be contacted prior to the laying of any slab protection to arrange this survey. The Safety precautions detailed in Sections 3 and 6 of this document should also be observed during the installation of the pipeline protection.

6. EXCAVATION

6.1 In Proximity to a Pipeline in an Easement

Third parties must not excavate unsupervised, with a powered mechanical excavator closer than 3 metres to the Wales & West Utilities located pipeline or with hand held power tools closer than 1.5 metres. Any fitting, attachment or connecting pipework on the pipeline must be exposed by hand. All other excavation must be by hand.

Consideration may be given to a relaxation of these limits by agreement with the Wales & West Utilities responsible person on site and only whilst he remains on site. In this case a powered mechanical excavator must not be allowed to excavate closer than 0.6 metres to the nearest part of the pipeline.

Where sufficient depth of cover exists, following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 0.25 metres, using a toothless bucket.

No topsoil or other materials should be stored within the easement without the written permission of Wales & West Utilities.

No topsoil or materials should be stored over the pipeline.

No fires should be allowed in the easement strip or close to above ground gas installations.

After the completion of the work the level of cover over the pipeline should be the same as that prior to work commencing unless agreed otherwise with the Wales & West Utilities responsible person.

No new service shall be laid parallel to the pipeline within the easement. In special circumstances, and only with formal written agreement from Wales & West Utilities, this may be relaxed for short excursions where the service shall be laid no closer than 600 mm to the side of the pipeline.

Where work is being carried out parallel to the pipeline within or just alongside the easement a post and wire fence must be erected as a protective barrier between the works and the pipeline.

6.2 In Proximity to a Pipeline in the Highway

Removal of the bituminous or concrete highway surface layer by mechanical means is permitted to depth of 300 mm, although the use of chain trenchers to do this shall not be permitted within 3 metres of the pipeline. The Wales & West Utilities responsible person may want to monitor this work.

Where the bituminous or concrete highway surface layer extends below 0.3 metres deep it should only be removed by handheld power assisted tools under the supervision of the Wales & West Utilities responsible person. In exceptional circumstances, and following a risk assessment, these conditions may be relaxed by the Wales & West Utilities responsible person.

Third parties should not excavate, unsupervised, with a powered mechanical excavator closer than 3 metres to the located Wales & West Utilities pipeline or with hand held power tools closer than 1.5 metres. Any fitting or attachment must be exposed by hand.

In special circumstances consideration may be given to a relaxation of these rules by agreement with the Wales & West Utilities responsible person on site and only whilst he remains on site only whilst he remains on site and only whilst he remains on site to supervise this work..

The use of 'No dig' techniques is covered in Section 8.1.

Any new service running parallel to the pipeline should be laid no closer than 600 mm to the pipeline (see Section 6.4).

6.3 Crossing Over a Pipeline

Where a new service is to cross over the pipeline a clearance distance of 600 mm between the crown of the pipeline and underside of the service must be maintained. If this cannot be achieved the service must cross below the pipeline with a clearance distance of 600 mm.

In special circumstances this distance may be reduced at the discretion of the Wales & West Utilities responsible person on site.

6.4 Crossing Below a Pipeline

Where a service is to cross below the pipeline a clearance distance of 600 mm between the crown of the service and underside of the pipeline should be maintained.

The exposed pipeline must be suitably supported. The Wales & West Utilities responsible person must be consulted and a stress analysis may be required in order to establish support requirements. The stress analysis should be carried out by individuals with demonstrated expertise in this area, Wales & West Utilities can be consulted for advice on suitable specialists. Wales & West Utilities may request a copy of the stress analysis to confirm its adequacy.

Specific additional constraints apply to Wales & West Utilities pipelines that fall under the requirements of T/PR/P/18.

All supports must be removed prior to backfilling.

The exposed pipelines must be protected by matting and suitable timber cladding.

6.5 Cathodic Protection

Cathodic Protection is applied to all of Wales & West Utilities above 2 bar gauge buried steel pipelines and is a method of protecting pipelines with damaged coatings from corrosion by maintaining an electrical potential difference between the pipeline and anodes placed at strategic points along the pipeline.

Where a new service is to be laid and similarly protected, Wales & West Utilities will undertake interference tests to determine whether the new service is interfering with the cathodic protection of the Wales & West Utilities pipeline.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works reasonable notice, typically 7 days, should be given to Wales & West Utilities. Wales & West Utilities will undertake this work and any associated costs will be borne by the third party.

