

Annex G - Extended Phase 1 Survey Report

February 2023





Argyll and Kintyre 275 kV Substations: LT289 Crossaig North

Extended Phase 1 Habitat Survey and
European Protected Species Survey

February 2022

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February 2022

Argyll and Kintyre 275 kV Substations: LT289 Crossaig North

Extended Phase 1 Habitat Survey and European Protected Species Survey

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NORTH

Extended Phase 1 Habitat Survey and European Protected Species
Survey

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Acronyms and Abbreviations

Name	Description
ABReC	Argyll Biological Record Centre
BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
°C	Centigrade
CC	Cloud Cover
DEL	Direct Ecology Ltd
EA	Environmental Appraisal
ECoW	Ecological Clerk of Works
EP1HS	Extended Phase 1 Habitat Survey
ERM	Environmental Resources Management Ltd
GWDTE	Groundwater Dependent Terrestrial Ecosystem
HGV	Heavy Goods Vehicle
JNCC	Joint Nature Conservation Committee
Km	Kilometre
kV	Kilovolt
NBN	National Biodiversity Network
NNR	National Nature Reserve
NVC	National Vegetation Classification Survey
OHL	Overhead Line
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SHE Transmission	Scottish Hydro Electric Transmission plc
SPA	Special Protected Area
SSSI	Site of Special Scientific Interest
Temp	Temperature
TN	Target Note
WS	Wind Speed

1. INTRODUCTION

1.1 Background to the Project

Scottish Hydro Electric Transmission plc ("the Applicant") who, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission"), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

The Applicant has a statutory duty under Schedule 9 of the Electricity Act 1989 to develop and maintain an efficient co-ordinated and economical electrical transmission system in its licence area.

The Applicant proposes to construct a new 275 kV electricity substation, with associated infrastructure (hereby known as 'the Project') in the vicinity of the existing Crossaig substation (located at Grid Ref NR 82751 50266). The new substation will connect into the recently completed overhead line (OHL) between Inveraray and Crossaig which is capable of operation at 275kV. The substation and overhead line will support the export of renewable energy generated within the Argyll area.

1.2 Consent Requirements

The Applicant is seeking consent from Argyll and Bute Council under the Town and Country Planning (Scotland) Act 1997 (as amended) for construction and operation of the substation (hereby referred to as 'the Proposed Development').

The size of the grid transformers falls under the National Planning Framework 4 description of High Voltage Electricity Transmission Network and is therefore categorised as 'National Development' under the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009 (The Hierarchy Regulations).

The works to the overhead line (hereby referred to as 'the Associated Development') which comprise the construction of two permanent (and four temporary) steel lattice towers to support overhead line conductors will be the subject of an application to the Scottish Ministers under section 37 application of the Electricity Act 1989.

1.3 The Project

Although the Proposed Development and the Associated Development are being submitted under separate consent applications, as discussed above, both developments contribute to the overall reinforcement programme at Crossaig and will therefore hereby be referred to as 'the Project'.

The location of the Project is shown on **Appendix A Figure 1**.

The Proposed Development subject to consent under the Town and Country Planning Act comprises:

- RLB including access track (including Cross Kintyre Haul Road/Cour Estate track. Track maintenance will be required);
- A substation platform of approximately 2.4 ha containing Gas-Insulated Switchgear (GIS)¹ and transformer buildings and electrical equipment. Platform extension at the existing Crossaig substation;
- Construction of a SUDs system including an outfall pipeline;
- Construction of new permanent access tracks, connecting the existing forestry track to the substation site;
- A temporary works area located directly southeast of the proposed substation, approximately 2.87 ha in size.

Components of the Associated Development subject to Section 37 of the Electricity Act 1989:

- Construction of 2 new towers and new section of OHL to make the connection into the Proposed Development from the existing OHL and temporary OHL bypass;
- Dismantling of 3 redundant towers;
- Construction of new temporary and permanent access tracks.

Although the Red Line Boundary (RLB) extends over a large area, the only habitats to be directly impacted due to the Proposed Development will be those under the footprint of the works listed above and immediate surrounds to allow the construction to take place, as shown in **Appendix A, Figure 4**.

Access to the substation site will be along an existing access track that is used regularly by vehicles involved in the management of the commercial forests and windfarms in the area. At the time of the field surveys, the need for any upgrades to this well-established access track was uncertain.

However, since then it has been confirmed that the access track can be used in its current form and that only maintenance works will be required. Should this change, a reassessment of the recommendations in this report will be required.

1.4 Scope

Environmental Resources Management Ltd (ERM) was commissioned by SSEN Transmission to undertake an Extended Phase 1 Habitat Survey (EP1HS) and protected species survey of the land at the proposed Crossaig North site in October 2021¹. The Survey Area comprised the PAN boundary plus a buffer of 250 m around this boundary where the proposed 275 kV is located² and a 50 m buffer around the PAN Boundary along the proposed main access tracks³. The Survey Area also included a 250 m buffer around the Associated development boundary. A National Vegetation Classification Survey (NVC) was undertaken alongside the EP1HS where potential was noted for habitats to be groundwater dependent.

This report presents the findings of the EP1HS and NVC survey undertaken by Direct Ecology Ltd (DEL) and ERM within the Survey Area.

1.5 Site Location and Description

The Survey Area is situated approximately 8 km south west of the village of Claonaig, with the proposed substation centred at grid reference NR825503. The Survey Area is dominated by coniferous plantation woodland, which is managed for commercial purposes. There are also smaller wetland areas often associated with drainage and watercourses, elements of heath communities including an expanse of blanket bog at the highest point, and pockets of broadleaved semi-natural woodland in places along the access track.

Sections of disused wayleaves to the north of the existing substation have been colonised by rhododendron (*Rhododendron ponticum*). In the lowland areas at either end of the access track, on either side of the A84 (in the west) and B842 (in the east), are grazed fields of varying characters and improvement.

The Project location, Survey Area and SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project (which runs adjacent to the Project) is shown in **Appendix A Figure 1**.

¹ As part of the consenting process, SHE Transmission have also commissioned ERM to undertake the Environmental Appraisal (EA) and Biodiversity Net Gain (BNG) assessment for the project. Reporting for both these works will be submitted at a later date.

² The 250 m buffer follows Scottish Environment Protection Agency Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at [lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf](https://www.sepa.org.uk/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf) (sepa.org.uk)

³ The 50 m buffer was used to allow for any direct effects to the access track.

2. METHODOLOGY

2.1 Desk Study

A desk study was undertaken to determine the presence of any designated nature conservation sites, within 10 km of the Survey Area and for any ancient woodland, tree preservation orders (TPO) and records of protected species within 2 km of the Survey Area. Only records within the last 25 years have been included.

The following sources were consulted:

- NatureScot SiteLink⁴ - data on designated sites and notable species in Scotland;
- NatureScot Scottish Biodiversity List (SBL)⁵ - a list of species which are important for Scotland's Biodiversity;
- Scotland's Environment Web Map⁶ - an interactive map which shows biodiversity areas across Scotland;
- National Biodiversity Network (NBN) Atlas⁷ - a national interactive map that shows biodiversity areas;
- Scottish Forestry⁸ - Guidance Note 33: Forest operations and red squirrels: November 2006;
- Argyll and Bute Council Tree Preservation Order Map – an interactive map showing single trees, coppice, belt, and woodlands that have TPO's within the Argyll and Bute Council jurisdiction;
- Argyll Biological Record Centre (ABReC) - a data request was submitted for information over the last ten years regarding designated sites, species records and, information on the habitats present (see **Section 2.6**);
- Argyll Raptor Species Group (ARSG) and Scotland's Raptor Study Group (SRSG): a data request was submitted for information over the last ten years regarding raptor species records. At the time of writing, responses from the ARSG and SRSG had not been received;
- In September 2021, ERM consulted with NatureScot on behalf of SSEN Transmission to agree an approach to ornithology surveys for the North Argyll 275 kV Upgrade, which includes the proposed substation at Craig Murrail (see **Annex D**). It was agreed with NatureScot that the use of ornithology data collected during surveys undertaken in 2015/2016 to inform the Environmental Impact Assessment (EIA) for SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project was deemed acceptable and no additional ornithology surveys would be required, assuming baseline conditions had not changed⁹; and
- EIA for SSEN Transmission's Inveraray to Crossaig OHL 275 kV Reinforcement Project was also reviewed in relation to the wider ecological findings.

Before the EP1HS was undertaken, preliminary mapping of the habitats within the Proposed Development and survey buffers was undertaken using the Habitat Map of Scotland (HabMoS)¹⁰ open source data. This mapping was then ground truthed during the survey.

⁴ NatureScot SiteLink. Available at <https://www.nature.scot/information-hub/snhi-data-services>

⁵ NatureScot Scottish Biodiversity List. Available at <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list>

⁶ Scotland's Environment Web Map. Available at <https://map.environment.gov.scot/sewebmap/>

⁷ National Biodiversity Network Atlas. Available at <https://nbnatlas.org/>

⁸ Scottish Forestry: Forest Operations and Red Squirrels in Scottish Forests. Available at, <https://forestry.gov.scot/publications/24-forest-operations-and-red-squirrels-in-scottish-forests>

⁹ Ornithology field surveys undertaken to inform the Inveraray to Crossaig EIA were carried out between 2015-16 and included Vantage Point (VP), nesting diver, moorland/forestry birds, black grouse lek, breeding raptor and eagle nest surveys. Further VP surveys and eagle nest checks commenced in February 2017.

¹⁰ Habitat Map of Scotland. Available at <https://www.environment.gov.scot/our-environment/habitats-and-species/habitat-map-of-scotland/>

2.2 Extended Phase 1 Habitat Survey

An EP1HS was undertaken by DEL and ERM within the Proposed Development Survey Area (see **Appendix A Figure 2**). The survey was based on the methods described in Joint Nature Conservation Committee (JNCC) Handbook for Phase 1 Habitat Survey (2010)¹¹ as extended for use in Environmental Assessment¹². The alphanumeric Phase 1 habitat codes have been reported in the findings. Target Notes of features of interest were recorded with a geographic reference and photograph taken (see **Appendix B Target Notes**).

2.3 National Vegetation Classification (NVC) Survey

A National Vegetation Classification survey of habitats with the potential to support Groundwater Dependent Terrestrial Ecosystem (pGWDTE) was undertaken by DEL within the Survey Area (see **Appendix A Figure 18 to Figure 24**). The survey was based on the methods described in JNCC's National Vegetation Classification: Users' Handbook¹³ with communities being identified by eye. Target notes of features of interest were recorded with a geographic reference and photographs taken (see **Appendix B Target Notes**).

2.4 Fauna Surveys as Part of the Extended Phase 1

Signs of fauna including protected species were recorded during the EP1HS, taking account of species likely to occur in the locality and in the habitats present. The survey method for each species is detailed in **Section 2.4.1** to **Section 2.4.9**.

2.4.1 Bats

Habitats suitable for bats were identified and an assessment undertaken of their likely suitability to support foraging / commuting bats and bat roosts, taking account of guidance from the Bat Conservation Trust (BCT)¹⁴ (see **Table 2.1**). The assessment of the potential for bat roosts in the habitats was made based on ground observations focused in areas that would be directly affected and selected areas adjacent to within at least 30 m of the RLB. In areas of more mature dense conifers, it was restricted largely to the edges of the plantations along tracks / rides, as easy access into the plantation was not possible (see **Section 2.6 Limitations**).

¹¹ Joint Nature Conservation Committee (2010 reprint) Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit, Joint Nature Conservation Committee, Peterborough. Reprinted in 2010, with minor corrections addressed in 2016.

¹² Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment, Spon, London.

¹³ Joint Nature Conservation Committee National Vegetation Classification: Users' handbook (2006), Peterborough.

¹⁴ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. The Bat Conservation Trust, London.

Table 2.1 BCT Categories of Roosting, Commuting and Foraging Habitats

Suitability Category	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	<p>A structure with one or more potential roost sites that could be used by the individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as fragmented hedgerows or an unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	<p>Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

2.4.2 Otter (*Lutra lutra*)

Accessible areas of suitable habitat to support otters within the Survey Area were checked for evidence of otter activity in the form of spraints, slides, holts, couches, tracks, and resting up sites (survey limitations are detailed in **Section 6 Limitations** Error! Reference source not found.). The suitable habitat surveyed included, running freshwater, bridges, field drains, culverts, semi-natural broadleaved woodland and coniferous plantations where they occurred adjacent to watercourses and areas of continuous bracken. Whilst several culverts of varying size were identified throughout the Survey Area (see **Appendix B Target Notes** TN4, TN11, TN21), the culvert at TN4 was deemed too small to be used by otters and is not assessed further in this report.

2.4.3 Water Vole (*Arvicola amphibius*)

Within the Survey Area, there are areas of running fresh water (burns and field drains) offering suitable habitat for water vole. Where accessible, these watercourses were surveyed for evidence of water vole activity (in the form of droppings, latrines, feeding remains, nests, and burrows) (survey limitations are detailed in **Section 6**).

2.4.4 *Badger (Meles meles)*

A walkover survey for evidence of badger activity was undertaken within the Survey Area, where access was available (survey limitations are detailed in **Section 6**). Any evidence of badger activity (in the form of set entrances, bedding, scratch marks, paths, prints, guard hairs, latrines, dropping and signs of foraging) was recorded. Within the Survey Area, there are areas of semi-natural broadleaved woodland and coniferous plantation offering suitable habitat for badgers.

2.4.5 *Pine Marten (Martes martes)*

Areas accessible to surveyors were searched for signs of pine marten activity in the form of dens, feeding signs and scat (survey limitations are detailed in **Section 6**). Within the Survey Area, there are areas of semi-natural broadleaved woodland and coniferous plantation offering suitable habitat for pine marten.

2.4.6 *Red Squirrel (Sciurus vulgaris)*

Areas accessible to surveyors were surveyed for evidence of red squirrel activity in the form of dreys, feeding signs and scat (survey limitations are detailed in **Section 6**). Within the Survey Area, there are areas of semi-natural broadleaved woodland and coniferous plantation offering suitable habitat for red squirrel.

2.4.7 *Wildcat (Felis silvestris)*

Accessible areas of suitable habitat to support wildcat within the Survey Area were surveyed for evidence of wildcat activity in the form of dens, feeding signs and scat (survey limitations are detailed in **Section 6**). Within the Survey Area, there are areas of coniferous plantation and broadleaved woodland edge offering suitable habitat for wildcat.

2.4.8 *Birds*

As mentioned in **Section 2.1**, following consultation with NatureScot in September 2021, it was agreed the use of ornithology data collected during surveys undertaken in 2015/2016 to inform the EIA for SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project was deemed acceptable and that no additional ornithology surveys would be required, assuming baseline conditions had not changed.

As the baseline had not changed to the extent that additional bird surveys were deemed to be required, only incidental records of bird species seen and heard during the EP1HS were recorded to supplement the existing bird data available.

2.4.9 *Other Fauna*

The presence of habitat with the potential to support any other fauna species of note (e.g. Scottish Biodiversity List species, Local Biodiversity Action Plan species, reptiles, amphibians), or direct field signs of species themselves, was recorded.

2.5 *Survey Personnel and Timing*

The EP1HS was carried out by Anna Dennis (DEL Senior Ecologist) who has 7 years' experience, supported by Alexander Sharp (ERM Senior Ecologist, ACIEEM) who has 10 years' experience. Survey timing and conditions are detailed in **Table 2.2**.

Table 2.2 Survey details and Timing

Date	Surveyor	Survey Type	Approximate survey start/end	Weather
13 th October 2021	Anna Dennis Alexander Sharp	Extended phase 1 survey European Protected Species walkover	0900/1700	Rain: intermittent drizzle; Temp: 15°C; Beaufort wind force scale (WS) ¹⁵ : 3; Cloud cover (CC) ¹⁶ : 8.
14 th October 2021	Anna Dennis Alexander Sharp	Extended phase 1 survey European Protected Species walkover	0900/1700	Rain: 1; Temp: 14°C; WS: 5; CC: 8.

2.6 Limitations

As stated in **Section 2.1**, a data request was submitted to the ABReC. However, on 9th December 2021, ABReC contacted ERM to advise they are currently unable to produce data search reports.

Due to the extent of the Survey Area and the habitats present it was not possible to walk through all areas as part of the EP1HS. This was made more difficult due to the extent of dense mature coniferous plantation woodland and boggy ground conditions within the plantation woodlands surrounding the existing Crossaig substation.

Although all burns and drainage ditches within the Survey Area were assessed, it was not possible to fully survey along the full extent of all burns and drainage ditches for field signs of otter and water vole. Reasons for this include the extent of dense vegetation, unsafe fast flowing water, steep sided margins and active forestry operations just to the north of the existing substation.

Areas of the existing Crossaig substation located within a security fence were not surveyed as access was not granted on safety grounds due to the presence of high voltage equipment. The area within the security fence contains the substation's electrical infrastructure, including one large, sealed building (as shown in **Appendix B TN6 Photo 7**). An assessment of this building's potential to support roosting bats was made from outside the security fence using binoculars. Further buildings and structures located outside of the existing Crossaig substation security fence which form part of the existing substation's footprint were assessed externally to determine their bat roost potential, however, internal assessments of these structures and buildings were not possible as the buildings were inaccessible.

Due to the extent of dense coniferous plantation woodland across some of the Survey Area surveys were typically undertaken around the margins. Hence, it is possible badgers, red squirrel, pine marten and wildcat could be present within the Survey Area but field signs were not recorded.

Due to the extent of the access track to be surveyed and the time permitted to complete the survey, sections of homogenous habitat along the access track were surveyed from a vehicle. Surveyors stopped to survey on foot whenever habitat types changed, or when features of interest were noted.

A section of the existing access track towards the eastern end of the Survey Area was not able to be surveyed as access to the land was not granted by the landowner. This inaccessible section of the existing access track is shown in **Appendix A Figure 5 and Figure 6**.

¹⁵ Met Office Beaufort wind force scale. Available at <https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale>
¹⁶ Royal Meteorological Society Weather Symbols and Synoptic Charts. Available at <https://www.metlink.org/resource/student-charts/>

3. DESK STUDY FINDINGS

3.1 Statutory Designated Sites

Ten sites designated for their nature conservation value were identified within 10 km of the proposed substation location. These sites are listed in **Table 3.1** and shown in **Appendix A Figure 3**.

Table 3.1 Designated sites within 10 km of proposed substation location

Note: Distances are approximate. Abbreviations for designations: **SPA**, Special Protection Area; **SAC**, Special Area of Conservation; **SSSI**, Site of Special Scientific Interest.

Site Name	Designation	Distance to Red Line Boundary	Reason for Designation	Considered further in the assessment
Sound of Gigha	SPA/Ramsar	0.7 km	<ul style="list-style-type: none"> ■ Supporting wintering population of European importance of great northern diver (<i>Gavia immer</i>). ■ Slavonian grebe (<i>Podiceps auritus</i>). ■ Populations of European importance of migratory species: common eider (<i>Somateria mollissima</i>). ■ Red-breasted merganser (<i>Mergus serrator</i>). 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Kintyre Goose Roosts	SPA/Ramsar	2.4 km	<ul style="list-style-type: none"> ■ Supporting internationally important wintering population of Greenland white-fronted goose. 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Inner Hebrides and the Minches	SAC	6.5 km	<ul style="list-style-type: none"> ■ Harbour porpoise (<i>Phocoena phocoena</i>). 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Rhunahaorine Point	SSSI	2.1 km	<ul style="list-style-type: none"> ■ Shingle. ■ Non-breeding, overwintering population of Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>). ■ Breeding population of Little tern (<i>Sternula albifrons</i>). 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Kintyre Goose Lochs	SSSI	2.4 km	<ul style="list-style-type: none"> ■ Nationally or internationally important numbers over the winter months of Greenland white-fronted geese (<i>Anser albifrons flavirostris</i>). 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Claonaig Wood	SSSI	5.0 km	<ul style="list-style-type: none"> ■ Upland Oak Woodland. 	No, due to: <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and

Site Name	Designation	Distance to Red Line Boundary	Reason for Designation	Considered further in the assessment
				<ul style="list-style-type: none"> ■ lack of connectivity between potential impact pathways and designated features of the site.
Arran Northern Mountains	SSSI	7.1 km	<ul style="list-style-type: none"> ■ Geological: Igneous petrology: Ordovician Igneous. ■ Geological: Igneous petrology: Tertiary Igneous. ■ Biological: Upland habitat assemblage. ■ Biological: Upland birch woodland. ■ Biological: Vascular plant assemblage. ■ Biological: Breeding bird assemblage. ■ Biological: Dragonfly assemblage. ■ Biological: Beetle assemblage. 	<p>No, due to:</p> <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Glenacardoch Point	SSSI	6.8 km	<ul style="list-style-type: none"> ■ Quaternary geology and geomorphology, including nationally important assemblage of relict coastal landforms, shore platforms and raised beaches. 	<p>No, due to:</p> <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
Torrisdale Cliff	SSSI	8.3 km	<ul style="list-style-type: none"> ■ Upland mixed ash woodland. 	<p>No, due to:</p> <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.
North Newton Shore	SSSI	10.0 km	<ul style="list-style-type: none"> ■ Stratigraphy: Non-marine Devonian. 	<p>No, due to:</p> <ul style="list-style-type: none"> ■ lack of connectivity between the proposed development and the designated site; and ■ lack of connectivity between potential impact pathways and designated features of the site.

