

Agenda Item	5.1
Report No	PLS-86-22

HIGHLAND COUNCIL

Committee: South Planning Applications Committee
Date: 18 August 2022
Report Title: 21/04728/FUL: Scottish Hydro Electric Transmission Plc
Land 1185M West of Knotty Wood Cottage, Farr
Report By: Area Planning Manager – South

Purpose/Executive Summary

Description: Retrospective application for the construction of the tracks to access the Knocknagael - Tomatin 275kw Over Head Line
Ward: 12 – Aird and Loch Ness
Development category: Local Development
Reason referred to Committee: More than 5 objections

All relevant matters have been taken into account when appraising this application. It is considered that the proposal accords with the principles and policies contained within the Development Plan and is acceptable in terms of all other applicable material considerations.

Recommendation

Members are asked to agree the recommendation to **GRANT** the application as set out in section 11 of the report

1. PROPOSED DEVELOPMENT

- 1.1 The proposal is for retrospective planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended) to retain three sections of access track that had been installed to facilitate the construction of Tower 10 to Tower 20 of the Knocknagael to Tomatin 275kV Overhead Line (OHL). The OHL was granted consent under Section 37 (s37) of the Electricity Act 1989 (as amended) (and associated deemed planning permission) by Scottish Ministers in 2017 (THC Reference (15/04112/S37)).
- 1.2 The retention of these tracks is required to allow for the access to the OHL for future operational maintenance purposes. The retention of the tracks is also to provide enhance recreational activities with improved access to fishing on Loch Bunachton as well as the extraction of timber.
- 1.3 The development comprises of the following 3 sections of tracks:
- Track 1 had consent for the duration of construction of the OHL. The applicant is seeking permission to retain this section of track for operational maintenance access due to very soft ground, deep peat and groundwater at or near the ground surface, which would severely restrict access if this track was removed. The track is 630m in length and installed using a floating design. The floating design was required due to the saturated ground conditions and deep peat being present.
 - Track 2 is required to facilitate operational maintenance access to Tower 16 to Tower 20 from the B861 and the applicant seeks to retain this section of track. The applicant seeks to retain this section of track to facilitate operational maintenance access to Tower 16 to Tower 20 from the B861. The track facilitates access to Loch Bunachton and would also be utilised by the landowner for future operations. The track is 320m in length, with approximately 230m of the track installed using a cut design, with the remaining 90m being floated due to saturated ground associated with a forest drain which connects to Loch Bunachton.
 - Track 3 consists of 2 sections; the first section is approximately 240m in length with a second short section of approximately 15m, both sections were installed using a cut design.
- 1.4 The applicant has confirmed that two sections of the existing forest track between Track 1 and Track 2, and between Track 2 and Track 3, which are outwith the s37 consent limits of deviation, and were resurfaced as part of the wider works associated with the construction of the Knocknagael to Tomatin OHL. The resurfacing works are considered to be permitted development under The Town and Country Planning (General Permitted Development) (Scotland) Order 1992 ("GPDO") Schedule 1 Part 9 Class 27 (repairs to private roads and private ways). These sections of track have not been considered further by the applicant or form part of this application.
- 1.5 All 3 tracks are accessed via an existing bellmouth with the B861 to the east of the tracks, as such no upgrading works to the access are required.

1.6 Pre Application Consultation: Informal consultation was undertaken with the applicant when it was brought to the Council's attention that there were sections of the track not built within the limits of deviation of the approved consent. The applicant was advised that the tracks did not have any form of planning consent. The following options were outlined to the applicant:

Removal of the 3 sections of track and the ground reinstated to its original state; or Submission of a retrospective application to allow the impacts of the unauthorised tracks to be assessed and regularised, if appropriate.

The applicant chose to submit a retrospective application, which is the subject of this report.

As the s37 consent was accompanied by an Environmental Impact Assessment (EIA) the applicant was advised that any retrospective application to retain the unauthorised sections of track would be subject to EIA Screening.

1.7 The application is supported by the following information:

- Environmental Report (including Appendix 1, 2, 4 and 6; and Figures Part 1 and 2)
- Tower 20 Access Environmental Report, including Meteorological Summary and Reinforcement Report
- Private Water Supply Assessment for Blar Buidhe
- Supporting Statement

1.8 Although there have been no variations of the application, the applicant has submitted further supporting information in relation to the Private Water Supply at Blar Buidhe.