7. CONSTRUCTION TRAFFIC

Where existing roads cannot be used construction traffic should ONLY cross the pipeline at previously agreed locations. All crossing points will be fenced on both sides with a post and wire fence and with the fence returned along the easement for a distance of 6 metres. The pipeline shall be protected at the crossing points by temporary rafts of either sleeper or reinforced concrete construction, constructed at ground level. The Wales & West Utilities responsible person will review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the raft required.
Notices directing traffic to the crossing points should be erected.

8. SPECIFIC ACTIVITIES

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of the pipeline. Consult Wales & West Utilities if you are intending to undertake one of the listed prescribed activities and/or you require further advice on whether the work that you are intending to undertake has the potential to affect the pipeline.

8.1 No-Dig Techniques

Where the contactor intends using no dig techniques then a formal method statement must be produced for all work that would encroach (either above or below ground) within the pipeline easement. This method statement must be formally agreed with Wales & West Utilities prior to the commencement of the work. Wales & West Utilities may wish to be present when the work is being carried out and must therefore be given adequate advance notice before the commencement of the work.

8.2 Increase in Cover

A pipeline integrity assessment must be provided for situations involving a final cover depth exceeding 2.5 metres. This assessment should take due account of both soil ‘dead’ loading and ground settlement due to earthworks. Embankment design and construction over pipelines must give consideration to prevention of any instability. Expert advice may need to be sought which can be arranged through Wales & West Utilities.

8.3 Piling

No piling will be allowed within 15 metres of a pipeline without an assessment of the vibration levels at the pipeline. The peak particle velocity at the pipeline should be limited to a maximum level of 75 mm/sec. In any event the ground vibration shall be monitored by the contractor and the results available to the Wales & West Utilities Responsible person at their request. A typical monitoring device would be the Vibrock V801 seismograph and tri-axial geophone sensor.

Where ground conditions are of submerged granular deposits of silt and sand, an assessment of the effect of vibration on settlement and liquefaction at the pipeline shall be made.

Expert advice may need to be sought which can be arranged through Wales & West Utilities.

8.4 Demolition

No demolition should be allowed within 150 metres of a pipeline without an assessment of the vibration levels at the pipeline. The peak particle velocity at the pipeline must be limited to a maximum level of 75 mm/sec. In any event the ground vibration shall be monitored by the contractor and the results available to the Wales & West Utilities Responsible person at their request.

Where ground conditions are submerged granular deposits of silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the pipeline shall be made.

Expert advice may need to be sought which can be arranged through Wales & West Utilities.

8.5 Blasting

No blasting should be allowed within 250 metres of a pipeline without an assessment of the vibration levels at the pipeline. The peak particle velocity at the pipeline must be limited to a maximum level of 75 mm/sec. In any event the ground vibration must be monitored by the contractor and the results available to the Wales & West Utilities Responsible person at their request.

Where ground conditions are of submerged granular deposits of silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the pipeline shall be made.

Expert advice may need to be sought which can be arranged through Wales & West Utilities.

8.6 Surface Mineral Extraction

An assessment must be carried out on the effect of surface mineral extraction activity within 100 metres of a pipeline. Consideration should also be given to extraction around groundbeds and other pipeline associated plant and equipment.

Where the mineral extraction extends up to the pipeline easement, a stable slope angle and stand-off distance between the pipeline and slope crest must be determined by Wales & West Utilities. The easement strip should be clearly marked by a suitable permanent boundary such as a post and wire fence, and where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the contractor. The pipeline easement and slope needs to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including bulging, the development of tension cracks on the slope or easement, or any changes in drainage around the slope. The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100 metres of the pipeline but do not extend up to the pipeline easement boundary, an assessment, by Wales & West Utilities must be made on whether the planned activity could promote instability in the vicinity of the pipeline. This may occur where the pipeline is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives the provisions of section 8.5 apply.

8.7 Deep Mining

Pipelines routed within 1 km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Wales & West Utilities.

8.8 Landfilling

The creation of slopes outside of the pipeline easements may promote instability within the vicinity of the pipeline. An assessment should therefore be carried out, by Wales & West Utilities, on the effect of any landfilling activity within 100 metres of a pipeline. The assessment is particularly important if landfilling operations are taking place on a slope in which the pipeline is routed.

8.9 Pressure Testing

Hydraulic pressure testing will not be permitted within 8 metres of the pipeline unless suitable precautions have been taken against the effects of a burst. These precautions should include limiting of the design factor to 0.3 for the third party pipeline for a distance of 6 metres either side of the Wales & West Utilities pipeline, and the use of mill tested pipe or sleeving.