3.2 Non-statutory Designated Sites and Ancient Woodland

3.2.1 Non-statutory Sites

No non-statutory sites designated for nature conservation value were identified within 2 km of the proposed Crossaig North works.

3.2.2 Ancient Woodland Inventory

A review of the Ancient Woodland Inventory (using publicly available data from NatureScot¹⁷) identified 57 unnamed Ancient Woodlands within 2 km of the Proposed Development RLB (see **Table 3.2** and **Appendix A Figure 3**).

Table 3.2 Ancient Woodlands within 2 km of the Redline Boundary

Note: Includes Named and Unnamed Woodlands. Distances are approximate. Abbreviations: LEPO, Long established (of plantation origin).

Site Name	Designation ¹⁸	Distance to Red line Boundary	Considered further in the assessment
Unnamed Ancient Woodland #1	Ancient (of semi-natural origin)	1.9 km	No, as there are no direct impacts, or impact pathways between the construction activities associated with the Proposed Development and the AW.
Unnamed Ancient Woodland #2	LEPO ¹⁹	1.9 km	
Unnamed Ancient Woodland #3	Other (on Roy map ²⁰)	1.8 km	
Unnamed Ancient Woodland #4	Ancient (of semi-natural origin)	1.6 km	
Unnamed Ancient Woodland #5	LEPO	1.4 km	
Unnamed Ancient Woodland #6	Ancient (of semi-natural origin)	1.4 km	
Unnamed Ancient Woodland #7	Other (on Roy map)	1.4 km	
Unnamed Ancient Woodland #8	Ancient (of semi-natural origin)	1.3 km	
Unnamed Ancient Woodland #9	Other (on Roy map)	1.2 km	
Unnamed Ancient Woodland #10	Ancient (of semi-natural origin)	1.2 km	
Unnamed Ancient Woodland #11	LEPO	1.2 km	
Unnamed Ancient Woodland #12	Ancient (of semi-natural origin)	1.1 km	
Unnamed Ancient Woodland #13	Ancient (of semi-natural origin)	1.0 km	
Unnamed Ancient Woodland #14	Ancient (of semi-natural origin)	1.0 km	

¹⁷ SNH - SNH Natural Spaces - Ancient Woodland Inventory Available at <https://gateway.snh.gov.uk/natural-spaces/dataset.jsp?dsid=AWI>

¹⁸ A guide to understanding the Scottish Ancient Woodland Inventory is available at <https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi>

¹⁹ LEPO are woodlands interpreted as plantation from maps of 1750 or 1860 and have been continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland.

²⁰ Roy maps refer to the detailed maps created by William Roy who surveyed the whole of Scotland between 1747-1755.

Site Name	Designation ¹⁸	Distance to Red line Boundary	Considered further in the assessment
Unnamed Ancient Woodland #15	Ancient (of semi-natural origin)	1.0 km	
Unnamed Ancient Woodland #16	Ancient (of semi-natural origin)	1.0 km	
Unnamed Ancient Woodland #17	Ancient (of semi-natural origin)	0.9 km	
Unnamed Ancient Woodland #18	Ancient (of semi-natural origin)	0.9 km	
Unnamed Ancient Woodland #19	Ancient (of semi-natural origin)	0.9 km	
Unnamed Ancient Woodland #20	Ancient (of semi-natural origin)	0.9 km	
Unnamed Ancient Woodland #21	Ancient (of semi-natural origin)	0.8 km	
Unnamed Ancient Woodland #22	Ancient (of semi-natural origin)	0.8 km	
Unnamed Ancient Woodland #23	Ancient (of semi-natural origin)	0.6 km	
Unnamed Ancient Woodland #24	Long-Established (of plantation origin)	0.6 km	
Unnamed Ancient Woodland #25	Ancient (of semi-natural origin)	0.6 km	
Unnamed Ancient Woodland #26	Other (on Roy map)	0.5 km	
Unnamed Ancient Woodland #27	Ancient (of semi-natural origin)	0.5 km	
Unnamed Ancient Woodland #28	Ancient (of semi-natural origin)	0.4 km	
Unnamed Ancient Woodland #29	Ancient (of semi-natural origin)	0.4 km	
Unnamed Ancient Woodland #30	Ancient (of semi-natural origin)	0.3 km	
Unnamed Ancient Woodland #31	Ancient (of semi-natural origin)	0.3 km	
Unnamed Ancient Woodland #32	LEPO	0.3 km	
Unnamed Ancient Woodland #33	Ancient (of semi-natural origin)	0.3 km	
Unnamed Ancient Woodland #34	Other (on Roy map)	0.3 km	
Unnamed Ancient Woodland #35	LEPO	0.3 km	
Unnamed Ancient Woodland #36	Ancient (of semi-natural origin)	0.2 km	
Unnamed Ancient Woodland #37	Ancient (of semi-natural origin)	0.2 km	
Unnamed Ancient Woodland #38	Ancient (of semi-natural origin)	0.2 km	
Unnamed Ancient Woodland #39	Ancient (of semi-natural origin)	0.2 km	
Unnamed Ancient Woodland #40	LEPO	0.2 km	

Site Name	Designation ¹⁸	Distance to Red line Boundary	Considered further in the assessment
Unnamed Ancient Woodland #41	Ancient (of semi-natural origin)	0.1 km	The unnamed ancient woodland which is adjacent to the existing access track, could be impacted by pruning or removal of the trees, should this be required. Further recommendations are detailed below with regards to this Ancient Woodland. The existing access track is currently used for commercial forestry access purposes and the frequency of vehicles using the track will not increase significantly.
Unnamed Ancient Woodland #42	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #43	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #44	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #45	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #46	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #47	LEPO	0.1 km	
Unnamed Ancient Woodland #48	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #49	Ancient (of semi-natural origin)	0.1 km	
Unnamed Ancient Woodland #50	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #51	Other (on Roy map)	0.0 km	
Unnamed Ancient Woodland #52	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #53	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #54	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #55	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #56	Ancient (of semi-natural origin)	0.0 km	
Unnamed Ancient Woodland #57	Ancient (of semi-natural origin)	0.0 km	

3.2.3 Protected and Priority Species Records

As detailed in **Section 2.1**, a request was submitted to ABReC for protected and priority species data within 2 km of the RLB of the Proposed Development. However, as stated in **Section 6**, ABReC contacted ERM in December 2021 to advise they are currently unable to produce data search reports.

In the absence of local records, a review was undertaken of the findings of surveys reported in SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA, as the route of this OHL crosses the RLB of the Project including the substation location. Whilst protected species including bats, otter, badger, pine marten, water vole and red squirrel were recorded in the wider area along the alignment of the OHL, none were reported within the area of the Proposed Development. Water vole was not recorded although the Project lies in a part of Argyll area where they are known to exist²¹. In addition, the consultation responses within the EIA did not highlight any protected species within the Proposed Development or immediate surrounds.

²¹ Mammal Society: Water Vole. Available at <https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-water-vole/>

The breeding bird surveys undertaken in 2015-2016 to inform the Inveraray to Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA and within the vicinity of the proposed Crossaig North substation located recorded Grey wagtail (*Motacilla cinerea*), Woodpigeon (*Columba palumbus*) and protected raptor species²². Baseline conditions within the Proposed Development t Survey Area were considered not to have changed to the extent that additional bird surveys were required.

²² Protected bird species data collected during the original surveys and used to inform the Inveraray to Crossaig OHL Reinforcement Project EIA are available in a confidential annex report as part of the Inveraray to Crossaig OHL Reinforcement Project EIA.

4. SURVEY FINDINGS

4.1 Extended Phase 1 Habitat Survey Results

The following habitat categories were recorded within the Survey Area during the EP1HS:

- broadleaved semi-natural woodland (A1.1.1);
- broadleaved plantation woodland (A1.1.2);

5. CONIFEROUS PLANTATION WOODLAND (A1.2.2);

- mixed plantation woodland (A1.3.2);
- dense / Scattered scrub (A2.1 / A2.2);
- recently felled coniferous woodland (A4.2);
- semi-improved acid grassland (B1.2);
- semi-improved neutral grassland (B2.2);
- improved grassland (B4);
- marsh / marshy grassland (B5);
- continuous bracken (C1.1);
- dry acid dwarf shrub heath (D1.1);
- wet dwarf shrub heath (D2);
- dry heath / acid grassland mosaic (D5);
- wet modified bog (E1.7);
- running water (G2);
- introduced shrub (J1.4);
- buildings (J3.6); and
- bare ground (J4).

These habitats are described below. Habitats within the construction footprint of the Proposed Development are described first, thereafter, habitats are listed in the order found within the *Handbook for Phase 1 Habitat Survey* (JNCC, 2010²³), not in order of ecological value.

The mapped results of the EP1HS are presented in **Appendix A, Figure 4 to Figure 9** Target Notes are presented in **Appendix B**.

No flora species of note were identified during the EP1HS, however, the recording of chickweed wintergreen (*Trientalis europaea*) appears to be the first record of this species in Kintyre peninsula, although this species has previously been recorded in Argyll and Bute, including on the Isle of Arran²⁴. Equally, the recording of *Sphagnum medium* (Previously *S. magellanicum*) is the first for the Kintyre Peninsula, although this species is known from the Cowal peninsula²⁵. However, the upland areas of the Kintyre peninsula are likely to be relatively under-surveyed due to their high and remote nature. A full species list is provided in **Appendix C**.

²³ Joint Nature Conservation Committee. Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit. Joint Nature Conservation Committee. 2010. Available at [Handbook for Phase 1 habitat survey \(jncc.gov.uk\)](http://jncc.gov.uk). Only minor changes have been made to the 2016 update from the 2010 original.

²⁴ Botanical Society of Britain and Ireland. Available at <https://bsbi.org/>

²⁵ The National Biodiversity Network Atlas. Available at <https://nbnatlas.org/>

5.1.1 Broadleaved Semi-natural Woodland (A1.1.1)

No areas of broadleaved woodland are present within the construction footprint of the Proposed Development. An area of this habitat occurs within the Survey Area approximately 250 m to the north east of the temporary works area near the proposed substation, it comprises pedunculate oak and downy birch over gorse scrub and soft rush and cattle were noted to have at least partial access. In addition, there are areas adjacent to the existing access track scattered along its length. The woodland along a steep-sided watercourse near the A83 at the western end of the existing access track (**Appendix B** TN14) is dominated by sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*), with frequent beech (*Fagus sylvatica*), and occasional downy birch (*Betula pubescens*), hazel (*Corylus avellana*), wych elm (*Ulmus glabra*), holly (*Ilex aquifolium*), and common lime (*Tilia x europaea*). The field layer is variable, and in places it has a grassy character. Species present include frequent ivy (*Hedera helix*), greater woodrush (*Luzula sylvatica*), cock's-foot (*Dactylis glomerata*), common bent (*Agrostis glomerata*) and Yorkshire fog (*Holcus lanatus*). Ferns are frequent in places, with scaly male fern (*Dryopteris affinis* agg), male fern (*Dryopteris filix-mas*), broad buckler fern (*Dryopteris dilatata*) and bracken (*Pteridium aquilinum*). Ash dieback was noted to be affecting some of the mature trees in this woodland.

Further east along the existing access track, the habitats become increasingly upland in their nature and the species reflect the nutrient-poor ground conditions, with a sparse low layer of hazel, downy birch, grey willow (*Salix cinerea*) and rowan (*Sorbus aucuparia*), with gorse (*Ulex europaeus*) scattered throughout and bracken (**Appendix B** TN30).

Where the track descends through commercial coniferous woodland on the east side of the peninsula, the conditions are damp and acidic and stands of downy birch, grey willow and eared willow (*Salix aurita*) are found, with occasional rowan and hazel. Heather (*Calluna vulgaris*) and purple moor-grass (*Molinia caerulea*) dominate the field layer with occasional bramble (*Rubus fruticosus* agg) (**Appendix B** TN31). Sitka spruce (*Picea sitchensis*) regeneration is present in places where the species has self-seeded from adjacent stands.

At the eastern end of the existing access track, along a small watercourse, the woodland is dominated by pedunculate oak (*Quercus robur*) with occasional downy birch and grey willow (**Appendix B** TN32). The ground layer is dominated by ferns, with male fern, bracken and hard fern (*Blechnum spicant*) on the steeper sides of the small valley. Also present on more level ground closer to the track, are frequent soft rush (*Juncus effusus*), purple moor grass, tormentil (*Potentilla erecta*) and wood sorrel (*Oxalis acetosella*) with bryophytes including common haircap (*Polytrichum commune*), glittering wood-moss (*Hylocomium splendens*) and red-stemmed feather-moss (*Pleurozium schreberi*).

5.1.2 Broadleaved Plantation Woodland (A1.1.2)

No areas of broadleaved plantation woodland are present within the construction footprint of the Proposed Development. A further small area is present at the western end of the existing access track, near the junction with the A83, on moist brown soils, dominated by mature sycamore and alder (**Appendix B** TN33), with male fern, scaly male fern, broad buckler fern, bramble, and creeping buttercup (*Ranunculus repens*). A small stand of aspen (*Populus tremula*) is present near Auchenbreck, although it grades quickly back into semi-natural birch woodland (**Appendix B** TN34).

Adjacent to the red line boundary on the opposite side of the B842 near the existing substation is an area that has been felled and replanted (**Appendix B** TN35). A handful of mature trees remain, including sycamore, Scots pine (*Pinus sylvestris*), pedunculate oak, downy birch and hazel. The planted trees are in tree tubes and are dominated by rowan, downy birch and hazel. The field layer is disturbed and as such includes scattered common bent, Yorkshire fog, wood sorrel, foxglove (*Digitalis purpurea*), bramble, soft rush, hard fern, tufted hair-grass (*Deschampsia cespitosa*) and marsh thistle (*Cirsium palustris*).

5.1.3 Coniferous Plantation Woodland (A1.2.2)

The Survey Area as a whole is dominated by coniferous plantation woodland, with stands of varying size and ages spread along the existing access track, particularly on the eastern side of the peninsula and around the existing substation. The large stand that surrounds the existing substation and covers the footprint of the Proposed Developments construction footprint (**Appendix B** TN36) is dominated by mature Sitka spruce. In such areas where the trees are mature, the field layer is limited due to the dense shading of the trees and in many places comprises little more than a bryophyte layer, including fringed bog-moss (*Sphagnum fimbriatum*), common tamarisk-moss (*Thuidium tamariscinum*), swan's-neck thyme-moss (*Mnium hornum*), common haircap, little shaggy-moss (*Rhytidiadelphus loreus*), heath plait-moss (*Hypnum jutlandicum*), broom fork-moss (*Dicranum scoparium*) and waved silk-moss (*Plagiothecium undulatum*), with occasional wood sorrel, hard fern and bulbous rush (*Juncus bulbosus*).

5.1.4 Mixed Plantation Woodland (A1.3.2)

Small elements of mixed plantation are present within the Survey Area including around the south and western sides of the existing substation, some of which lie within the footprint of the Proposed Development temporary works area. These areas comprise young rowan and downy birch (**Appendix B** TN38) that were still in tree tubes, with extensive Sitka regeneration, reflecting the previously coniferous plantation in this location. Aerial imagery indicates felling was undertaken between 2011 and 2014 for the construction of the existing Crossaig substation. The field layer is therefore very disturbed, with abundant soft rush, foxglove, bramble, marsh thistle, acute-leaved bog-moss (*Sphagnum capillifolium*) and common haircap.

A single mature stand occurs adjacent to the existing access track, where the canopy comprises abundant Scots pine and Sitka spruce, with frequent downy birch, grey willow and rowan (**Appendix B** TN37).

5.1.5 Dense / Scattered Scrub (A2.1 / A2.2)

No areas of dense / scattered scrub are present within the construction footprint of the Proposed Development. There are small areas of dense scrub scattered throughout the Survey Area, dominated by gorse and hazel, with occasional rowan, and a field layer of soft rush, cock's-foot, Yorkshire fog and common bent. In addition, scattered eared willow, soft rush and bracken are found along a small watercourse along the access track (**Appendix B** TN39).

5.1.6 Recently Felled Coniferous Woodland (A4.2)

No areas of recently felled coniferous woodland are present within the construction footprint of the Proposed Development. Large coupes of recently felled woodland are present along the access track and in the vicinity of the existing substation. Many have been planted recently (see **Section 4.1.3**), but where this is not the case (eg **Appendix B** TN40) the ground is disturbed with soft rush, bulbous rush, sharp-flowered rush (*Juncus acutiflorus*), Yorkshire fog, wavy hair-grass (*Avenella flexuosa*), purple moor-grass, marsh thistle, spear thistle (*Cirsium vulgare*), foxglove, colt's-foot (*Tussilago farfara*), heather, ragwort (*Jacobaea vulgaris*), tormentil, gorse, bracken and scattered eared willow seedlings. Bryophytes are extensive, with common haircap, heath plait-moss, springy turf-moss (*Rhytidiadelphus squarrosus*), pointed spear-moss (*Calliergonella cuspidata*) and acute-leaved bog-moss. In many places, regenerating downy birch and Sitka spruce are present.

5.1.7 Semi-improved Acid Grassland (B1.2)

No areas of semi-improved acid grassland are present within the construction footprint of the Proposed Development. Acid grassland is scattered within the Survey Area and is subject to grazing by sheep. A small area of this habitat type is found adjacent to the existing substation (**Appendix B** TN41) and is dominated by red fescue (*Festuca rubra*), with abundant common bent, sweet vernal

grass (*Anthoxanthum odoratum*) and crested dog's-tail (*Cynosurus cristatus*), with occasional soft rush, ribwort plantain (*Plantago lanceolata*), meadow buttercup (*Ranunculus acris*), red clover (*Trifolium pratense*), marsh thistle and ragwort. There are dwarf shrub elements in places, including occasional heather and bell heather (*Erica cinerea*), where the habitat grades into heath habitats.

5.1.8 Semi-improved Neutral Grassland (B2.2)

No areas of semi-improved neutral grassland are present within the construction footprint of the Proposed Development. Such grassland is present as verges and grazed fields (**Appendix B** TN42), dominated by Yorkshire fog, cock's-foot, red fescue and soft rush, with frequent ragwort, ribwort plantain, broad-leaved dock (*Rumex obtusifolius*), creeping buttercup and dandelion (*Taraxacum officinale* agg.).

5.1.9 Improved Grassland (B4)

No areas of improved grassland are present within the construction footprint of the Proposed Development. There are areas of improved grassland associated with areas of farmland in lowland areas around the western end of the existing access track, near Auchenbreck (see **Appendix B** TN46) and near the existing substation in the east of the Survey Area. They comprise grazed fields dominated by perennial rye grass (*Lolium perenne*), with Yorkshire fog, common bent and creeping buttercup, and locally abundant stands of creeping thistle (*Cirsium arvense*), soft rush and broad-leaved dock.

5.1.10 Marsh / Marshy Grassland (B5)

A small area of marshy grassland is present within the temporary works area for the Proposed Development and it is scattered elsewhere throughout the Survey Area. This habitat corresponds to both unmanaged areas within forestry, such as rides and wayleaves (eg **Appendix B** TN43) and along drains and watercourses, as well as more extensive damp, grazed fields. Most of this habitat is rush-pasture dominated by soft rush and/or sharp-flowered rush, with associate species such as bulbous rush, tufted hair-grass, Yorkshire fog, purple moor-grass, marsh thistle, creeping buttercup, marsh ragwort (*Senecio aquaticus*), selfheal (*Prunella vulgaris*), common knapweed (*Centaurea nigra*), broadleaved dock, devil's-bit scabious (*Succisa pratensis*) and tormentil. In some instances, sphagnum species are present including acute-leaved bog-moss, flat-topped bog-moss (*Sphagnum fallax*) and blunt-leaved bog-moss (*Sphagnum palustre*). In the east of the Survey Area are grazed fields (**Appendix B** TN44) that are damp, but not so dominated by rushes, instead they represent a transition between wet grassland and acid grassland, with purple moor-grass, sweet vernal grass, red fescue, Yorkshire fog, mat grass (*Nardus stricta*), ribwort plantain, heath rush (*Juncus squarrosus*), white clover (*Trifolium repens*), tormentil, marsh thistle and devil's-bit scabious, with a more limited quantity of soft rush, and heath elements including heather and bog myrtle (*Myrica gale*), with acute-leaved bog-moss and blunt-leaved bog-moss.

5.1.11 Continuous Bracken (C1.1)

No areas of continuous bracken are present within the construction footprint of the Proposed Development. Species-poor areas of dense bracken are scattered adjacent to the existing access track within the Survey Area and have only a few associated species such as Yorkshire fog, cock's-foot and creeping buttercup.