2. SITE DESCRIPTION

2.1 The proposed development is located within commercial forestry, approximately 5km south of Inverness. As shown on Figure 1.1 (Appendix 1), the tracks are located as follows:

- Track 1 is located in forest plantation approximately 650m to the southwest of Dinichean House within the operational corridor of the Knocknagael to Tomatin 275kV OHL.
- Track 2 is located in forest plantation approximately 1km south-west of Cloughmor.
- Track 3 is located in forest plantation approximately 350m west of Blar Buidhe within the operational corridor of the Knocknagael to Tomatin 275kV OHL.

2.2 The principal land use within the area comprises scattered residential dwellings, woodland and open farmland used for grazing livestock. There are a number of small settlements within the area these are at Inverarnie and Milton of Farr within Strathnairn, including scattered farms, crofts and residential dwellings. The closest residential dwelling is approximately 350m from the Development. There are no core paths or national cycle network routes in the vicinity. The closest core path is approximately 1.3km to the southeast in School Wood. The main forest track, which

connects the development with the B861 is noted to be used regularly by the public for recreation, such as access to fishing on Loch Bunachton, walking and cycling.

- 2.3 The topography is generally relatively flat, with ground level being between a high point of 240 metres Above Ordnance Datum (AOD) by Track 1, and 220m AOD by Track 2. Track 3 is approximately 230m AOD.
- 2.4 There are no areas designated for natural heritage within the site. The closest designated site is the Loch Ashie Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) designated for Slavonian Grebe and the only statutory natural heritage designation within 5km.
- 2.5 The principal watercourse in the area is the River Nairn (flowing from southwest to northeast) and its tributaries such as the Gask Burn and Loch Bunachton. There are no watercourses marked on 1:50k Ordnance Survey (OS) maps in proximity to Track 1 or Track 3. Track 2 crosses a forest drain and area of saturated ground to the east of Loch Bunachton. All drains and watercourses form part of the River Nairn catchment. The Development is not considered to be at flood risk as it is outwith flood risk zones identified in SEPA flood maps.
- 2.6 Approximately 230m to the southwest of Track 3 lies a Private Water Supply (PWS) abstraction point, which supplies residential dwellings at Blar Buidhe, Achvaneran and Beachan. The abstraction is located up gradient of the Development, with the western edge of the OHL operational corridor fenced off in vicinity of the PWS abstraction to prevent motorised access following concerns raised by residents. Notwithstanding this, the PWS abstraction is within 250m and therefore an assessment in accordance with SEPA guidance LUPS-GU31 is required to assess any potential risk the Development may pose to the supply. Figure 3.4 provides a location of the PWS in relation to the Development.
- 2.7 Approximately 2.3km to the east of the Development lies the Littlemill geological SSSI, which is described by NatureScot as the best example of a system of large parallel eskers in Scotland and considered an important geomorphological site. The Development has no direct or indirect association to the qualifying features of this designation. Geological designations in the vicinity of the Development are presented on Figure 3.1.
- 2.8 The following bedrock geology and hydrogeology underlays the site:
- Track 1 & Track 2:
- The bedrock geology comprises of Inverness Sandstone Group. The bedrock is classified as a moderately productive aquifer, which locally yields small amounts of groundwater. No faults are mapped within 1km of the track sections.
 - The superficial geology is mapped as a combination of hummocky moraine (sand, gravel and clay) and more recent organic accumulations of peat. The overlying soils are mapped as peat and mineral soils.
- Track 3:
- The bedrock is a combination of Moine Group metamorphic pelite and semipelite. Both are classified as a low productivity aquifer, with transmission

and storage constrained to near surface zones or tectonic features. No faults or such features are mapped within 1 km of the track section.

- The superficial geology is identified as hummocky moraine (sand, gravel and clay) with the overlying soils identified as mineral podzols.

All the 3 tracks lie outwith areas identified as priority peatlands. There were areas of deep peat and saturated ground found around Track 1. Saturated ground was found by the watercourse Track 2 crosses. The remainder of Track 2 and all of Track 3 are located on shallow forest soils, with till being present beneath the organic layer.

- 2.9 In terms of landscape sensitivities, there are no international or regional landscape designations on the site. The closest landscape designations include the Loch Ness and Duntelchaig Scenic Landscape Area (SLA) Approximately 2km to the west lies and Leys Castle Gardens and Designed Landscape is located approximately 4km north of the development. There are no other landscape designations within 5km of the development.