8.10 Seismic Surveys

Wales & West Utilities must be advised of any seismic surveying work in the vicinity of pipeline that will result in Wales & West Utilities' pipeline being subjected to peak particle velocities in excess of 50 mm/sec. In any event the ground vibration near to the pipeline shall also be monitored by the contractor whilst the survey work is being carried out.

Where the peak particle velocity is predicted to exceed 50 mm/sec, the ground vibration should be monitored by the contractor and the results available to the Wales & West Utilities Responsible person at their request.

8.11 Hot Work

The Wales & West Utilities responsible person on site should supervise all welding, burning or other 'hot work' that takes place within the easement.

8.12 Wind Turbines

Wales & West Utilities must be advised of any planned development of wind turbines in the vicinity of an above 2 bar gas pipelines to ensure the development does not impact on the future safe operation of the pipeline. Industry guidance states that any wind turbine must be sited no closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the pipeline.

9. BACKFILLING

Third parties must provide Wales & West Utilities with 7 days' notice, or shorter notice only if agreed with Wales & West Utilities, of the intent to backfill over, under or alongside the pipeline. This requirement should also apply to any backfilling operations alongside the pipeline within 3 metres of the pipeline. Any damage to the pipeline or coating must be reported to the Wales & West Utilities responsible person in order that damage can be assessed and repairs can be carried out.

Minor damage to pipe coating and damage to test leads will normally be repaired by Wales & West Utilities free of charge.

No backfilling should be undertaken without Wales & West Utilities agreement to proceed. When backfilling, the pipeline should be surrounded by at least 300mm of soft fill (i.e. stone dust) containing no stones, bricks, lumps of concrete, etc. The Wales & West Utilities responsible person will stipulate the necessary consolidation requirements.

If the pipeline has been backfilled without the knowledge of the Wales & West Utilities responsible person then he will require the material to be re-excavated in order to enable the condition of the pipeline coating to be confirmed.

10. ACTION IN THE CASE OF DAMAGE TO THE PIPELINE

If the Wales & West Utilities pipeline is damaged, even slightly, and even if no gas leak has occurred then the following precautions must be taken immediately:-

Shut down all plant and machinery and extinguish any potential sources of ignition.

Evacuate all personnel from the vicinity of the pipeline.

Notify Wales & West Utilities using the free 24 hour emergency telephone number **0800 111 999***[1]

Notify the Wales & West Utilities responsible person or his office immediately using the contact telephone number provided.

Ensure no one approaches the pipeline.

Do not try to stop any leak.

[1] * All calls are recorded and may be monitored

11. REFERENCES

NRSWA	New Roads & Street Works Act
HS(G)47	Avoiding Danger from Underground Services
IGE/SR/18	Safe Working Practices to Ensure the Integrity of Gas Pipelines and Associated Installations
T/PR/P/18	Working on Pipelines Containing Defective Girth Welds or Girth Welds of Unknown Quality
CIS08	Safety in Excavations (HSE document)

12. GLOSSARY OF TERMS

Contractor:	the person, firm or company with whom Wales & West Utilities enters into a contract to which this specification applies, including the Contractor's personal representatives, successors and permitted assigns.
Easement:	Easements are negotiated legal entitlements between Wales & West Utilities and landowner and allow Wales & West Utilities to lay, operate and maintain pipelines within the easement strip. Easement strips may vary in width typically between 6 and 25 metres depending on the diameter and pressure of the pipeline. Consult Wales & West Utilities for details of the extent of the easement strip where work is intended.
Liquefaction:	Liquefaction is a phenomenon in which the strength and stiffness of the soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. When liquefaction occurs, the strength of the soil decreases and the ability of the soil to support pipelines or other components is reduced.
Pearson Survey:	a survey used for locating coating defects on buried pipeline services.
DCVG Survey:	Direct Current Voltage Gradient, a survey for locating and grading coating defects on buried pipeline service
Promoter of new works:	the person or persons, firm, company or authority for whom new services, structures or other works in the vicinity of existing Wales & West Utilities pipelines and associated installations operating above 7 bar gauge are being undertaken.
Wales & West Utilities responsible person:	the person or persons appointed by Wales & West Utilities with the competencies required to act as the Wales & West Utilities representative for the purpose of the managing the particular activity.
Wayleave:	general term which is considered equivalent to 'easement' in this document.