5.1.12 Dry Acid Dwarf Shrub Heath (D1.1)

No areas of dry acid dwarf shrub heath are present within the construction footprint of the Proposed Development. There are small areas of dry dwarf shrub heath adjacent to the existing access track within the Survey Area associated with clearings. These are dominated by heather, with bell heather, sweet vernal grass, tormentil and heath bedstraw (*Galium saxatile*), occasional cross-leaved heath

(*Erica tetralix*) and purple moor-grass, with the mosses heath plait-moss, red-stemmed feather-moss and springy turf-moss.

5.1.13 Wet Dwarf Shrub Heath (D2)

No areas of wet dwarf shrub heath are present within the construction footprint of the Proposed Development, but it is present in a small number of locations in the Survey Area adjacent to the existing access track. It is likely that in the absence of forestry this habitat type would be more widespread. It is also found in a small area adjacent to the existing substation (**Appendix B TN44**). The habitat in general is characterised by heather and cross-leaved heath, with occasional bell heather, blaeberry (*Vaccinium myrtillus*), crowberry (*Empetrum nigrum*), bog myrtle and hare's-tail cottongrass (*Eriophorum vaginatum*), with purple moor-grass, wavy hair-grass, common bent, heath bedstraw, tormentil, soft rush, and scattered downy birch seedlings. The bryophyte layer includes acute-leaved bog-moss, common haircap, red-stemmed feather-moss and heath plait-moss. Chickweed wintergreen was recorded in a single location (**Appendix B TN45**). Scattered Sitka spruce regeneration is present where it has self-seeded from adjacent stands (eg **Appendix B TN45**).

5.1.14 Dry Heath / Acid Grassland Mosaic (D5)

No areas of dry heath / acid grassland mosaic are present within the construction footprint of the Proposed Development. Mosaics of dry heath and acid grassland occur adjacent to the existing access track in the central parts of the route. Given the mix of these habitat types, it was not possible to map specific areas, hence they have been mapped as D5, which is a mosaic of both habitat types (see also B1 and D1 for details of component species). Heather is present, with the grasses common bent, purple moor-grass, tufted hair-grass and viviparous fescue (*Festuca vivipara*).

5.1.15 Wet Modified Bog (E1.7)

No areas of wet modified bog are present within the construction footprint of the Proposed Development. An area of bog is present adjacent to the existing access track, in the western half of the route, at the highest point within the Survey Area (see **Appendix B TN15**). It comprises heather, hare's-tail cotton-grass, common cotton-grass (*Eriophorum angustifolium*), bell heather, deergrass (*Trichophorum germanicum*), purple moor-grass, heath rush, marsh thistle, star sedge (*Carex echinata*), tormentil, heath bedstraw, bog asphodel (*Narthecium ossifragum*), viviparous fescue, common bent and soft rush, with extensive bryophytes including the mosses papillose bog-moss (*Sphagnum papillosum*), acute-leaved bog-moss, blunt-leaved bog-moss, Magellanic bog-moss (*Sphagnum medium*), feathery bog-moss (*Sphagnum cuspidatum*), springy turf-moss and bog bead-moss (*Aulacomium palustre*).

5.1.16 Running Water (G2)

No watercourses are present within the construction footprint of the Proposed Development, although several watercourses are present within the Survey Area. This includes sizeable natural watercourses such as the Killean Burn at the west end near the A83 and Carradale Water near Auchenbreck (see **Appendix B TN46**), smaller upland burns on the high ground in the centre of the peninsula, and smaller semi-natural and man-made drainage associated with commercial forestry (see **Section 4.1.3**).

5.1.17 Introduced Shrub (J1.4)

No areas of introduced shrub are present within the construction footprint of the Proposed Development. Areas of dense rhododendron (*Rhododendron ponticum*), an invasive non-native species, are found in the Survey Area, north of the existing substation (see **Appendix B TN12**). In addition, buddleia (*Buddleja davidii*) was noted scattered along the access track towards the east of the Survey Area (**Appendix B TN13**).

5.1.18 Buildings (J3.6)

There are buildings associated with the existing substation, and a complex of derelict livestock pens in the north of the Survey Area approximately 690 m from the footprint of the Proposed Development (see **Appendix B** Target Notes TN10). Residential buildings are present adjacent to the existing access track at the western end and in the middle at Auchenbreck (**Appendix B** TN46).

5.1.19 Bare Ground (J4)

The existing access track comprises bare ground, and there are tarmac roads in both the west and east of the Survey Area. Further small areas of bare ground are present adjacent to the access track, including a borrow pit area, laydown area and a recently cleared wayleave.

5.2 NVC Habitats with the potential to support GWDTE

The following GWDTE communities were recorded within the NVC Survey Area during the field survey and are described below:

- M6 *Carex echinata* - *Sphagnum fallax/denticulatum* mire;
- M25 *Molinia caerulea* - *Potentilla erecta* mire;
- W4 *Betula pubescens* - *Molinia caerulea* woodland;
- MG10 *Holcus lanatus* - *Juncus effusus* rush-pasture;
- U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland;
- M15 *Trichophorum germanicum* - *Erica tetralix* wet heath;
- M17 *Trichophorum germanicum* - *Eriophorum vaginatum* blanket mire; and
- M23 *Juncus effusus/acutiflorus* - *Galium palustre* rush-pasture.

These habitat types are described below. Communities within the construction footprint of the Proposed Development are described first, thereafter, communities are listed in the order found within the JNCC's National Vegetation Classification: Users' Handbook²⁶, not in order of ecological value.

The sensitivity of each of the pGWDTE receptors has been based on classifications provided within Scottish Environment Protection Agency (SEPA) Land Use Planning System (LUPS) – Guidance Note 31²⁷. The SEPA classification is modified from the UKTAG (2004) list of NVC communities²⁸, which provides the full list for all communities. This system scores each NVC community by its dependency on groundwater (i.e. 3=low, 2=moderate or 1=high). The extent to which the below communities are groundwater influenced is discussed in more detail in the hydrology chapter of the EA which is being submitted to the local planning authority.

The mapped results of the NVC survey are presented in **Appendix A, Figure 11 to Figure 17**. The GWDTE classification for the Survey Area are presented in **Appendix A, Figure 18 to Figure 24**. Target Notes are presented in **Appendix B Target Notes**.

No flora species of note were identified during the NVC survey. A full species list is provided in **Appendix C**.

²⁶ Joint Nature Conservation Committee National Vegetation Classification: Users' handbook (2006), Peterborough.

²⁷ Scottish Environment Protection Agency (SEPA), 2014. Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Windfarm Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. A. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf>

²⁸ UK Technical Advisory Group on the Water Framework Directive, 2004. Guidance on the identification and risk assessment of groundwater dependent terrestrial ecosystems. Available at: <https://www.wfduk.org/resources%20risk-assessment-groundwater-dependent-terrestrial-ecosystems>

5.2.1 M6 *Carex echinata* - *Sphagnum fallax/denticulatum* Mire

Rush-pasture is dominated by either soft rush, or sharp-flowered rush, throughout the Survey Area. Where these are associated with sphagnum species they represent M6 *Carex echinata* - *Sphagnum fallax/denticulatum* mire. Depending on the dominant rush species, they are either the M6c *Juncus effusus* sub-community, or M6d *Juncus acutiflorus* sub-community, although M6c is the more prevalent. Areas of recently felled forestry often include significant quantities of rushes and sphagnum, although as these are heavily disturbed, they are not assigned to the M6 community. A large expanse of this community is present to the south-west of the proposed substation footprint and within the red line boundary, the community is also present within the construction footprint of the Proposed Development (**Appendix B** TN9). This community is surrounded by mature Sitka plantation with scattered Sitka regeneration within the rush-pasture. The ground conditions are extremely waterlogged and unstable in this location, tending towards a quaking bog, or transition mire.

On the basis of the information collected, the community has High potential to be groundwater-dependent, although in many cases it is associated with rides, forestry drainage and small watercourses, indicating an influence of surface water. Therefore, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.2.2 M25 *Molinia caerulea* - *Potentilla erecta* Mire

The M25 *Molinia caerulea* - *Potentilla erecta* mire community was recorded in a variety of situations. Towards the western end of the access track, it exists as a damp grassland on a gentle slope to the north of the track, dominated by purple moor-grass with tufted-hair grass, common bent, soft rush and sharp-flowered rush. Common sorrel (*Rumex acetosa*), wild angelica (*Angelica sylvestris*) and marsh thistle are also present.

Elsewhere the community exists in mosaic with other communities. Around the west of the existing substation and within the footprint of the construction area for the Proposed Development, where commercial plantation has been felled and replanted with broadleaved shelter belt, M25 and M6 are present in a strip around the replacement planting (see **Section 4.2.1**).

To the east of the B842, the M25 community is in mosaic with the drier U4 grassland, where the ground conditions are wetter, resulting in an increase in purple moor-grass and decrease in species such as red fescue and sweet vernal-grass.

The wayleave to the north of the existing substation comprises a mosaic of M25 with M15 where the heath elements thicken up (see **Section 4.2.6**), and M6 where the vegetation becomes dominated by rushes (see **Section 4.2.1**). Purple moor-grass is the most common species and is present within both M6 and M15, but where it thickens up, it indicates a transition back to M25 and overall it is the more prevalent community within this mosaic.

On the basis of the information collected, the community has Moderate potential to be groundwater-dependent, although it is found in mosaic with both Low potential (U4) and High potential (M6, M23) communities. Therefore, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.2.3 W4 *Betula pubescens* - *Molinia caerulea* Woodland

There are areas of upland birch woodland within the Survey Area in various locations adjacent to the existing access track. These tend towards the W4 *Betula pubescens* - *Molinia caerulea* woodland community. The open canopy is dominated by downy birch and grey willow, often with eared willow, rowan and hazel. The ground flora tends towards heath in many places, with heather and purple moor-grass. In other areas, brambles and ferns are present and this suggests a tendency towards the drier W4a *Dryopteris dilatata* – *Rubus fruticosus* sub-community. On the basis of the information collected, it appears the habitat has a high potential to be groundwater dependent, although in several

places it is associated with surface water. Therefore, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.2.4 MG10 *Holcus lanatus* - *Juncus effusus* Rush-Pasture

An area of damp neutral grassland to the north east of the red line boundary at the eastern end of the Proposed Development is associated with grazed fields and shows an affinity for the MG10 *Holcus lanatus* - *Juncus effusus* rush-pasture community. It is characterised by Yorkshire fog and soft rush, although in places it is quickly replaced by improved grassland where the agricultural input has been greatest. Cattle were noted to be present to the east of the B842. On the basis of the information collected, it appears the habitat has Moderate potential to be groundwater-dependent, although it is artificial where grazing and agricultural input maintain its character and is of limited conservation interest. Therefore, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.2.5 U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* Grassland

Areas of U4 were identified at the western end of the existing access track and adjacent to the existing substation. At all locations where identified, the acid grasslands are a form of U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland, with red fescue in place of sheep's fescue (*Festuca ovina*). Across the B842, the community is in mosaic with the M25 community (see **Section 4.2.2**) where the ground conditions are wetter and species such as purple moor grass and sphagnum increases. Elsewhere, the forb species associated with the acid grassland were relatively limited due to the survey being undertaken relatively late in the year, and so no sub-community has been ascertained. On the basis of the information collected, the community has a Low potential to be groundwater-dependent but this needs to be confirmed through discussion with hydrology specialists.

5.2.6 M15 *Trichophorum germanicum* - *Erica tetralix* Wet Heath

Areas of the M15 wet heath are located adjacent to the existing substation and in two locations adjacent to the existing access track. They are likely to be remnants of the semi-natural habitats that preceded both the enclosure of parts of the uplands for grazing and the extensive commercial forestry planting. This community is found in areas where grazing has been more limited and previously felled forestry has been left unplanted for long enough that it has started to revert back to the wet heath.

There is also a small area of wet heath adjacent to the existing substation. Although in many instances it does not have a good fit to the published NVC tables, due to the wide variation present within such a nationally widespread habitat, it tends towards the M15b typical sub-community.

The M15b community also exists in an intermediate state with other communities including the blanket mire M17 (see **Section 4.2.7**) adjacent to the existing access track (where the community forms a part of the blanket bog habitat at **Appendix B** TN15) (see **Section 4.2.7**), and with M6 and M25 along previous wayleaves located in the north west of the red line boundary and extending beyond (in areas of marshy grassland where heath elements thicken up slightly; see **Appendix B** TN12) (see **Section 4.2.1** and **4.2.2**).

On the basis of the information collected, the community has Moderate potential to be groundwater-dependent, although where it forms part of the bog habitat (see M17 (**Section 4.2.7**)) this is relatively less likely due to the ombrogenous²⁹ nature of blanket bog. In addition, species indicative of flushing by groundwater (either moving over the surface and/or through the shallow sub-surface) were not recorded in the examples present within the Survey Area. The extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

²⁹ Dependent on rain for its formation.

5.2.7 M17 *Trichophorum germanicum* - *Eriophorum vaginatum* Blanket Mire

The area of blanket bog located adjacent to the existing access track at its highest point within the Survey Area, west of Deucheran Hill, is assessed to most closely resemble a form of M17 *Trichophorum germanicum* - *Eriophorum vaginatum* blanket mire. Although the presence of abundant bog asphodel and occasional Magellanic bog-moss could be considered indicative of the M18 *Erica tetralix* - *Sphagnum papillosum* raised and blanket mire community, in this instance a relative lack of cross-leaved heath and abundance of deergrass and purple moor-grass suggests the M17 community. These communities can be difficult to distinguish however, and the Survey Area represents only a narrow strip adjacent to the existing access track. On the basis of the information collected, the bog community has Low potential to be groundwater-dependent, and the risk posed by nearby development, is often not due to an alteration of the groundwater regime, but the potential to increase drainage from the bog. However, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.2.8 M23 *Juncus effusus/acutiflorus* - *Galium palustre* Rush-Pasture

Areas of M23 community are located adjacent to the existing access track and in many cases is found in many cases along small watercourses. Rush-pasture communities that lack sphagnum species are assigned to the M23 *Juncus effusus/acutiflorus* - *Galium palustre* rush-pasture community (see **Section 4.2.1**, M6 for comparison). Both the M23a *Juncus acutiflorus* sub-community and M23b *Juncus effusus* sub-community are represented, although M23b is the more prevalent. The associated floristic diversity is relatively limited, and although the survey was undertaken relatively late in the year, this sub-community is known to be relatively less species-rich than M23a. An M23 community identified in a sloping, enclosed field to the north of Auchenbreck also tends towards the M23b sub-community, although with a relatively drier and more open character on the slope and the soft rush thickening up to the south-west on the flatter ground near the Carradale Water.

On the basis of the information collected, the community has High potential to be groundwater-dependent, although where it is associated with forestry drainage and watercourses this would indicate the influence of a surface water influence. Therefore, the extent to which the habitat is groundwater influenced needs to be confirmed through discussion with hydrology specialists.

5.3 Protected Species Survey Findings

5.3.1 Bats

Bat Roost Potential

As noted in Limitations (see **Section 2.6**), not all buildings within the footprint of the existing Crossaig substation were able to be assessed for their bat roost potential. The buildings outwith the security fence, but still within the existing Crossaig substation footprint, were all relatively new, well-sealed buildings with a corrugated metal structure (**Appendix B TN6**). The largest building outwith the security fence had a well-sealed roof and joints, however there were air vents on all sides of the building that could be entry / exit points to the building for bats. A torch was shone on the vents to see if lining material was present, but due to their height, this could not be confirmed. A detailed search for bat droppings under and around each vent and around the building was undertaken, but no droppings were observed (**Appendix B TN6**). Although no evidence of roosting bats was identified from the external assessment, the presence of air vents means the buildings' potential to support roosting bats cannot be ruled out. Given this, an internal inspection of the building is recommended.

A second, small structure located within the existing Crossaig substation footprint was surveyed (**Appendix B TN7**). The structure houses a diesel-powered generator which was very noisy. The structure featured overhanging roofing on two sides (see **Appendix B TN7**, photo one). The underside of the overhanging roofing sections was found to have air vents with mesh linings, as shown in **Appendix B TN7** (photos two to four). As shown in these photos, there are gaps present at either

end of the mesh lining, which could allow bats to access the roof space. A detailed search for bat droppings around all sides of the structure was undertaken, but none were identified. Although the structure has access / egress points for roosting bats, given the very loud noise from the diesel generator which was on constantly during the survey³⁰ and the lack of evidence that bats are present, the structure is considered unsuitable for roosting bats and no further surveys of this structure are recommended.

A shipping container located on bare ground to the immediate south of the exiting Crossaig substation footprint was checked for its potential to support roosting bats. The container was, however, well sealed with no entry / egress points identified and no droppings were identified around the container's exterior (**Appendix B TN8**). It is not considered suitable for use by roosting bats.

A dilapidated farm building located to the immediate north east of the Proposed Development and adjacent to an old wayleave, was identified as having low bat potential (**Appendix B TN10**). Three sides of the building's walls and roof were constructed from corrugated metal, supported by a timber frame with a dilapidated brick chimney forming one of the buildings walls. The building was inaccessible due to overgrown vegetation; however, the base of the chimney could easily be seen and appeared to be blocked with vegetation (**Appendix B TN10**). The top of the chimney was not accessible, but could be seen from ground level with the chimney pots not appearing to be overgrown, potentially providing access for roosting bats (see **Appendix B TN10** Photo's 2 and 3). The outward facing side of the chimney has an open brick oven, which was highly dilapidated (see **Appendix B TN10** Photo 8) with openings that could be used by roosting bats. An external assessment of the structure found no evidence of roosting bats (i.e., bat droppings). Although no evidence of roosting bats was identified from the external assessment, due to the presence of potential access points to the open brick oven and the inability to fully access and assess the chimney stack for potential bat roosting features means the structure's potential to support roosting bats cannot be ruled out. However, given the distance to the footprint of the construction activities associated with the project is approximately 340 m, it is unlikely that any bats potentially roosting at the structure will be disturbed, therefore, no further surveys of this building are recommended.

A maintenance building associated with a Nearvy Windfarm, was located approximately 50 m from the existing access track, midway long its length (**Appendix B TN24**). The building was unable to be assessed closely due to access restrictions, however, an assessment of three sides of the building and one side of the pitched roof through binoculars was undertaken (**Appendix B TN24**). The building is in regular use and is constructed of brick with a cement lined outer with soffit boxes around the top of the structure. The building roof is tiled with some tiles being lifted / raised, which could potentially provide access points for roosting bats (**Appendix B TN24**), offering moderate bat roosting potential. However, as the building is approximately 50 m from the existing access track and as there will likely be no habitat loss or significant increase in vehicle activity along the existing access track, any direct disturbance to bats within this building due to activities associated with the Proposed Development will be negligible. Therefore, no further surveys of the building are recommended.

At the western end of the access track near the A83 there is mature woodland adjacent to the existing access track, with a number of trees that offer good potential bat roosting features, including cavities in the trunk, loose bark, splits and woodpecker holes (**Appendix B TN20**). Within the woodland, there were many trees clad in ivy, meaning it was not possible to discern whether they covered similar bat roost potential features and therefore a precautionary approach must be taken in assuming these trees support potential bat roosting features. However, as there will likely be no changes to the existing track and no significant increase in vehicle activity along it, the risk of any additional effects on any bats using the trees is negligible. Therefore, no further surveys of trees in the woodland are necessary.

Those areas that will be directly affected by the Proposed Development are dominated by Sitka, which, as detailed in **Section 4.1.3**, includes mature trees. Although no double leaders were

³⁰ The generator was on constantly during the survey but it is unknown if it runs continually.

observed, there are extensive areas of coniferous plantations in and around the habitat to be lost that could still support roosting bats. Therefore, further focused surveys are required in and adjacent to the areas that will be directly affected to determine if there are any trees with the potential to support roosting bats.

Bat Habitat Assessment

Much of the Survey Area is dominated by coniferous plantations with small areas of broadleaved semi-natural woodland. Those areas that will be directly affected by the Proposed Development are dominated by Sitka spruce which is considered to be less favoured by foraging bats. Small area of mixed plantation woodland will also be lost, which, as detailed in **Section 4.1.4**, comprises some young broadleaved species, but they are in tree tubes and hence are considered also to be less favoured by foraging bats. Given the less favourable status of these areas and as no bats were reported during SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA within the area of the Proposed Development (see **Section 2.1**), any direct disturbance to bats around the footprint of the Proposed Development will be negligible, and therefore no activity surveys for foraging bats in these areas are recommended.

Smaller areas of habitats offering moderate suitability for foraging bats occur in the surrounds of the Proposed Development, such as the broadleaved woodland and associated small woodland burn located to the north east of the Proposed Development. However, there will be no direct habitat loss to these woodland as a result of the Proposed Development and the loss of coniferous woodland edge is unlikely to affect any commuting routes across the area used by bats in any significant way. Given this and that no bats were not reported from around the Proposed Development in SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA (see **Section 2.1**), any direct disturbance to bats in the wider area around the footprint of the Proposed Development will be negligible and therefore no further surveys of these areas is recommended.