3. PLANNING HISTORY

3.1	11.08.2017	15/04112/S37 Construct and operate the proposed Knocknagael to Tomatin 275 kV overhead transmission line and associated works	Raise No Objection / Approved by Scottish Ministers
3.2	21.09.2017	17/04325/SCRE Proposed temporary borrow pit in association with the Knocknagael To Tomatin Overhead Line Project (THC REF 15/04112/S37).	EIA Not Required
3.3	21.02.2018	17/05434/FUL Open temporary borrow pit and access Knocknagael - Tomatin OHL construction site using existing estate tracks	Planning Permission Granted
3.4	05.05.2021	20/04703/FUL Retention of two access tracks and an area of hardstanding constructed as part of the development of the Knocknagael to Tomatin overhead line for use in operation of the overhead line	Planning Permission Granted

4. PUBLIC PARTICIPATION

- 4.1 Advertised: Schedule 3 Development and Unknown Neighbour Advert

Date Advertised: 29 October 2021

Representation deadline: 12 November 2021

Timeous representations: 11 Objections (and 10 Households) joint representations have been submitted from householders and parties representing the householders.

- 4.2 Material considerations raised are summarised as follows:
- a) Increase in the recreational use of Track 3;
 - b) Adverse effects on residential amenity due to recreational users having no through access beyond Tower 20;
 - c) Adverse effect on a Private Water Supply;
 - d) Public safety issues with inadequate mitigation;
 - e) Breach of planning permission as tower 18 and sections of track are not constructed in the consented location; and
 - f) No pre-construction site investigations.

4.3 Non-Material considerations raised are summarised as follows:

- a) Illegal use of the access track

4.4 All letters of representation are available for inspection via the Council's eplanning portal which can be accessed through the internet www.wam.highland.gov.uk/wam.

5. CONSULTATIONS

5.1 **Access Officer** does not object to the application. It notes that there is no signposted exit and gate onto the C class road south-east of pylon 20. This has the potential for a link and circuit for walkers and cyclists on the retained lengths of track and requests that the applicant considers delivering a link here.

5.2 **Environmental Health Officer (EHO)** does not object to the application. It acknowledges that the applicant submitted a water supply risk assessment dated September 2021 which concludes that the risk to the private water supply from track 3 is negligible due to the source being 100m upgradient of the track. However, the report solely looked at the risks from retention of the track rather than from previous construction. The service does not have the expertise to audit the hydrological report in any further detail therefore the EHO does not have any reason to doubt the findings of the assessment. The EHO understands that SEPA would be reviewing this element of the assessment in more detail.

In a further response to additional information submitted EHO notes that the residents submitted their own risk assessment of the supply. The assessment refers to post construction monitoring which indicates the water failed for bacteriological quality. Going by the photographs of the supply, the source appears to be open to potential contamination from birds and wildlife therefore, these results are not unexpected. Bacteriological quality of water from such supplies can fluctuate significantly therefore, pre-construction monitoring would have been particularly useful for determining a baseline for comparison. It would have been more relevant for chemical quality; it is noted the monitoring results have been satisfactory in that respect. It also notes that much of the resident's assessment refers to concerns about pollution to the catchment due to increased use of the track. However, the applicant's hydrologist report identifies the supply source as being upgradient of the track and this has been confirmed by SEPA.

5.3 **Forestry Team** does not object to the application. Tracks 1 and 3 are in the wayleave of the Knocknagael to Tomatin OHL and so would not require further woodland removal. Track 2 passes through land which appears to be predominantly clearfelled

conifer woodland which is likely awaiting restock as a condition of the Felling Permission. There is 210m (by 6m wide) of track through the woodland which would result in permanent loss of 0.13ha of woodland. As such the applicant should provide a Compensatory Tree Planting Plan which offers 0.13ha of new woodland of the same character as the woodland which has been lost.

5.4 **Transport Planning Team** does not object to the application.

5.5 **SEPA** does not object to the application. It did note that the superficial geology map Figure 3.5a appears shifted approximately 600m south compared to BGS online geography maps. This is obvious along the River Nairn where BGS maps show alluvium and glacio-fluvial deposits and the Figure 3.5a show till.