APPENDIX A

SITE DOCUMENT CONTROL FORM - SAMPLE

Emergency Telephone No. **0800 111 999***

Plant Protection Telephone No. **02920278912**

SITE DOCUMENT CONTROL FORM	
Activity Reference:	
Activity Location:	
Site Manager: *(name & telephone number)*	
Wales & West Utilities Contact: *(name & telephone number)*	

The following documents were issued to *(individual's name)*
…… **of**
(company name and address)
……..……
by *(Wales & West Utilities representative)*
……**on**
(date)……**:-**

Documents:-

(List of documents)

_____

Signed : *(by the recipient)*

Date of signature :

SITE DOCUMENT CONTROL FORM

Emergency Telephone No. 0800 111 999*

Plant Protection Telephone No. 02920 278912

SITE DOCUMENT CONTROL FORM	
Activity Reference:	
Activity Location:	
Site Manager: *(name & telephone number)*	
Wales & West Utilities Contact: *(name & telephone number)*	

The following documents were issued to (Individuals Name)
……..**of**
(company name and address)
……

by *(Wales and West Utilities representative)*
…… ……..**on**
(date) …….. **:-**

Documents:-

_____

Signed :

Date of signature :

7. Appendix 7: Proximal Private Water Supplies

PUBLIC PROTECTION
a service of Cornwall Council

Private Water Supplies : Supplies From Reference E:168473 N:42417 within 5 kilometer(s)

Total Records Selected: 35

Reference	Type Text	Purpose Text	Address	Distance (m)	Easting	Northing
PW22_000073	Well	Single Dom Dwell (No Commercial Activ.)	[redacted]	1460.8	169694	41615
PW23_000005	Borehole	Commercial	[redacted]	1556.2	168633	40869
PW12_000087	Well	Single Dom Dwell (No Commercial Activ.)	[redacted]	1751.9	168826	40701
PW16_000049	----------	Single Dom Dwell (No Commercial Activ.)	[redacted]	2250.9	169149	44564
PW17_000094	Mains	Single Dom Dwell (No Commercial Activ.)	[redacted]	2587.2	170896	43324
PW10_0003263	Spring	Single Dom Dwell (No Commercial Activ.)	[redacted]	2741.7	167352	44919
PW14_000024	Well	Single Dom Dwell (No Commercial Activ.)	[redacted]	2823.5	165658	42636
PW10_0003265	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	2946.7	171396	42790
PW16_000007	Borehole	Domestic	[redacted]	2955.5	165727	41324
PW16_000019	Borehole	Commercial	[redacted]	2961.7	169098	45312
PW18_000114	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	3598.4	172071	42468
PW10_0003264	Well	Single Dom Dwell (No Commercial Activ.)	[redacted]	3602.4	172075	42469
PW23_000084	Well	Commercial	[redacted]	3657.4	169718	45856
PW18_000096	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	3683.3	171248	39995
PW21_000031	Spring	Commercial	[redacted]	3727.1	168930	46116
PW14_000016	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	3825.7	171477	40048
PW15_000012	Spring	Commercial	[redacted]	3915.5	171271	39678
PW18_000017	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	3971.7	168858	38464

PW10_0003266	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	4143.2	172434	41202
PW10_0003280	Borehole	Commercial	[redacted]	4277.9	169592	38288
PW21_000026	Adit	Single Dom Dwell (No Commercial Activ.)	[redacted]	4301.5	172513	40940
PW10_0003267	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	4306.1	172671	41458
PW21_000025	Borehole	Commercial	[redacted]	4445	164136	43391
PW10_0003277	Well	Single Dom Dwell (No Commercial Activ.)	[redacted]	4494.4	169074	37963
PW18_000052	Borehole	Commercial	[redacted]	4534	169571	46816
PW14_000078	Borehole	Commercial	[redacted]	4535.9	171490	45804
PW19_000015	Borehole	Commercial	[redacted]	4742.6	170311	46789
PW10_0000623	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	4787	170593	46709
PW21_000024	Adit	Single Dom Dwell (No Commercial Activ.)	[redacted]	4787	170593	46709
PW10_0000622	Spring	Single Dom Dwell (No Commercial Activ.)	[redacted]	4795.3	170575	46727
PW10_0000624	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	4868.5	170314	46924
PW10_0003217	Spring	Single Dom Dwell (No Commercial Activ.)	[redacted]	4874	163599	42406
PW10_0000625	Unknown	Single Dom Dwell (No Commercial Activ.)	[redacted]	4906.4	171367	46379
PW22_000032	Borehole	Commercial	[redacted]	4971.9	171704	38638
PW21_000014	Borehole	Single Dom Dwell (No Commercial Activ.)	[redacted]	4999.4	166860	37685