As mentioned in the EP1HS findings (see **Section 4.1**), there are several areas of broadleaved woodland adjacent to the existing access track along its length. The section of mature broadleaved woodland at the western end of the access track near the A83 has the Killean Burn running through it and provides good foraging opportunities for bats (**Appendix B TN16**). In addition, the single mature stand of mixed plantation woodland towards the eastern end of the existing access track offers moderate foraging opportunities for bats. Further non-coniferous woodlands located along the existing access track were sparsely populated and offered poor foraging opportunities for bats. However, as there will likely be no habitat loss or significant increase in vehicle activity along the existing access track, the risk of any increases in disturbance to bats in these habitats adjacent to the track will be negligible.

Given the above, detailed bat activity surveys are considered unnecessary.

5.3.2 Otter

Multiple otter spraints of varying ages were identified under a bridge beneath the existing access track located towards its eastern end approximately 1.5 km from the footprint of the Proposed Development (see **Appendix B TN1**). A further spraint was identified approximately 500 m south west from the footprint of the Proposed Development on a rock close to a culvert under the existing access track (see **Appendix B TN4**). Its size, content and smell suggested it was an otter spraint, but due to its age and state of decomposition, it was difficult to be certain. The findings reported in SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA did record a number of otter spraints to the north east of the Proposed Development construction area.

As mentioned in EP1HS findings (ss **Section 4.1.16**), the Killean Burn passes through the broadleaved semi natural woodland adjacent to the existing track near its western end close to the A83. This habitat is suitable for otters (including commuting, foraging, holts and resting up sites). The identification of a suspected otter spraint on a rock in the middle of the Killean Burn in the woodland

(see **Appendix B** TN18), alongside anecdotal evidence from locals who have seen otters along the burn, suggest otters are present also in this area.

Two large culverts located towards the eastern end (see **Appendix B** TN21) and western end (see **Appendix B** TN11) of the existing access track, and one large bridge located towards the centre of the existing access track (geographically) were checked for field signs (including the surrounding habitat), but none were evident.

As there will likely be no habitat loss or significant increase in vehicle activity along the existing access track, the risk of any increase in disturbance to otters associated with the Proposed Development along the existing access track will be negligible.

Although otters are known to be present in the area³¹, no field signs were found in the footprint of the Proposed Development, or in its immediate surrounds. Given the Proposed Development will be located in an area of coniferous plantation woodland, which is sub-optimal habitat for otters, and as the closest watercourse, the Allt na Buaille Salaich, is approximately 200 m south west of the Proposed Development's footprint at its closest point, any impact on otters due to the Proposed Development would be negligible and therefore, it is not proposed that any additional surveys for otters are required.

5.3.3 Water Vole

No field signs of water vole were identified during the EP1HS within the Proposed Development mirroring the findings of SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA in this area (see **Section 2.1**). Although water voles are not known to be present in the Survey Area³², suitable habitat to support water vole was identified along watercourses located along the existing access track (**Appendix B** TN21 and TN25). Banksides of the small burn passing under the existing access track had a suitable profile and habitat in the form of overhanging rushes, but no field signs were seen (**Appendix B** TN21). An assessment of the Carradale Water (**Appendix B** TN25) found the bankside habitat to be suitable but poor to support water voles due to the presence of fast flowing water and limited bankside vegetation owed to extensive shading from alder trees lining the watercourse.

As there was no evidence of water vole within the footprint of the Proposed Development and as there will likely be no habitat loss and no significant increase in vehicle activity along the existing access track which is currently used for commercial forestry and windfarm access, the risk of effects on any water vole present along the existing access track will be negligible. Equally, as the Proposed Development will be located in an area of coniferous plantation woodland, which is sub-optimal habitat for water vole, and as the closest watercourse, the Allt na Buaille Salaich, is approximately 200 m south west of the Proposed Development's footprint and has no bankside vegetation or features to support water vole, any impact on potentially present water vole due to the Proposed Development would be negligible. Therefore, no further surveys for water vole are considered necessary.

5.3.4 Badger

No badger setts were recorded during the EP1HS. Suitable habitat to support foraging and setts was present in the broadleaved semi-natural woodland at the western end of the existing access track, with mammal runs and a badger scat identified along the path (**Appendix B** TN16). However, as there will likely be no habitat loss and no significant increase in vehicle activity along the existing access track which is currently used for commercial forestry and windfarm access, the risk of effects on badgers present in this woodland will be negligible.

³¹ Mammal Trust. Otters. Available at <https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-otter/#:~:text=Conservation%20Status%3A%20Otters%20are%20strictly,much%20of%20Britain%20and%20Europe.>

³² Mammal Society – Water Voles. Available at <https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-water-vole/>

No further evidence of badger activity was recorded during the EP1HS, mirroring the findings of SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA in the area of the Proposed Development's construction footprint (see Desk Study **Section 2.1**). Whilst coniferous plantations can support badgers, the underlying habitat in areas likely to be directly affected by the Proposed Development and in the immediate surrounds was wet and boggy and therefore unlikely to be used by badgers for the creation of setts.

Given the above, no further surveys for badgers are considered to be necessary.

5.3.5 Pine Marten

No pine martens were seen, or dens identified during the EP1HS. The findings of the surveys reported in SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA recorded few pine marten, suggesting populations are low in this general area (see Desk Study **Section 2.1**).

Multiple suspected pine marten scats were found in prominent locations on a bridge that passes over the Allt Na Buaille Salaich Burn, towards the eastern end of the existing access track (see **Appendix B TN2**). Due to the age and state of decomposition, it was not possible to confirm which species left the scats, however, the size, shape, and content of scats, suggested pine marten (see **Appendix B TN2** photographs three and four). A further suspected pine marten scat was identified along the existing access track on rock approximately 50 m from the south eastern corner of the Proposed Development's temporary works area (see **Appendix B TN3**). The shape, size and content of this scat suggested it was pine marten.

Whilst pine martens favour native woodland they can live in conifer plantations³³. Large areas of conifer plantation occur in and around the Survey Area, including where habitat loss will occur for the proposed substation, associated temporary works area and the short section of permanent track that will connect the new substation to the existing access track. Given this and the identification of a suspected pine marten scat approximately 50 m south west of the Proposed Development's temporary works area, further focused surveys are required in and adjacent to these areas that are likely to be directly affected, to determine if pine marten are present.

5.3.6 Red Squirrel

No field signs of red squirrel were identified during the EP1HS. This may reflect the dominance of Sitka spruce in a number of areas, including in the location of the proposed substation. Red squirrels are less likely to create dreys in Sitka spruce plantations and they are not their favoured feeding areas (Scottish Forestry Guidance Note³⁴). The findings of the surveys reported in SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA recorded few red squirrels throughout the alignment, suggesting populations are low in this general area (see **Limitations, Section 6**). However, there are extensive areas of coniferous plantations and other woodland in and around the Survey Area that could still support red squirrels, including in areas where there will be habitat loss to accommodate the proposed substation footprint and its associated temporary works area and entrance track off the existing access track. In addition, surveyors spoke to the Land Agent for the Land Owner, who commented that red squirrel are often seen in the coniferous woodland that surrounds the existing substation as well as the proposed substation footprint (see **Appendix B TN5**).

Given the above, further focused surveys are required in and adjacent to these areas likely to be directly affected to determine if red squirrel are present.

³³ Pine Marten, NatureScot. Available at <https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/pine-marten>

³⁴ Scottish Forestry: Forest Operations and Red Squirrels in Scottish Forests. Available at, <https://forestry.gov.scot/publications/24-forest-operations-and-red-squirrels-in-scottish-forests>

5.3.7 Wildcat

No field signs of wildcat were identified during the EP1HS³⁵. However, extensive areas of coniferous plantation in and around the Survey Area that could still support wildcat are present, including areas where there will be habitat loss to accommodate the proposed substation footprint, associated temporary works area and the short section of permanent track that will connect the new substation to the existing access track. Therefore, further focussed surveys are required in and adjacent to the areas that will be directly affected, to determine if wildcats are present.

5.3.8 Birds

A single merlin (*Falco columbarius*) was recorded during the EP1HS, although this was seen hunting outwith the 50 m buffer zone during surveys along the existing access track. Merlin is a Schedule 1 species³⁶ and as such are afforded additional protection.

Suitable habitat to support birds was identified during the survey and a number of common and widespread bird species (listed below) were recorded during the EP1HS, many of which are likely to breed in the area.

- UK Red Status Birds of Conservation Concern (BoCC)³⁷ including, merlin, tree pipit (*Anthus trivialis*).
- UK Amber Status Birds of Conservation Concern (BoCC)³⁸ including, song thrush (*Turdus philomelos*), woodpigeon (*Columba palumbus*) and wren (*Troglodytes troglodytes*).
- UK Green Status BoCC including blackbird (*Turdus merula*), carrion crow (*Corvus corone corone*), chaffinch (*Fringilla coelebs*), coal tit (*Parus ater*), jackdaw (*Corvus monedula*), long-tailed tit (*Aegithalos caudatus*), pied wagtail (*Motacilla alba*), raven (*Corvus corax*), robin (*Erithacus ruhecula*), siskin (*Carduelis spinus*) and treecreeper (*Certhia familiaris*).
- SBL species recorded during EP1HS comprised song thrush and siskin.

These incidental records of bird species recorded during the survey are similar to the species identified during SSEN Transmission's Inveraray to Crossaig 275 kV OHL Reinforcement Project EIA , where common woodland and upland bird species were recorded. The recording of similar bird species indicates the underlying conditions around the Proposed Development have not changed since the surveys undertaken to inform the Inveraray to Crossaig OHL, therefore, no additional bird surveys are required.

5.3.9 Other Fauna

There are no waterbodies present within the Survey Area to support breeding amphibian species. The small area of mixed woodland plantation to be lost due to the installation of the temporary works area consists of young broadleaved tree species in tree tubes with a disturbed field layer that could provide suitable habitat to support reptiles. It is therefore recommended that further focused surveys are required in and adjacent to these areas to determine if reptiles are present. Areas of dry heath, continuous bracken and recently felled coniferous woodland offer good foraging and basking habitat for reptile species, however, these will not be directly impacted by the Proposed Development's construction activity, therefore, no further surveys are required.

³⁵ Surveys followed guidance and methodology as described in Forestry Commission Scotland Guidance Note 35d: Forest operations and wildcats in Scotland. Available at <https://forestry.gov.scot/publications/36-forest-operations-and-wildcats-in-scotland/viewdocument/36>

³⁶ RSPB The Schedules. Available at: <https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/>

³⁷ Birds of Conservation Concern 5. Available at <https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf>

³⁸ Birds of Conservation Concern 5. Available at <https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf>

No field signs of any other mammal species were identified, although the habitat present across the site is suitable to support common species (eg deer species, rabbit (*Oryctolagus cuniculus*)).

6. SUMMARY AND RECOMMENDATIONS

6.1 Summary

The habitat in and around the footprint of the Proposed Development is dominated by mature coniferous plantation woodland with small sections of marshy grassland and mixed woodland plantation to the east of the footprint of the Proposed Development which form part of the buffer habitat surrounding the existing Crossaig substation.

Six habitats which are with moderate or high potential GWDTE were identified within the Proposed Development (see **Appendix A Figures 18 to 24**):

- M6 *Carex echinata* - *Sphagnum fallax/denticulatum* mire;
- M25 *Molinia caerulea* - *Potentilla erecta* mire;
- W4 *Betula pubescens* - *Molinia caerulea* woodland;
- MG10 *Holcus lanatus* - *Juncus effusus* rush-pasture;
- M15 *Trichophorum germanicum* - *Erica tetralix* wet heath; and
- M23 *Juncus effusus/acutiflorus* - *Galium palustre* rush-pasture.

However, on the basis of the information collected, it appears that the habitats are influenced also by surface water, and the extent to whether they are groundwater influenced needs to be confirmed.

The initial surveys for protected species as part of the EP1HS recorded no signs of specially protected species in habitats that would be directly affected, or in the immediate surrounds. Some parts of the conifer plantations were dense and were not accessible during the EP1HS.

Suspected otter spraints were identified beneath a bridge along the existing access track approximately 1.5 km south west of the footprint of the Proposed Development with a further spraint identified on a rock close to a culvert under the existing access track approximately 500 m south east of the footprint of the Proposed Development. A badger scat was identified in a broadleaved semi-natural woodland at the western end of the existing access track, approximately 14 km south west of the proposed substation site. Multiple suspected pine marten scats were found on a bridge that passes over the Allt Na Buaile Salaich Burn approximately 770 m south of the proposed substation site.

Whilst conifer plantations can provide suitable habitat for several protected species there are reasons why those trees that will be lost are unlikely to support some of them including:

- the boggy ground conditions mean it is unlikely that they will be used by badgers or otters to build setts / holts; and
- Sitka spruce plantations are not favoured by red squirrels for foraging and are less likely to create dreys in them than other conifer species known to be present in the surrounding area.

The Allt Na Buaile Salaich Burn runs approximately 200 m to the south west of the habitats to be lost, but in the vicinity of the works, however, due to the watercourses distance to the footprint of the proposed works any impacts on protected species utilising this watercourse, such as otter, are considered negligible.

Despite the above it is still possible that the areas of conifer plantation to be lost due to the Proposed Development could be used by bats, red squirrel, pine marten and wildcat and further surveys should be undertaken (see **Section 5.2**).

The small area of young mixed plantation woodland that will be lost during construction due to the construction of a temporary works area for the Proposed Development has sufficient ground layer habitat to support reptiles and further surveys should also be undertaken (see **Section 5.2**).

All bird species and their nest / eggs / young are protected and the habitats to be lost could support some common breeding bird species.

No invasive non-native flora species were recorded within the Survey Area.

The EP1HS recorded habitats and species signs along the existing access track. The Proposed Development will use the existing access track and only maintenance activities are proposed, which may include tree de-limbing or felling at key locations to facilitate access for transportation of the grid transformer to the proposed Crossaig North substation. Should the works activities currently proposed for the existing access tracks change, or if any tree de-limbing or felling is necessary, further surveys may be required (see **Section 5.2**).

6.2 Recommendations

The following recommendations are based on the current design and proposed works activities comprising the Project. Should the Project design or proposed works activities be amended, these recommendations and any requirement for further survey should be reviewed in consideration of the changes and updated as necessary.

Following the completion of the EP1HS and the NVC surveys, no further habitat / flora surveys are necessary.

There is the possibility that maintenance activity, including tree pruning and/or felling, may be required on trees within the unnamed Ancient Woodland adjacent to the existing access track. If works are required with the woodland, then the following is advised:

- A pre-construction Ancient Woodland survey is to be undertaken (April – June);
- An ECoW should be present when any tree works are to be undertaken within an Ancient Woodland.

As stated in **Section 5.1**, further surveys are recommended for bats, red squirrel, pine marten, wildcat and reptiles:

- **Bats** – in the areas of conifers to be lost and in a buffer of up to at least 30 m in where suitable habitat occurs. Where any requirement for tree de-limbing or felling is identified, bat roost potential should be assessed, including further survey as required. New potential features may be present so should be in addition to any already identified. Due to the transient nature and intermittent use of many bat roosts, it is recommended that as a minimum, a bat licenced ECoW undertakes an inspection immediately in advance of any tree de-limbing or felling and is present during the works. Night time working should be avoided where possible.
- **Pine marten** – in the areas of conifers to be lost and in a buffer of up to at least 100 m in where suitable habitat occurs. Further scats should be sought also from the previous location where they were identified, namely, along the existing access track on rock approximately 50 m from the south eastern corner of the footprint of the Proposed Development. Any scats found should be collected and sent for eDNA analyses to confirm that they are pine marten.
- **Red squirrel** – in the areas of conifers to be lost and a buffer of 50 m (red squirrel) where suitable habitat occurs.
- **Wildcat** – in the areas of conifers to be lost and in a buffer of up to at least 200 m in where suitable habitat occurs.
- **Reptiles** – in the areas of mixed plantation woodland to be lost and in a buffer of up to at least 30 m in where suitable habitat occurs.

Much of the habitat to be lost will be coniferous plantation and it is evident from the Extended Phase 1 Habitat Survey that it is often dense with a boggy understorey and access may not be easy, or even possible, in places (see **Section 2.6 Limitations**). Given the comparatively small area to be surveyed

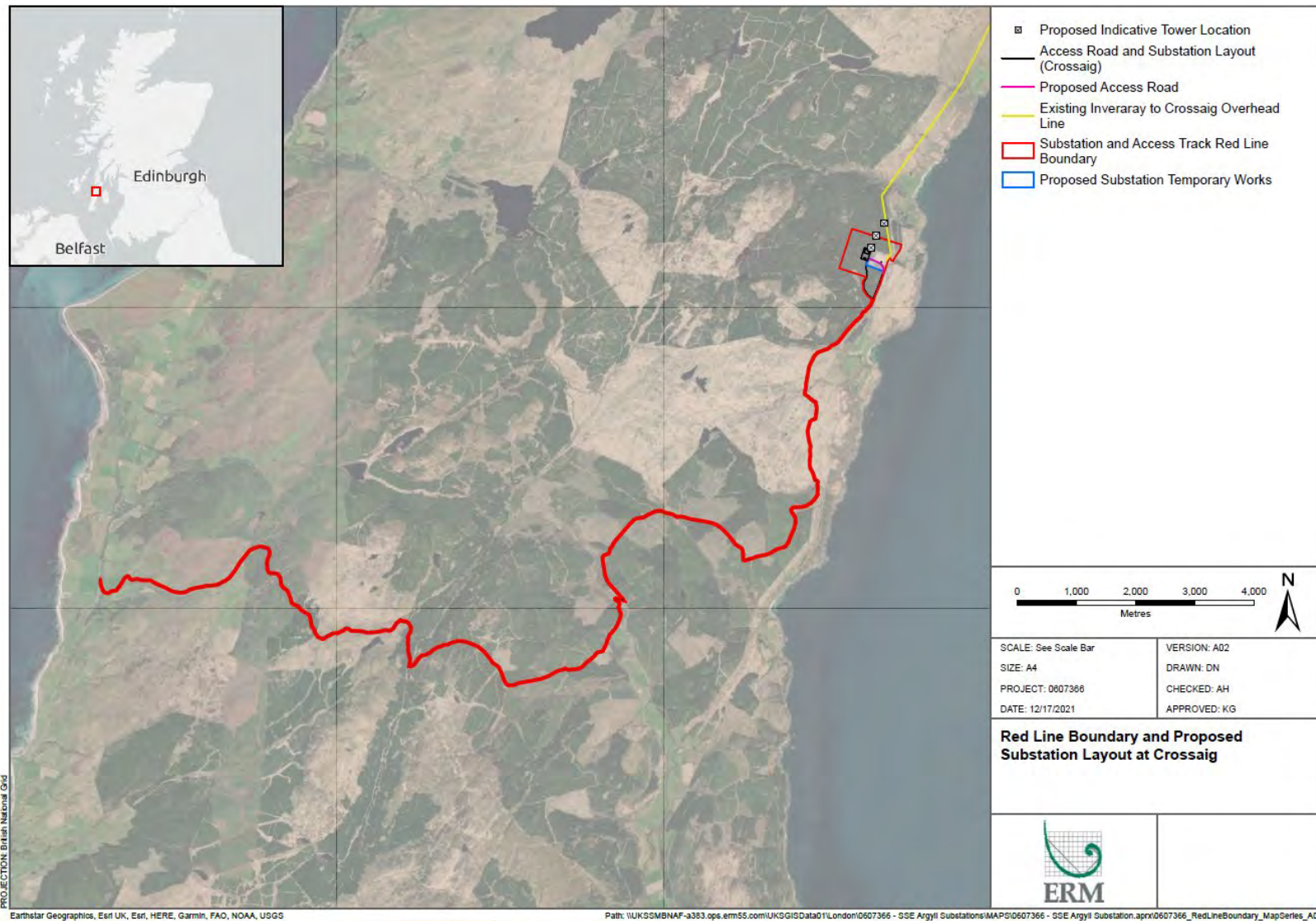
further, the survey effort should include more detailed surveys along the margins / rides where present and seeking to access the more dense areas.

Where access prevents any detailed surveys, consideration should be given to the use of camera traps to seek to confirm presence, or a precautionary approach should be undertaken during construction with reliance on the implementation of the SSEN Transmission's Species Protection Plans (SPPs) that have been developed and agreed with NatureScot. If the latter approach is adopted, it is possible that delays to the construction programme may occur if presence of protected species in these dense conifer plantations is confirmed during the removal of the trees (where necessary).

A pre-construction walkover survey by a suitable qualified Ecology Clerk of Works (ECoW) will be undertaken within the Proposed Development no sooner than 48 hours prior to construction works commencing to establish if any protected species are present, or there are non-native species. Actions as set out in the SSEN Transmission SPPs will be implemented if necessary to avoid effects on protected species and the spread of non-native species.

APPENDIX A FIGURES

Figure 1 Crossaig North Red Line Site Boundary ¹



¹ Red line boundary shown on Figure 1 to correct as of December 2021. The survey was undertaken in October 2021.