The private water supply (PWS) identified at NGR 267011 834128 is upgradient of the Track 3 in its 15m section with an elevation difference (from OS maps) between the PWS and the track of approximately 10m. The applicant states that at this section the track follows a 'cut design' with excavations of less than 1m in depth. In accordance with SEPA guidance LUPS-GU31 the applicable buffer zone in these settings is 100m. As the PWS is approximately 200m from the track SEPA agrees that the relevant buffer has been applied. Given that the PWS is upgradient of the track and outside the applicable buffer WRU concur with the applicant that the PWS is at negligible risk from the retrospective development application (i.e. Track 3 in its 15m section).

Furthermore, SEPA agree that the application would not have significant impacts on Groundwater Dependent Terrestrial Ecosystems (GWDTE), flood risk or peat. Although there were areas of deep peat identified, a floated track design was used which is considered to be acceptable.

5.6 **Transport Scotland** does not object to the application, the tracks are remote from the local road network.

6. DEVELOPMENT PLAN POLICY

The following policies are relevant to the assessment of the application

6.1 Highland Wide Local Development Plan 2012

- 28 - Sustainable Design
- 51 - Trees and Development
- 52 - Principle of Development in Woodland
- 58 - Protected Species
- 63 - Water Environment
- 64 - Flood Risk
- 65 - Waste Water Treatment
- 66 - Surface Water Drainage
- 72 - Pollution
- 77 - Public Access

6.2 Inner Moray Firth Local Development Plan (IMFLDP) 2015

No Site Specific Policies – refer to HwLDP

6.3 **Highland Council Supplementary Planning Policy Guidance**

Construction Environmental Management Process for Large Scale Projects
(August 2010)

Flood Risk and Drainage Impact Assessment (Jan 2013)

Highland's Statutorily Protected Species (March 2013)

Sustainable Design Guide (Jan 2013)

Trees, Woodlands and Development (Jan 2013)

7. **OTHER MATERIAL POLICY CONSIDERATIONS**

7.1 **Inner Moray Firth Local Development Plan 2**

The review of the IMFLDP is currently at Proposed Plan stage. The Proposed Plan is a material consideration in the assessment of the application and can be afforded weight as it represents the settled view of the Council. However, it may be subject to change following consultation or through the Examination process. The site is not included as an allocated site within the Proposed Plan nor is it safeguarded from development.

7.2 The Highland-wide Local Development Plan is currently under review and is at Main Issues Report Stage. It is anticipated the Proposed Plan will be published following publication of secondary legislation and National Planning Framework 4.

7.3 **Scottish Government Planning Policy and Guidance**

Scottish Planning Policy (as amended December 2020)

National Planning Framework 3

8. **PLANNING APPRAISAL**

8.1 Section 25 of the Town and Country Planning (Scotland) Act 1997 requires planning applications to be determined in accordance with the development plan unless material considerations indicate otherwise.

Determining Issues

8.2 This means that the application requires to be assessed against all policies of the Development Plan relevant to the application, all national and local policy guidance and all other material considerations relevant to the application.

Planning Considerations

8.3 The key considerations in this case are:

- a) compliance with the development plan and other planning policy;
- b) site history;
- c) siting and design;
- d) impact on residential amenity (including private water supplies and water environment);

- e) impact on natural heritage;
- f) additional mitigation; and
- g) any other material considerations

Development plan/other planning policy

- 8.4 Development plan policy is set out in the Highland-wide Local Development Plan, the Inner Moray Firth Local Development Plan and statutorily adopted supplementary guidance. The development site is not identified for development, nor is it safeguarded from development within the Inner Moray Firth Local Development Plan. Therefore, the proposal is required to demonstrate how it accords with the policies of the Highland-wide Local Development Plan.
- 8.5 The most pertinent policies of the Development Plan against which this proposal requires to be assessed are Policy 28 – Sustainable Design and Policy 69 – Electricity Transmission Infrastructure with the other policies listed above carrying due weight. Policy 28 requires development to be assessed against a number of criteria, relevant to this application including that the development should protect amenity, including minimisation of disturbance caused by access, egress, noise levels or private amenity. Policy 69 supports enhancements to the Grid Transmission Network to serve the Highlands.