Figure 2 Crossaig Survey Area

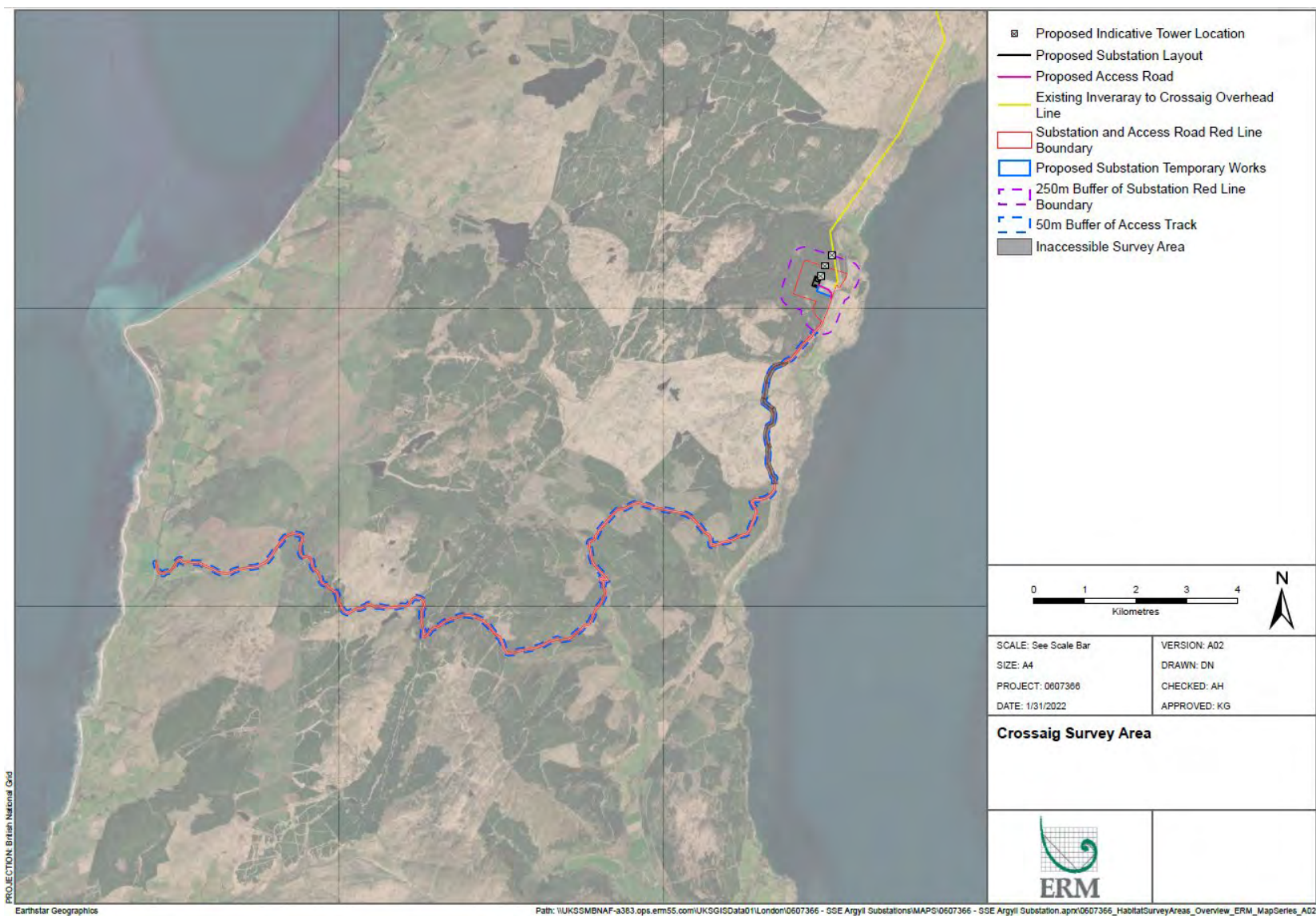


Figure 3 Designated Sites Within 10 km of Proposed Crossaig Substation

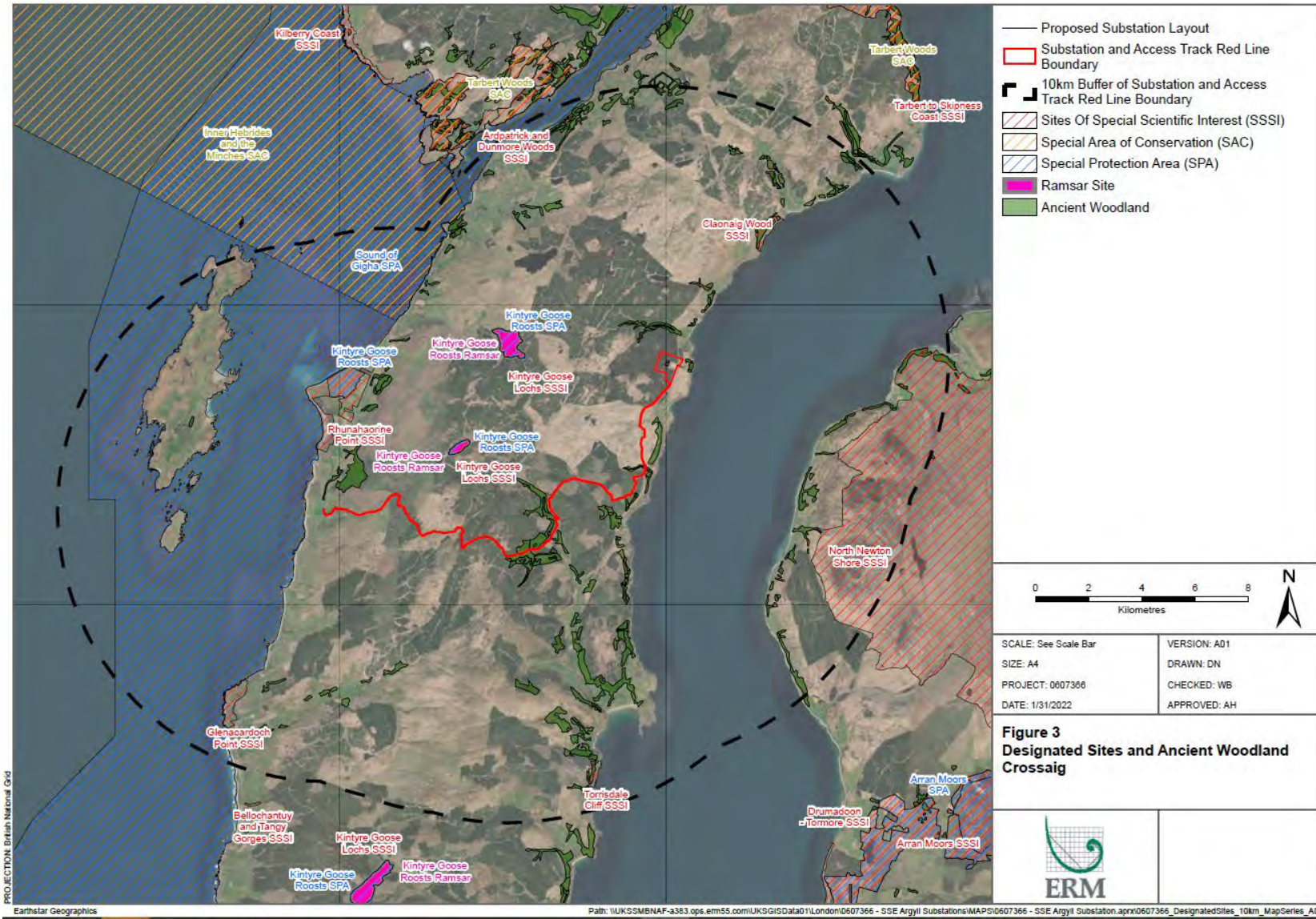


Figure 4 Extended Phase 1 Habitat Survey for Crossaig Substation

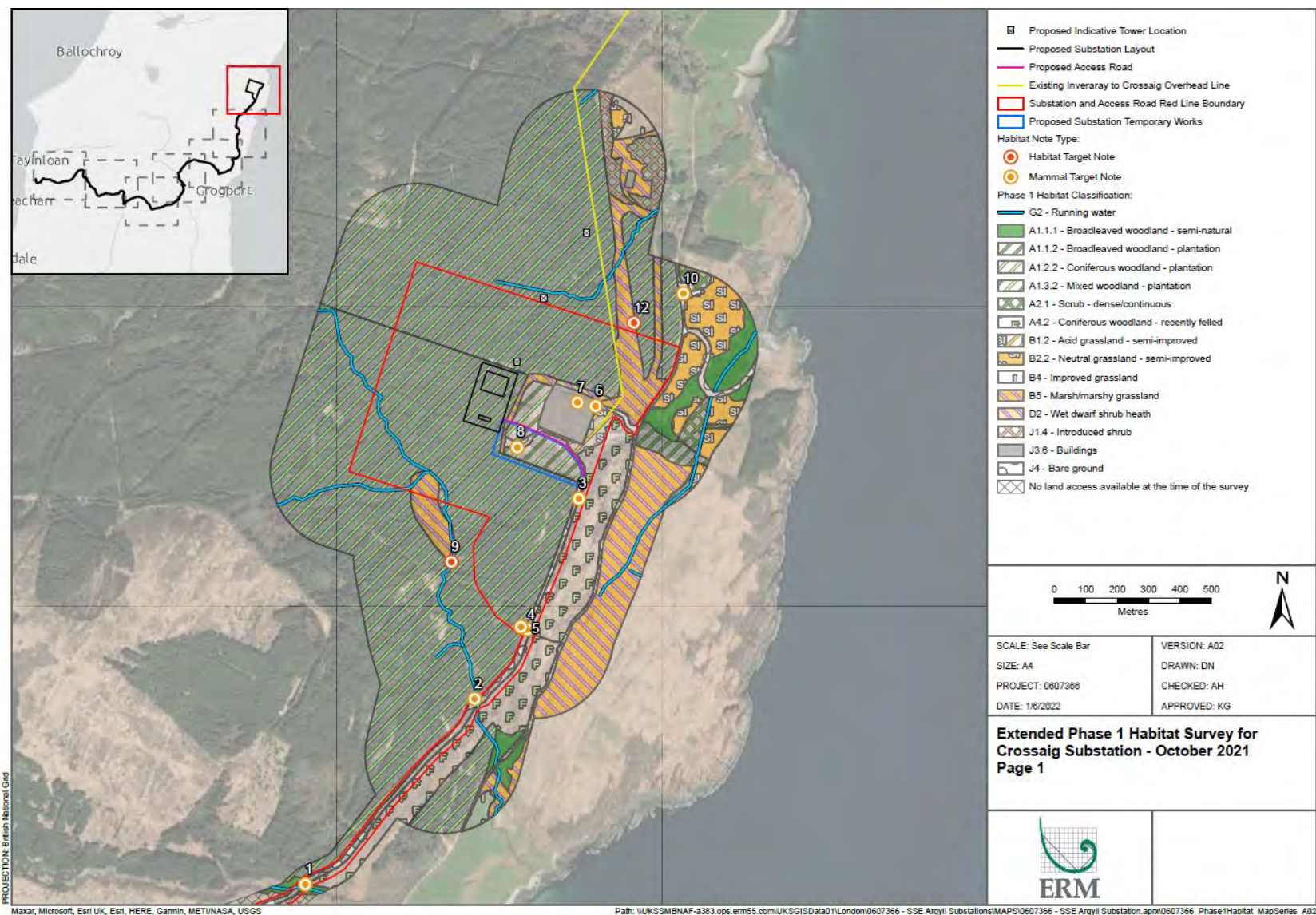


Figure 5 Extended Phase 1 Habitat Survey for Crossaig Substation

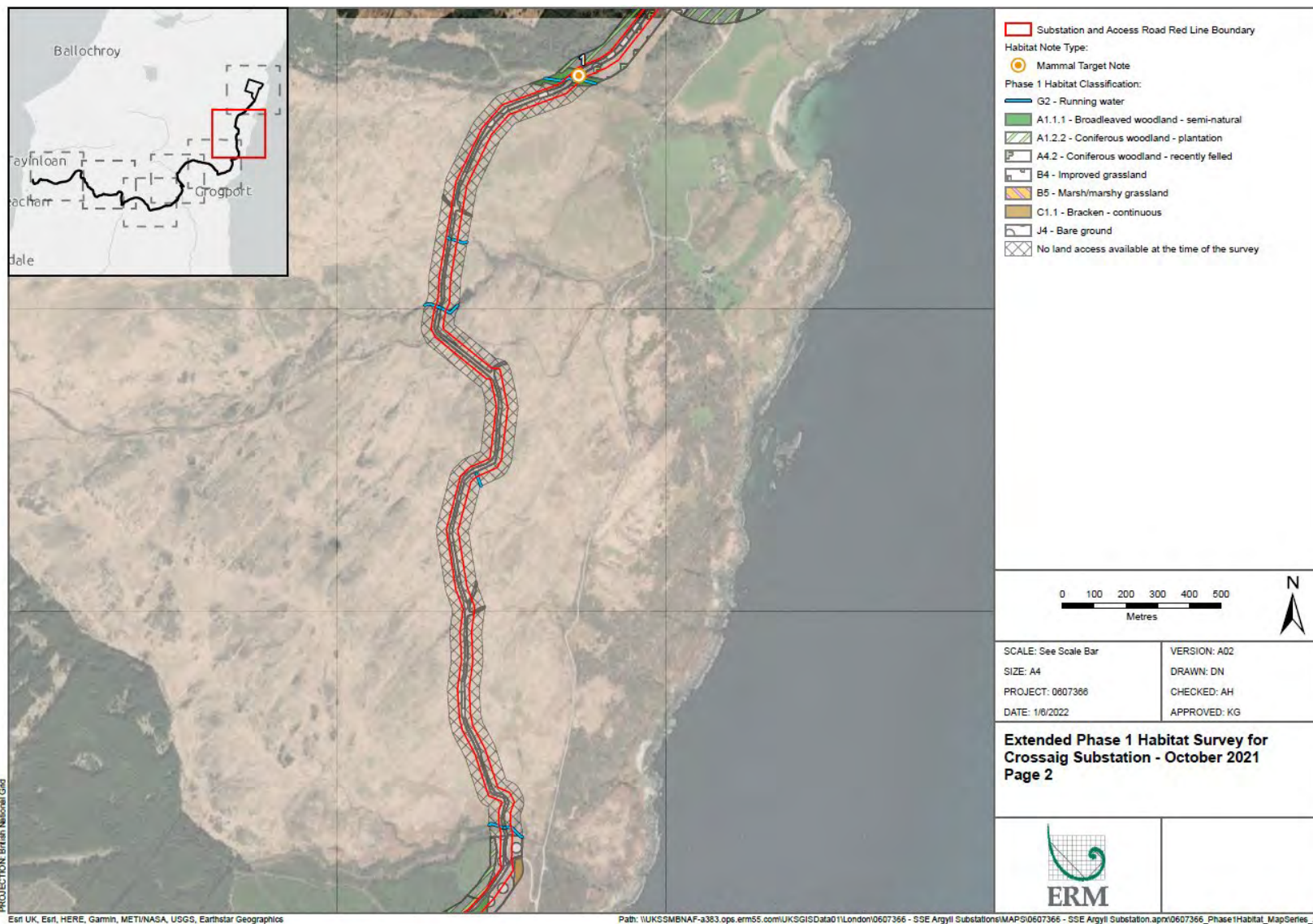


Figure 6 Extended Phase 1 Habitat Survey for Crossaig Substation

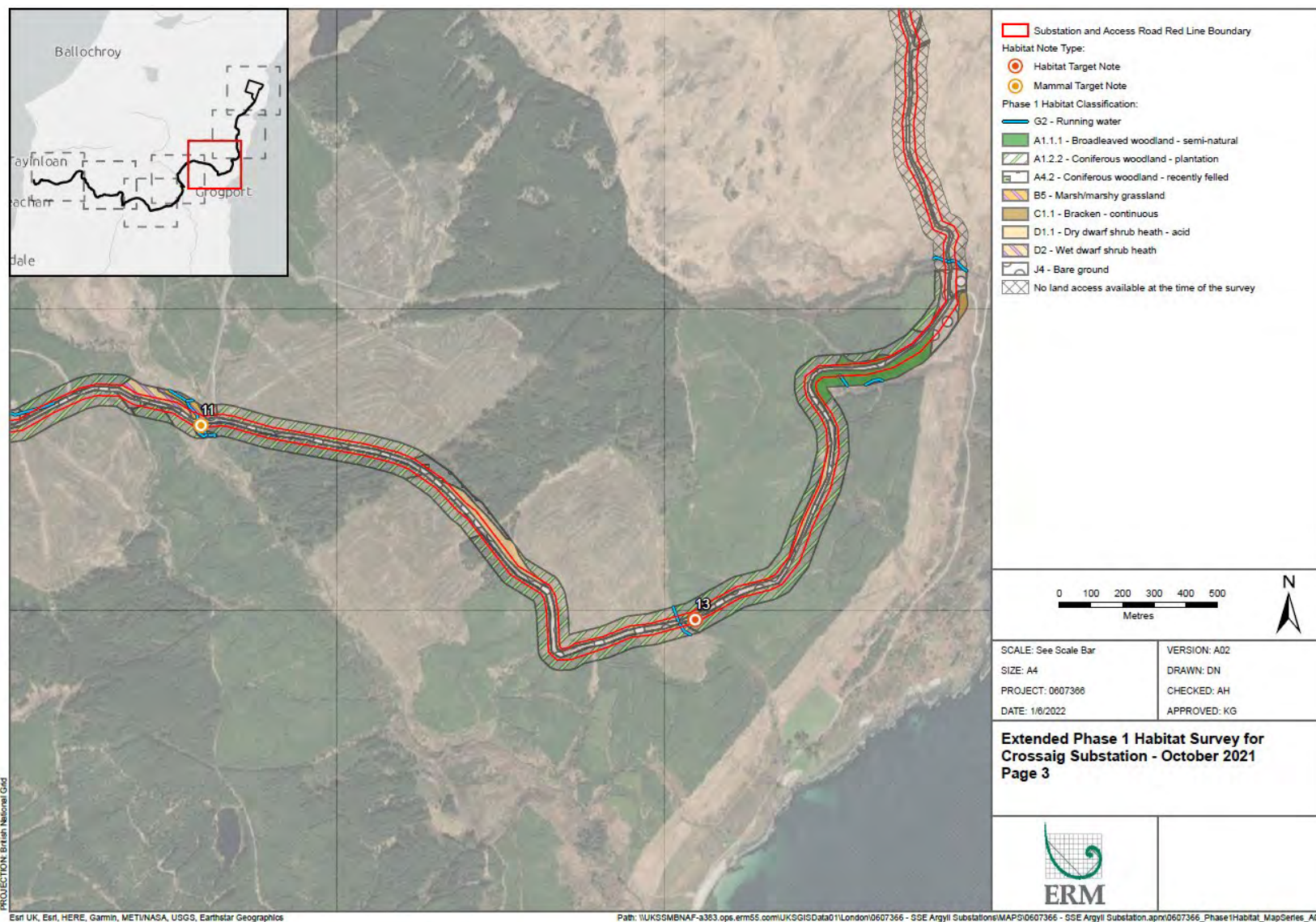


Figure 7 Extended Phase 1 Habitat Survey for Crossaig Substation

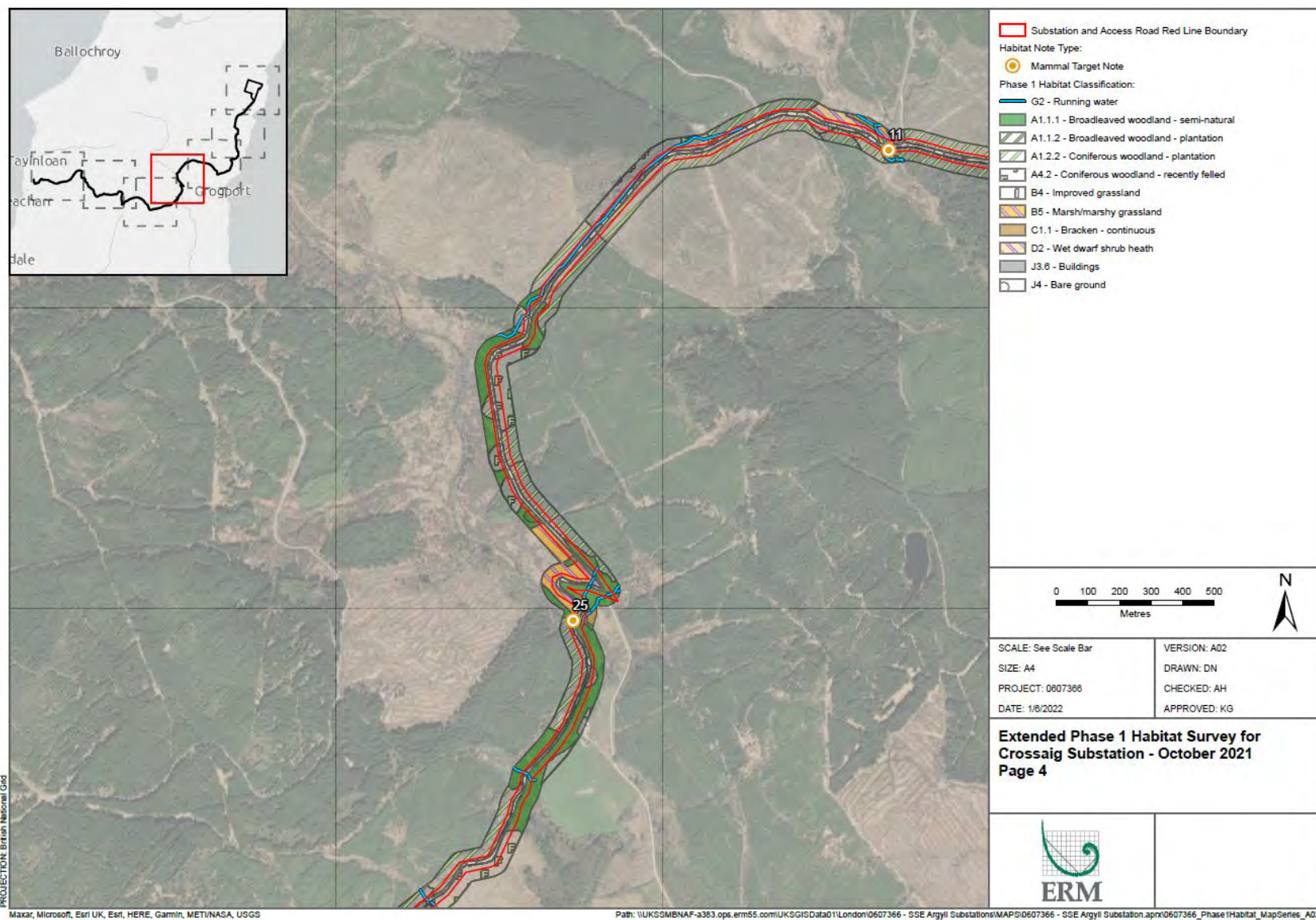


Figure 8 Extended Phase 1 Habitat Survey for Crossaig Substation

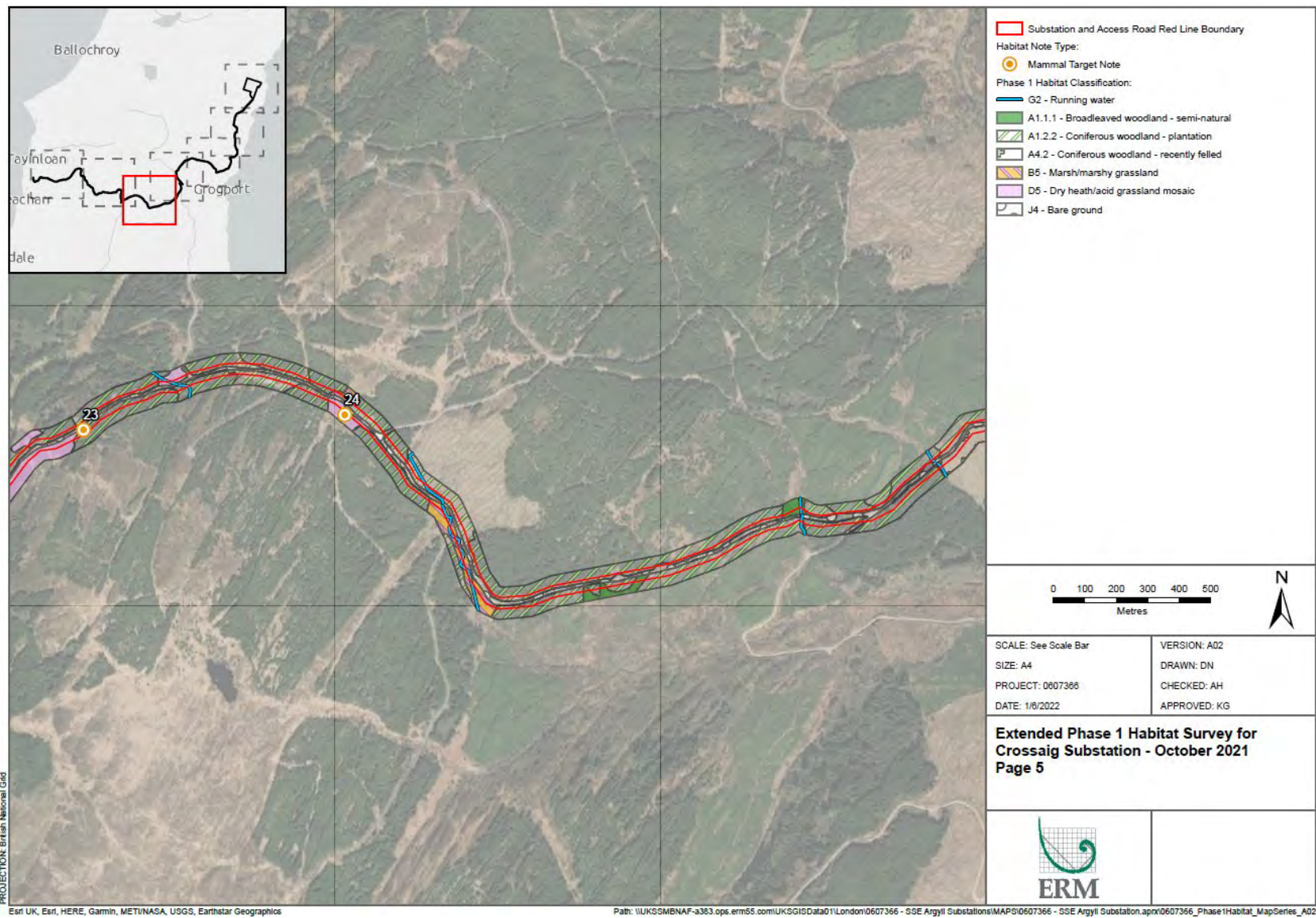


Figure 9 Extended Phase 1 Habitat Survey for Crossaig Substation

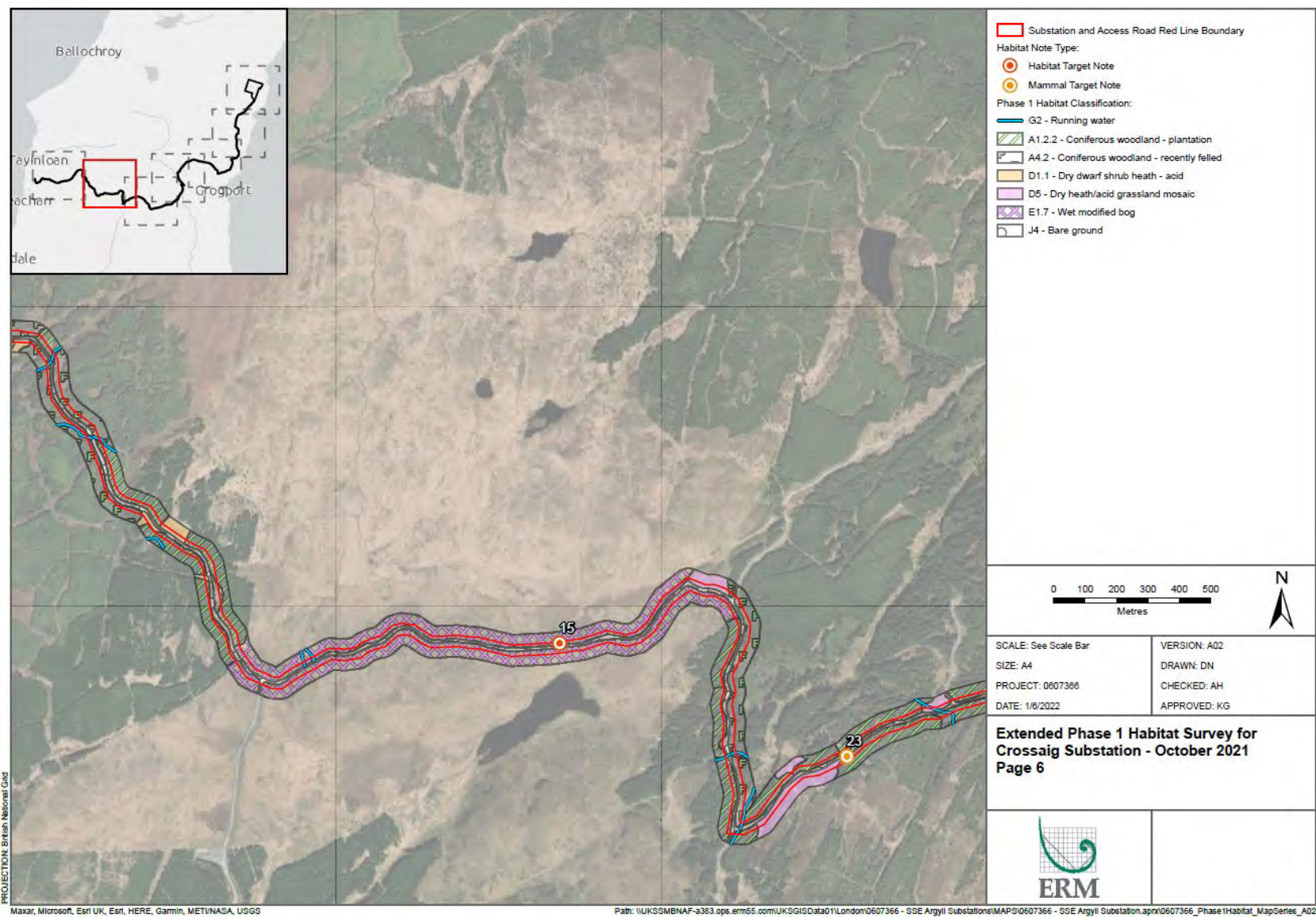


Figure 10 Extended Phase 1 Habitat Survey for Crossaig Substation

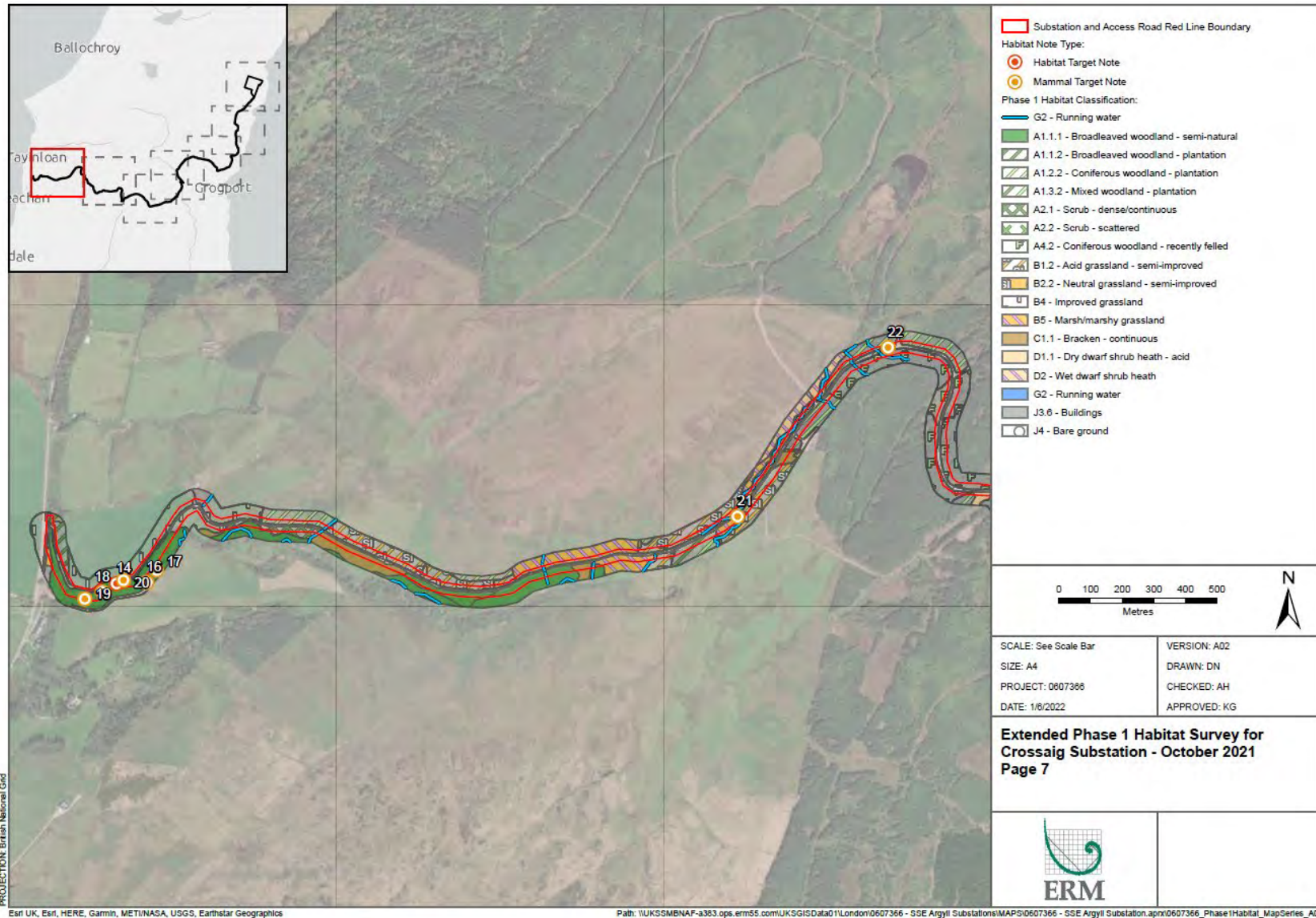


Figure 11 National Vegetation Classification for Crossaig Substation

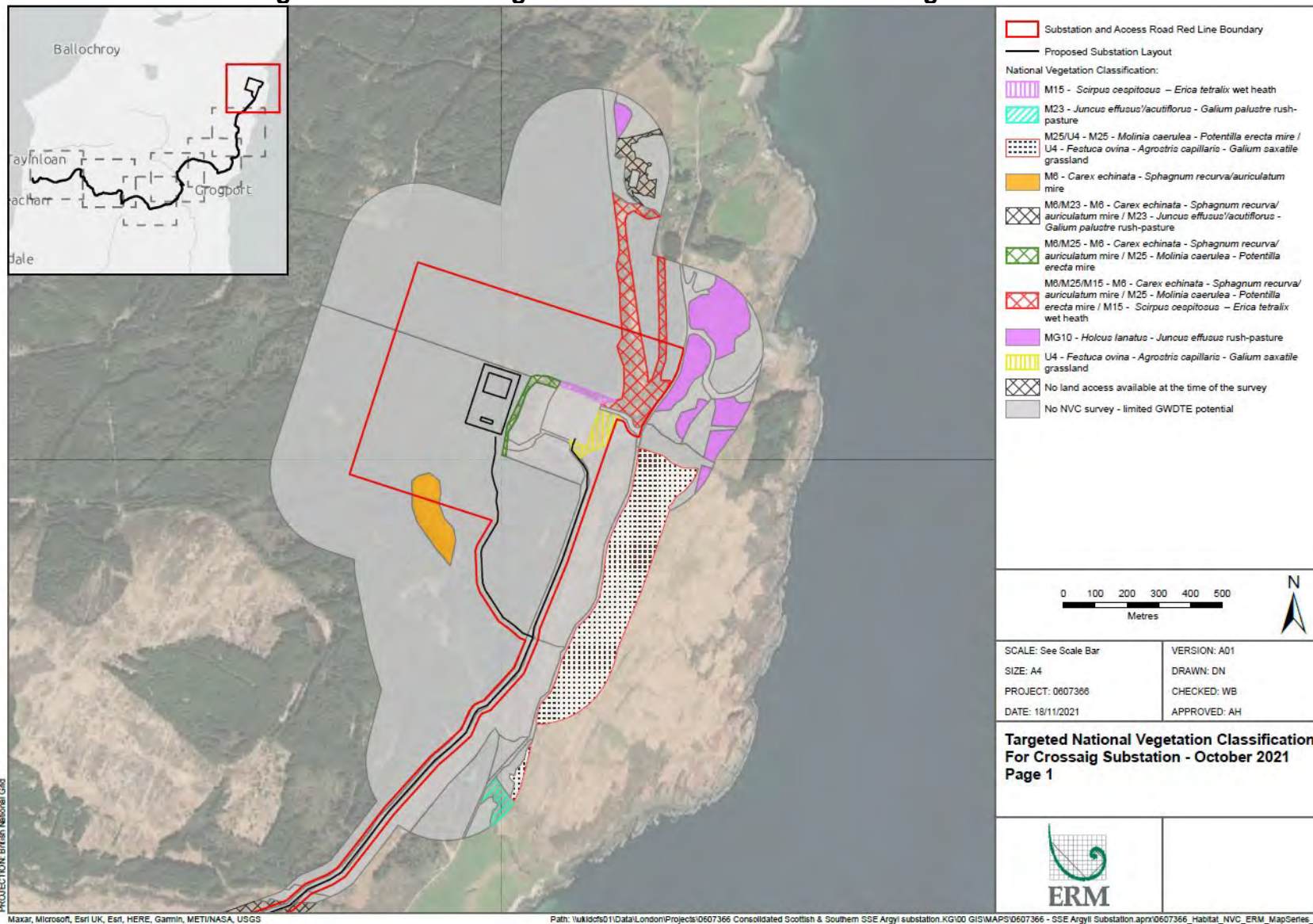


Figure 12 National Vegetation Classification for Crossaig Substation

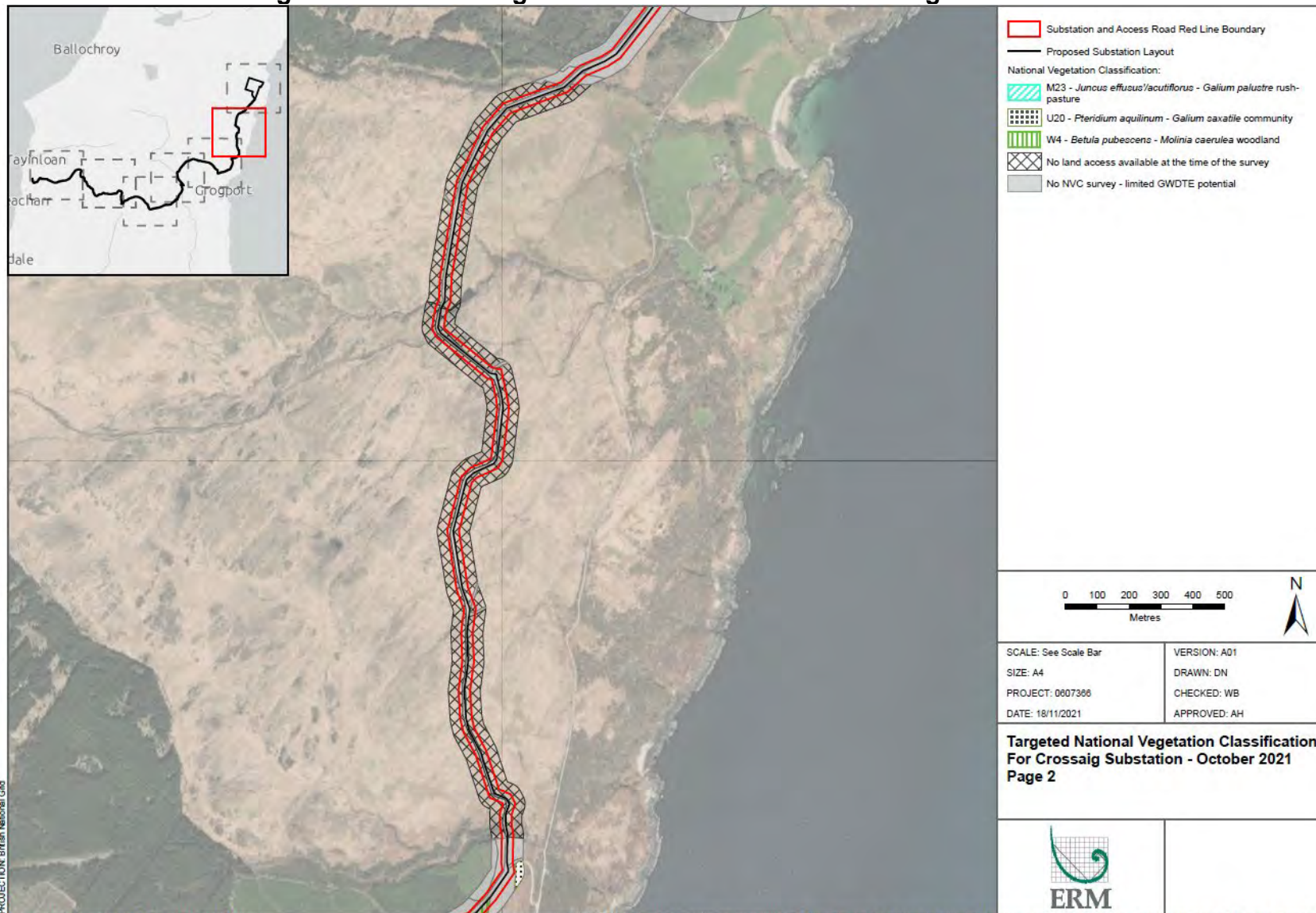


Figure 13 National Vegetation Classification for Crossaig Substation

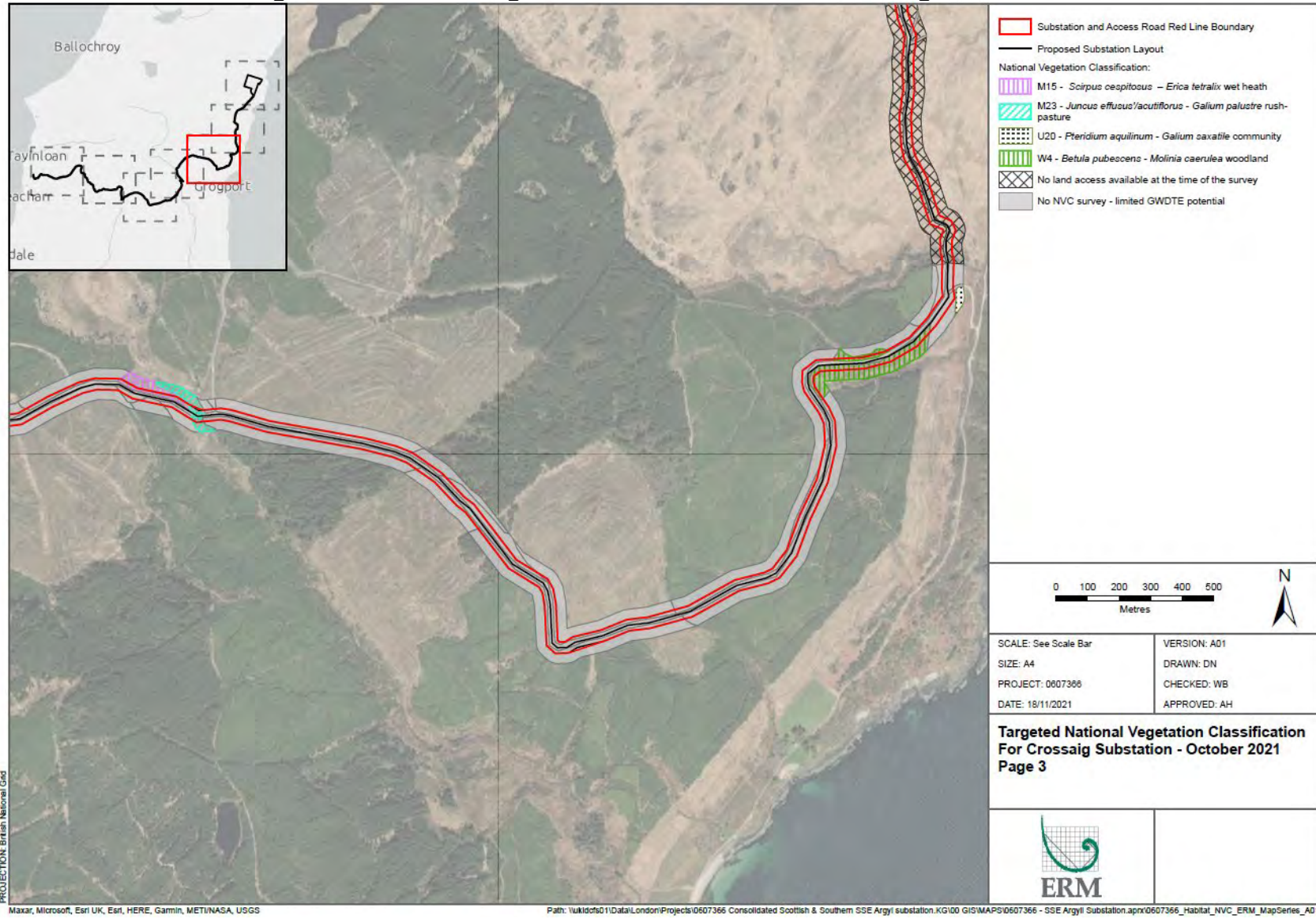


Figure 14 National Vegetation Classification for Crossaig Substation

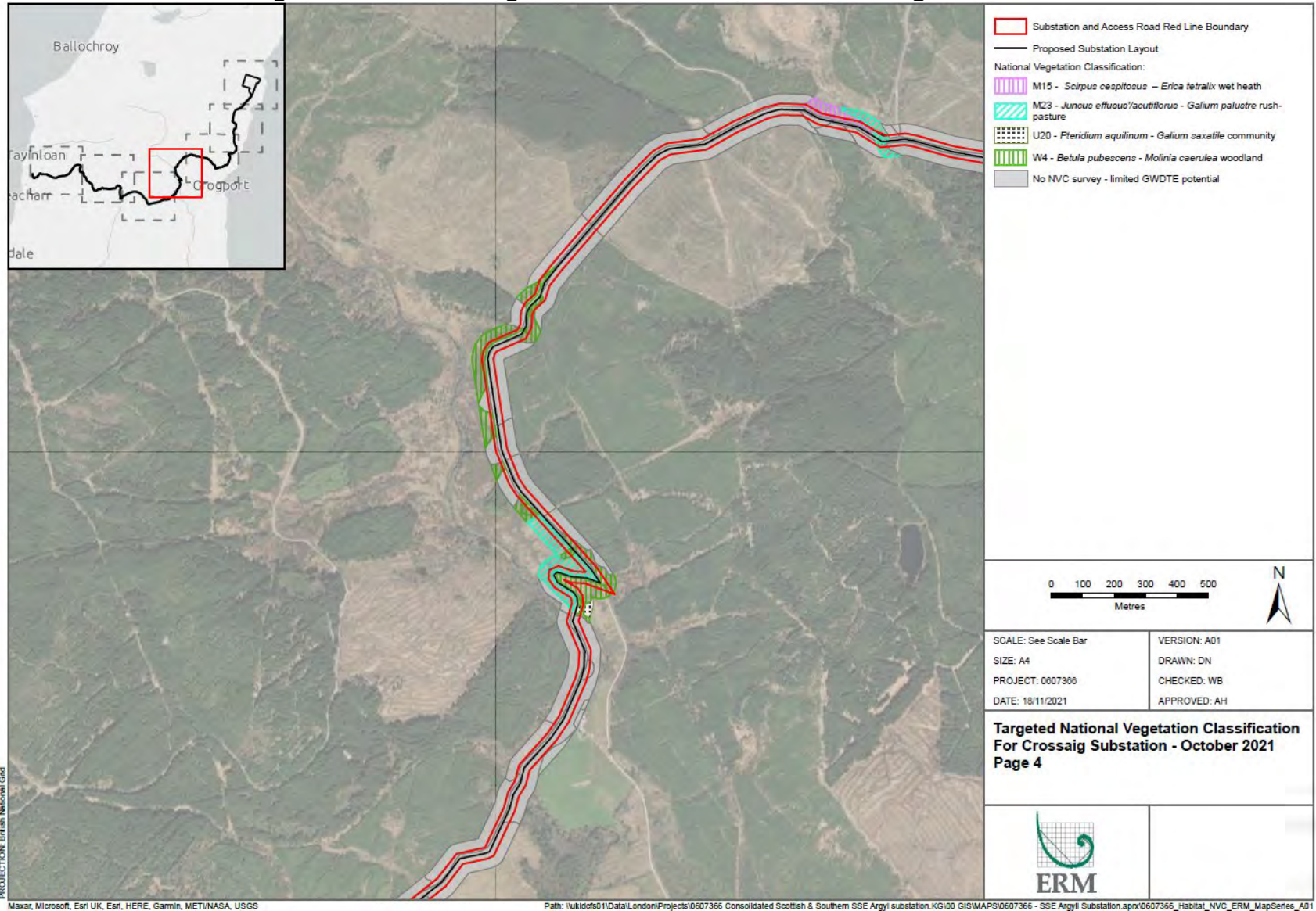


Figure 15 National Vegetation Classification for Crossaig Substation

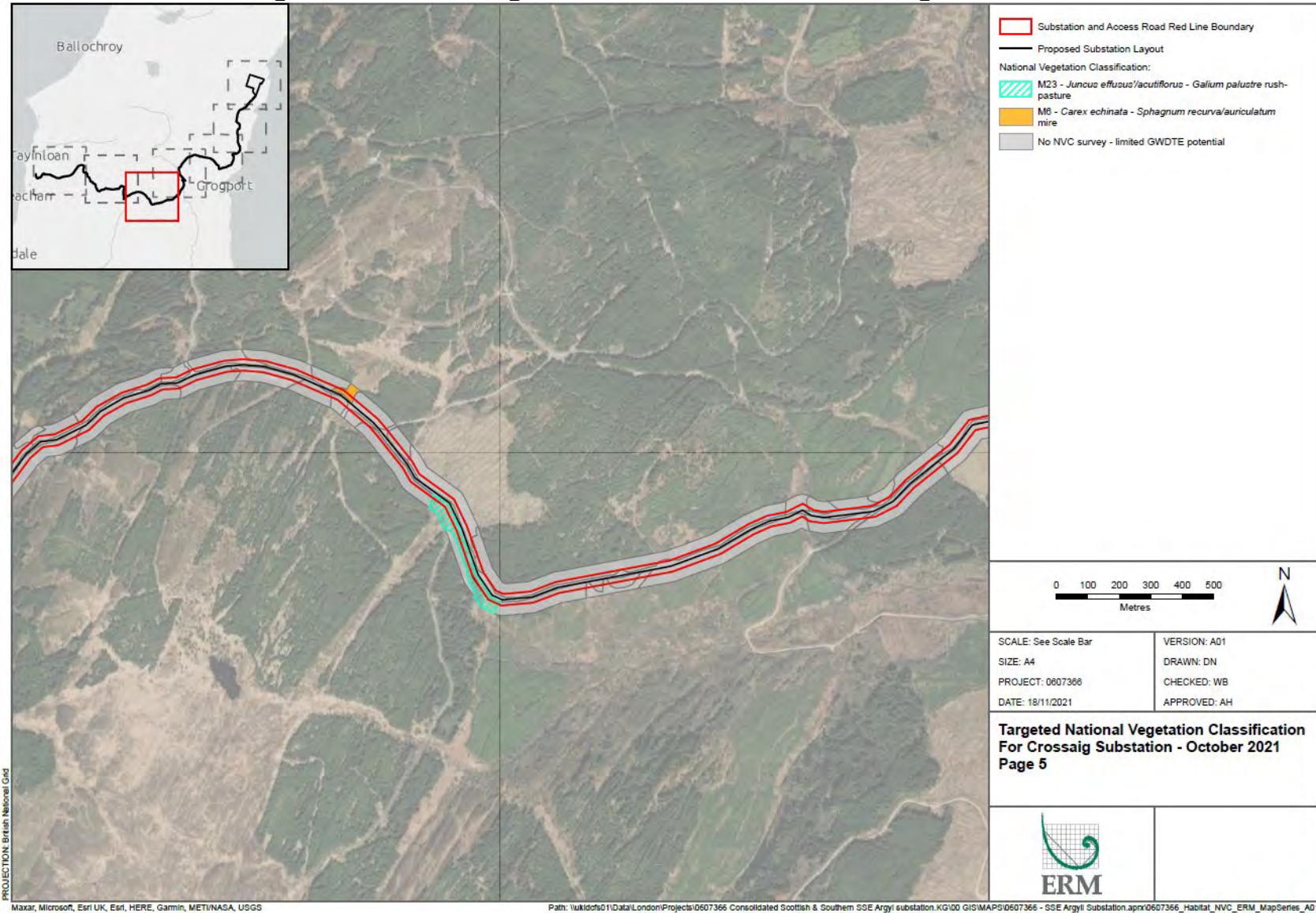


Figure 16 National Vegetation Classification for Crossaig Substation

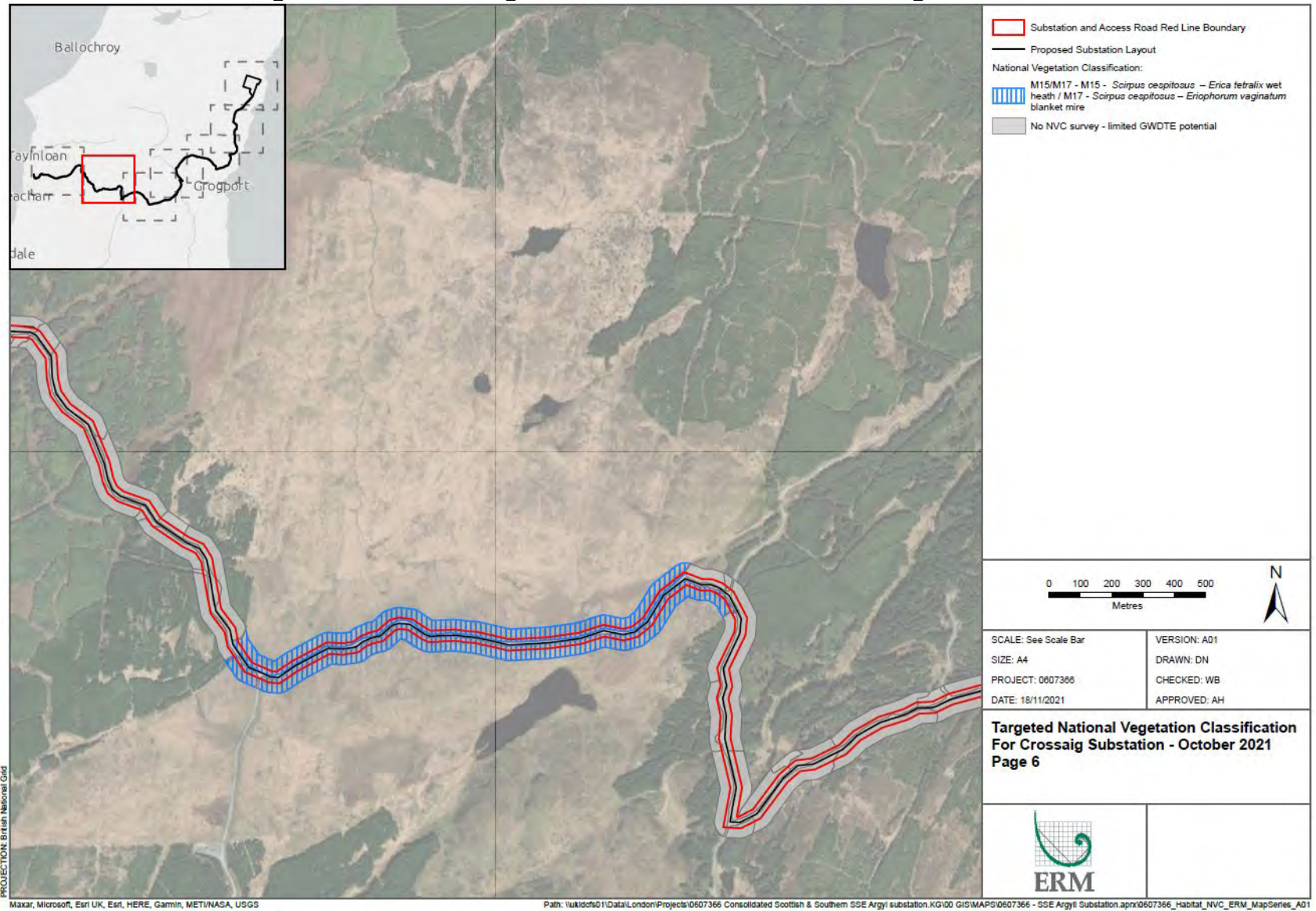


Figure 17 National Vegetation Classification for Crossaig Substation

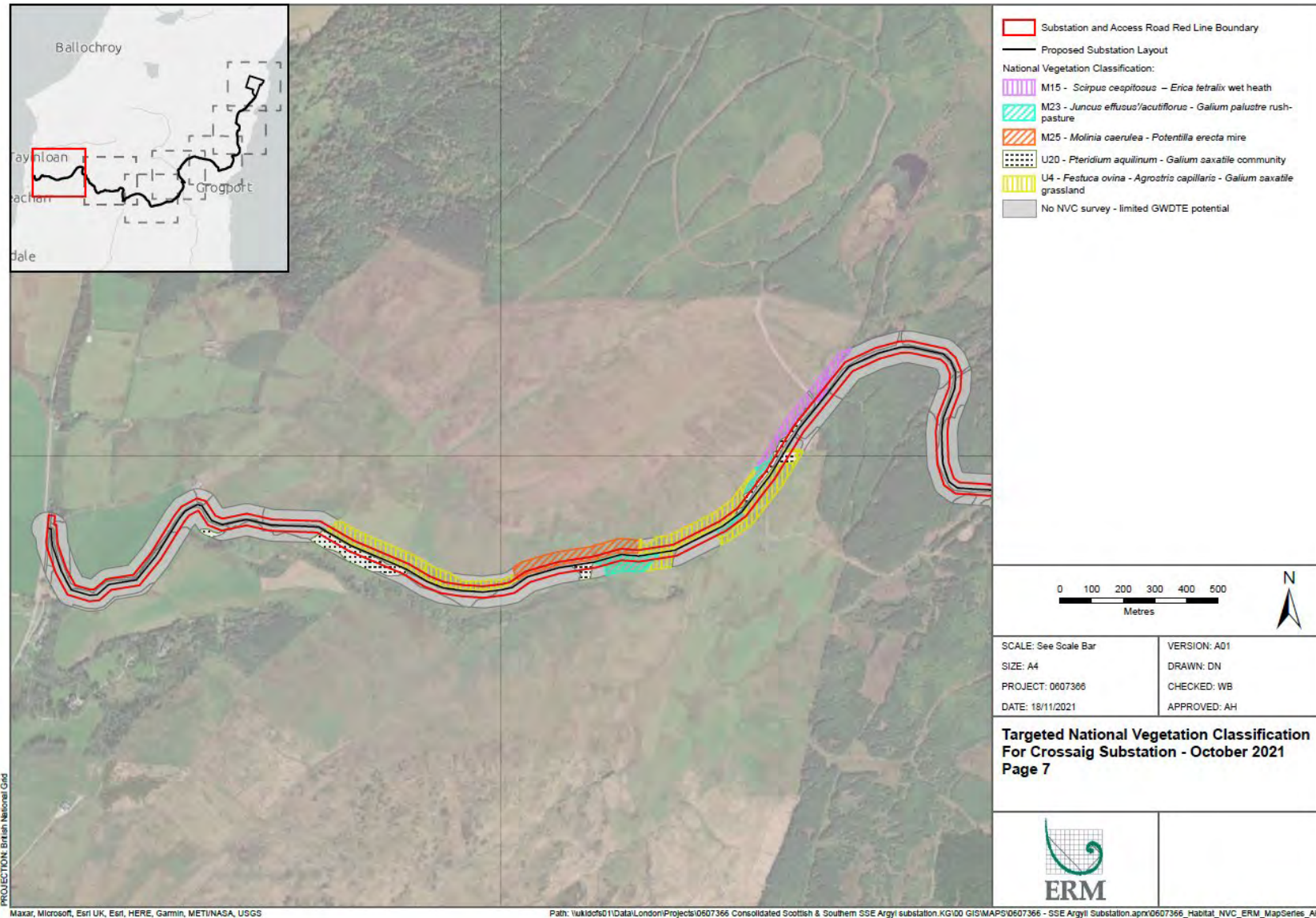


Figure 18 GWDTE Classification for Crossaig Substation

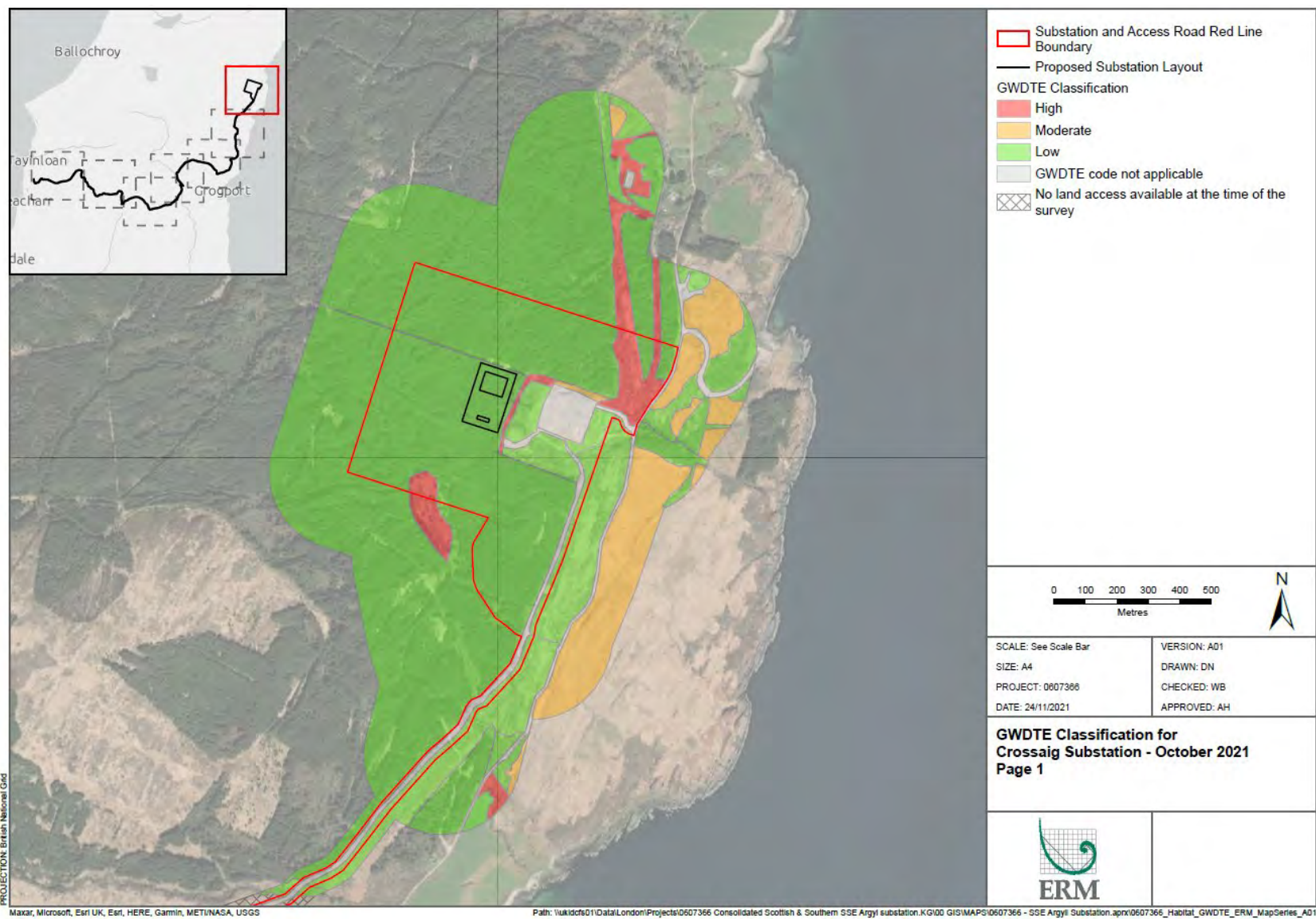


Figure 19 GWDTE Classification for Crossaig Substation

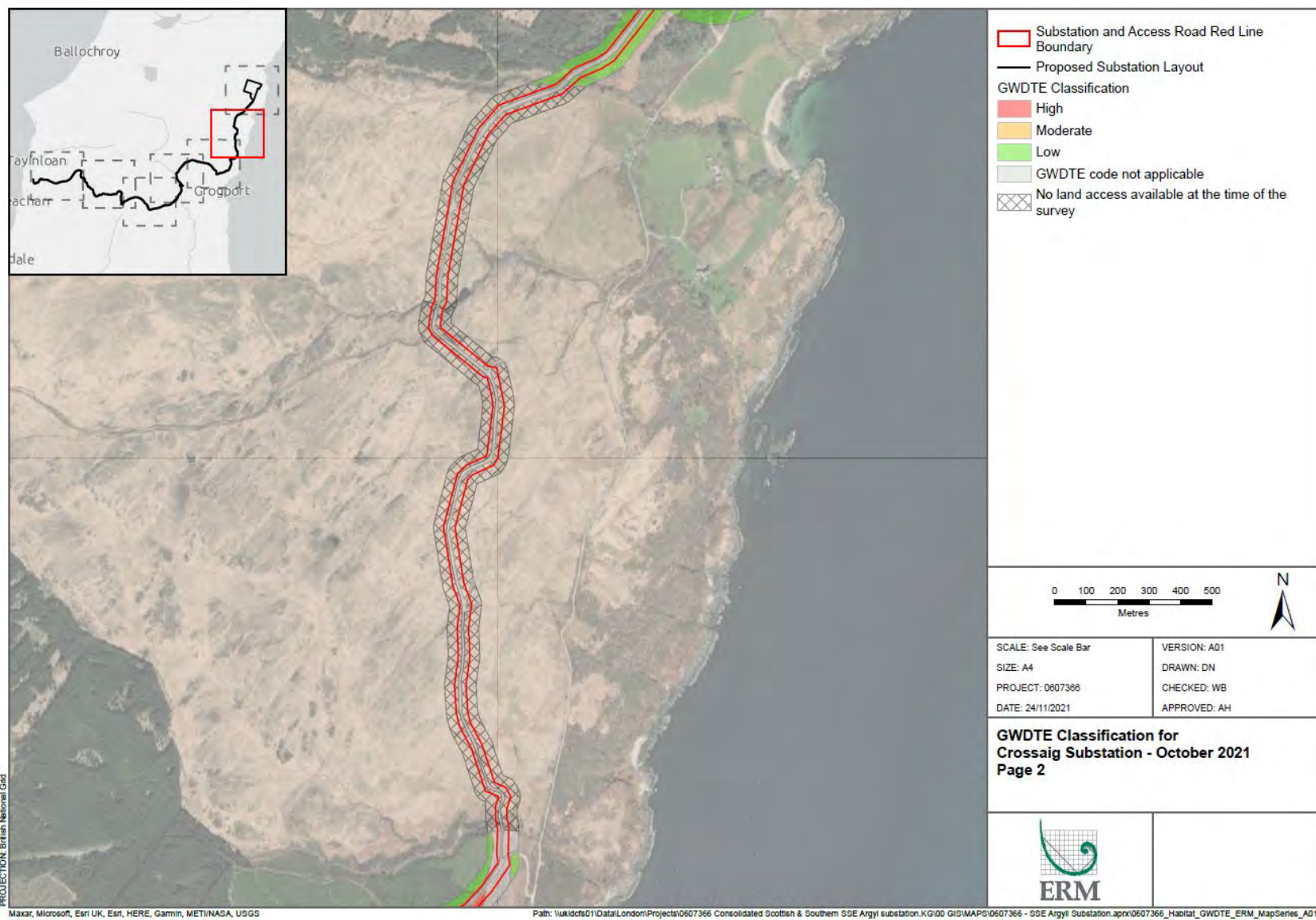


Figure 20 GWDTE Classification for Crossaig Substation

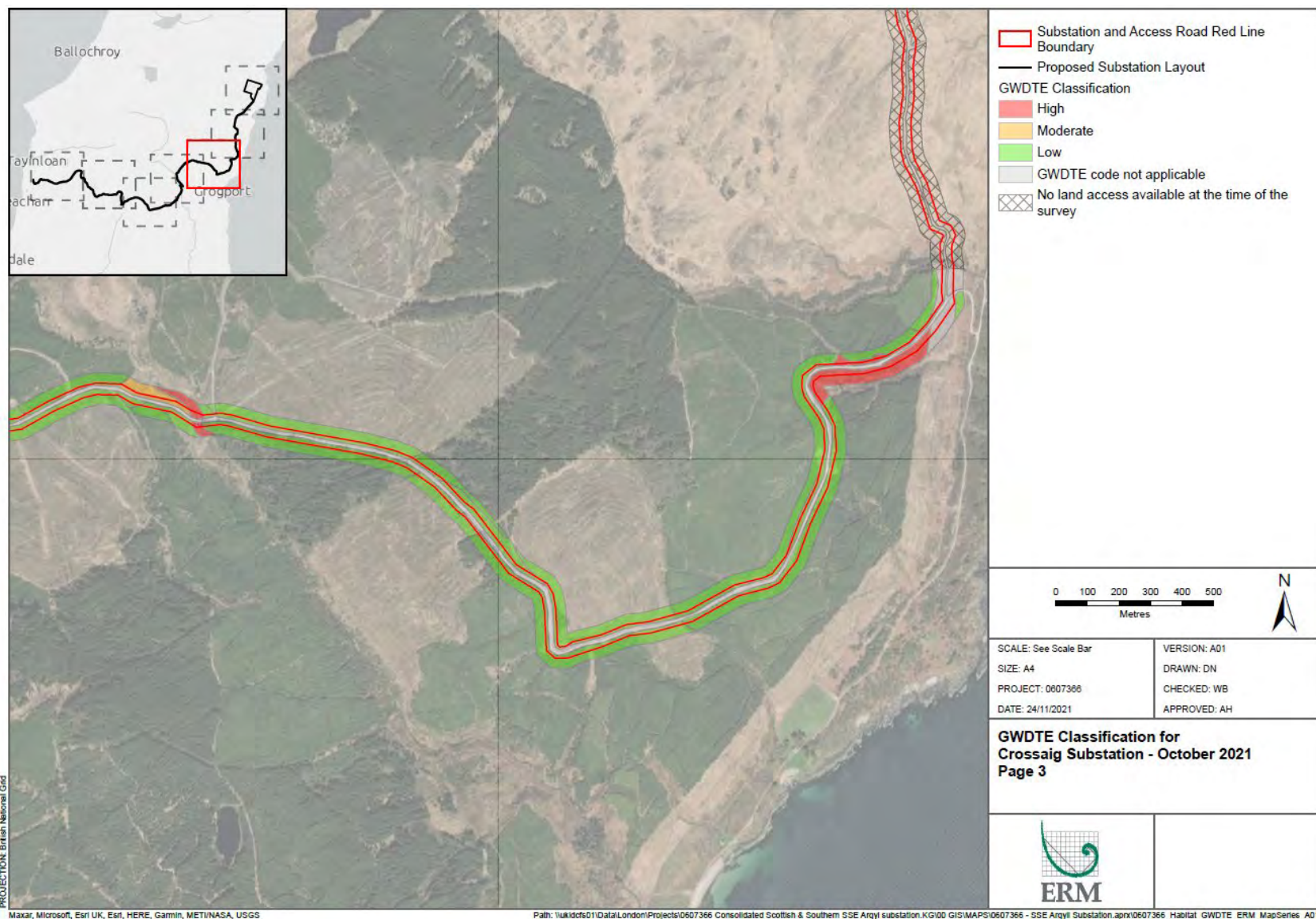


Figure 21 GWDTE Classification for Crossaig Substation

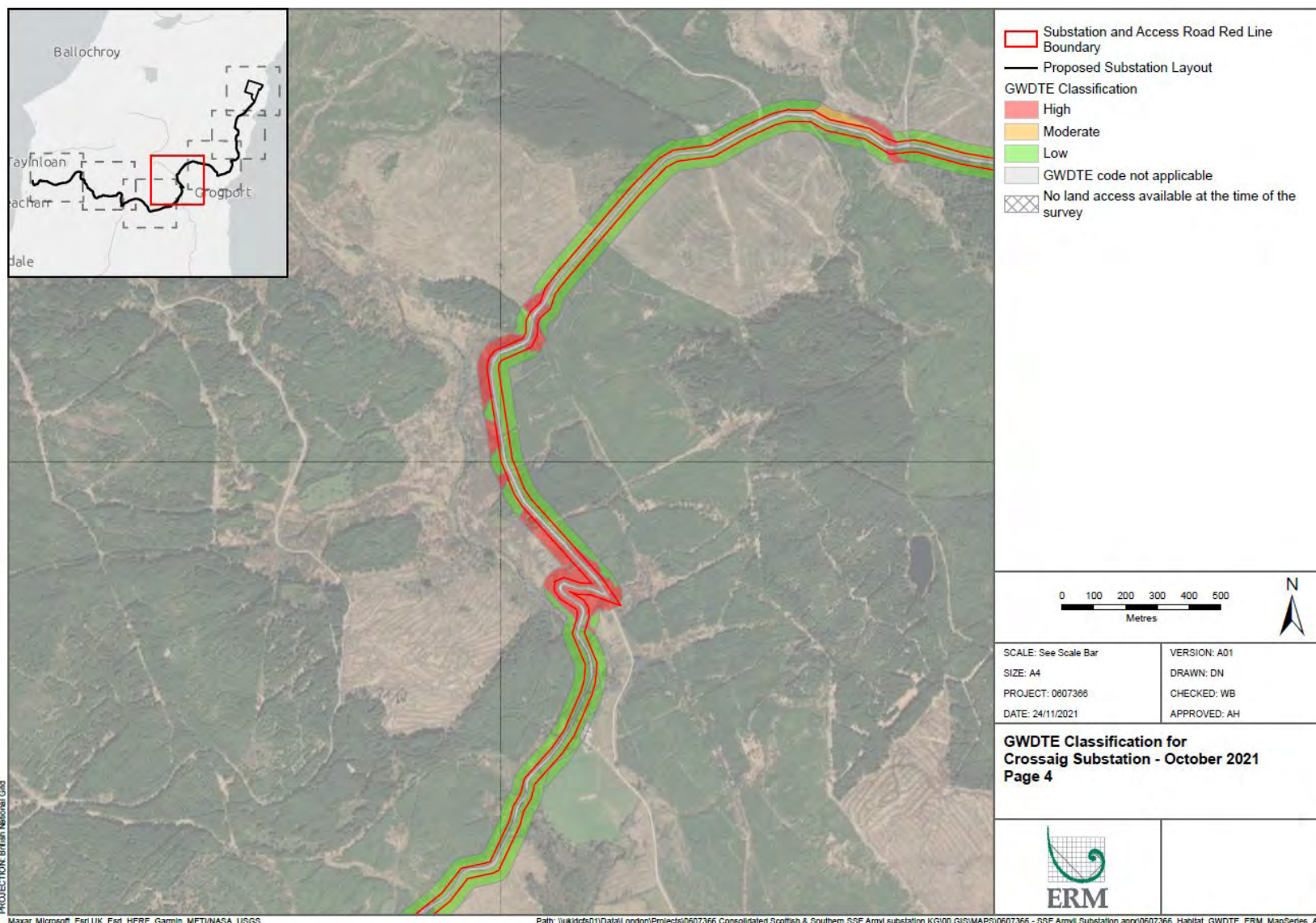


Figure 22 GWDTE Classification for Crossaig Substation

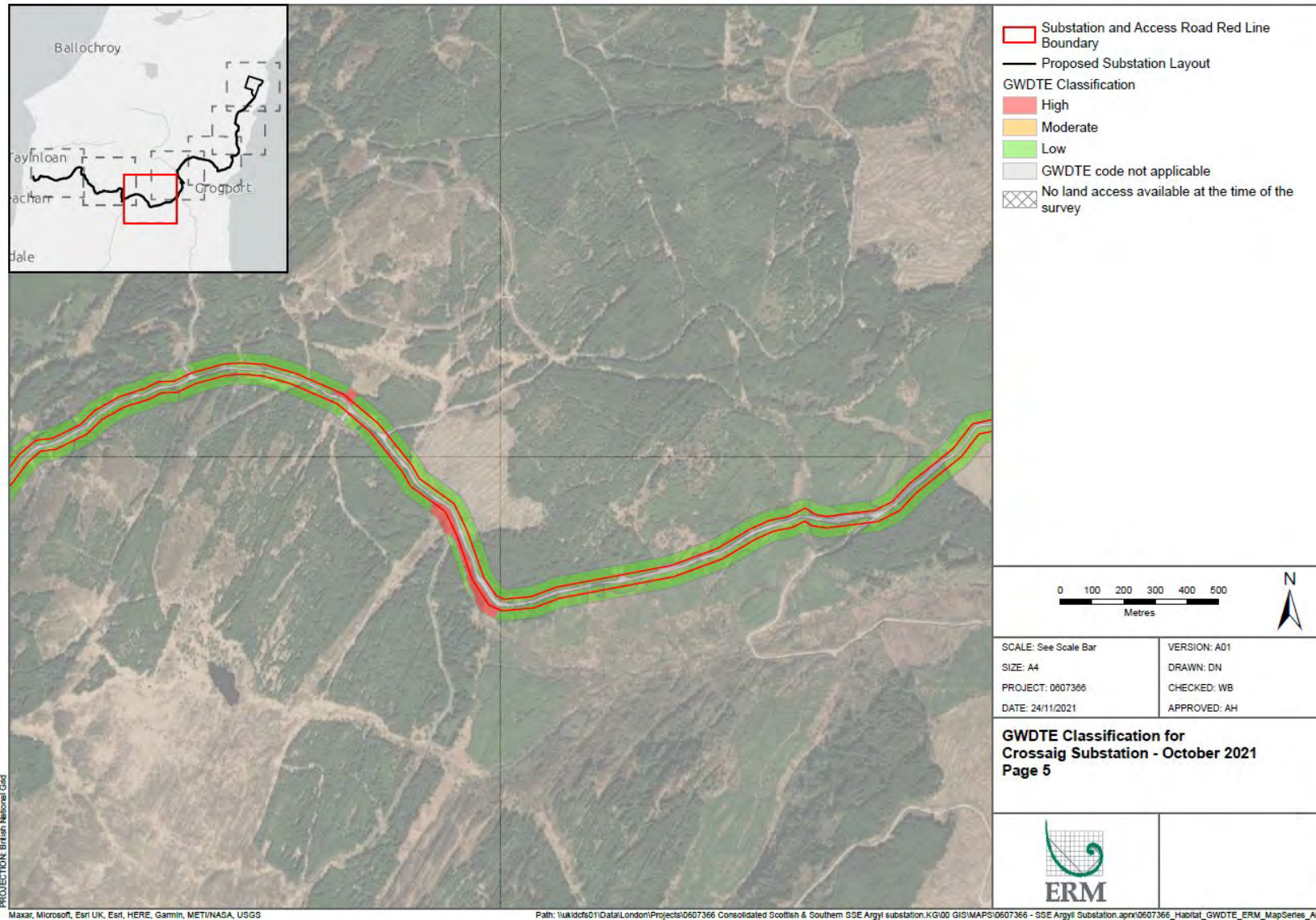


Figure 23 GWDTE Classification for Crossaig Substation

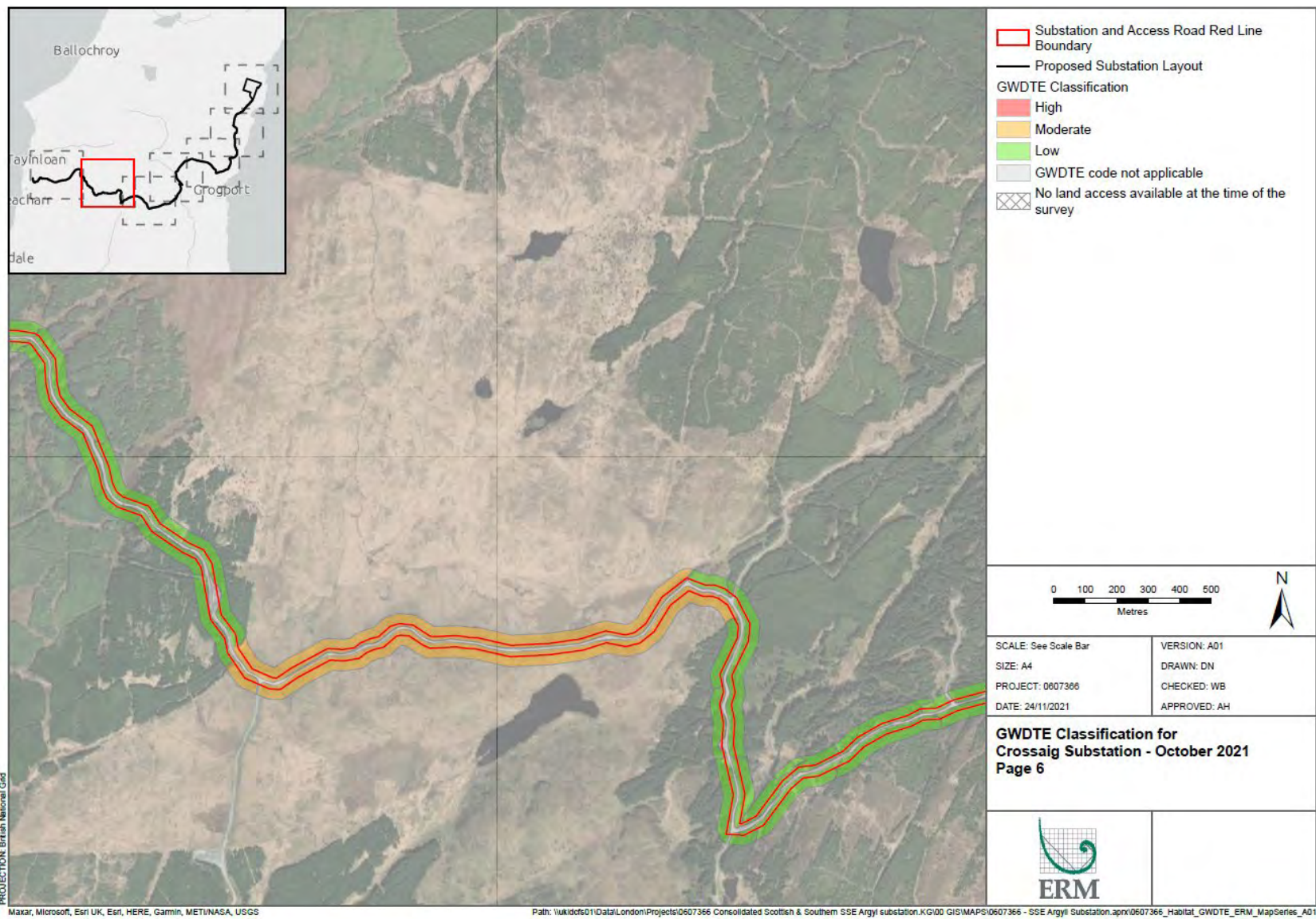


Figure 24 GWDTE Classification for Crossaig Substation