Site History

- 8.6 There is a previous application that relates to this retrospective application. The development had previously been granted S37 consent for the construction and operation of the Knocknagael to Tomatin 275kV OHL and associated works (15/04112/S37). No assessment of private water supplies was submitted with that application. The S37 consent was accompanied by a deemed planning permission under Section 57 of the Town and Country Planning (Scotland) Act 1997 (As Amended). This had a number of conditions attached including a micrositing condition which set out that no access tracks were to be constructed outwith the horizontal limits of deviation (LOD) limit of 100m.
- 8.7 Following consent being granted by Scottish Ministers, the Scottish Government highlighted to the Council that sections of the track had been built outwith the LOD. Furthermore, in respect of the discharge of conditions in relation to the s37 the applicant did not identify any Private Water Supply (PWS) within 250m of any proposed tower locations or 100m of any access track. However, it did propose that should a PWS be identified during soil stripping and other excavation works then works would stop immediately and appropriate action taken.
- 8.8 The Construction Environmental Management Plan (CEMP) was developed by the principal contractor and submitted to the Council in October 2018. The applicant states that the CEMP was agreed under Part 2 condition 5 of the s37 consent, detailing the amended tracks. However, the Council have no record of any agreement to amend the access tracks and CEMP did not contain any specified detail or locations of the amended location of the tracks. The CEMP did detail that the towers, areas of hardstanding and tracks may be micro-sited within the LOD. Subsequently, it was established that the Council, as the Planning Authority, had not

approved the construction of three sections of tracks for Tower 18, 19 and 20 in accordance with condition 2 of the deemed planning permission of the S37 consent. Further investigations found that third party concerns in relation to the PWS were raised with the applicant prior to works commencing in early 2018.

- 8.9 As the PWS supplies water to 5 households significant third-party concerns were raised to the retrospective application. These representations have stated that the applicant did not identify the PWS which lies within 250m of excavations deeper than 1m for both Tower 18 and Track 3. Representations consider that this has resulted in the Blar Buidhe PWS being compromised.
- 8.10 Unfortunately, trees were felled prior to any sampling or monitoring water quality of the PWS. The sampling and monitoring began post felling but importantly prior to construction works. Further, sampling and monitoring was undertaken after the installation of the foundations for T18 then after all works were completed. The applicant found that there were a few parameters (e.g. pH, EColi, Enterococci) that did not meet standards in the first sample. The second sample showed improvement in quality but still did not meet standard for EColi and pH. The third sample had no issues and met the required standards. In total, 2 locations were sampled July 2018; 4 locations were sampled November 2018 and 1 location was sampled September 2019.
- 8.11 To reduce access and protect the PWS, the applicant installed post and wire fencing close to Track 3 near the PWS abstraction point. Due to the final sampling showing no failure and installation of fencing to prevent access the applicant did not consider that a further residual risk assessment was required. The impact on the PWS is considered below.

Siting and Design

- 8.12 In this case there has been significant planning history in relation to electricity development in this location, in particular S37 consent for the construction and operation of a 275kV overhead line (OHL) with a route of approximately 19km between Knocknagael substation and the Tomatin substation; and to construct and operate a new 132kV OHL deviation, with a route length of approximately 4.5km, between Tower 127 and Tower 137 on the existing Beaully to Boat of Garden OHL. It is therefore considered that the principle of this development has been established through the previous consent and as such the retention and amended location of the access tracks is acceptable subject to compliance with policy.
- 8.13 In design terms, the access tracks are located within a wooded area, away from the public road and residential properties. As such the access tracks would not have a significant visual impact in terms of landscape or visual amenity.

Impact on Residential Amenity (including Private Water Supplies)

- 8.14 There are no residential properties within close proximity of the site, the location of the access tracks is within remote woodland and does not raise any concerns in terms of noise or residential visual amenity. However, as noted in para 8.8 above concerns have been raised in relation to the construction of Track 3 and the impact it had on the Blar Buidhe PWS to 5 residential properties. Representations have set

out that they believe that the construction of Track 3 has rendered the PWS as unsafe to drink and that there has been a reduction in quantity of water available via the PWS.

- 8.15 Blar Buidhe PWS is located approximately 150m from Track 3, therefore if the track was constructed as outlined by the applicant within the CEMP with no excavation works within 100m of the PWS exceeded 1m in depth then there would be no risk to the PWS as confirmed by SEPA. This is disputed by the third parties, particularly by the residents that the PWS supplies. The 5 properties are located at:
- Blar Buidhe (1 property);
 - Beachan (3 properties); and
 - Achvaneran (1 property).
- 8.16 The residents have stated that the spring-source PWS has remained within the parameters set for drinking water, providing sufficient water in all weathers to the 5 properties noted above for at least 37 years, installed by Tordarroch Estate in the late 1950s. Representations state that the water supply has been tested by residents on previous occasions prior to the construction of the development and these samples were always found to be satisfactory on both bacteriological and chemical parameters. Unfortunately, there is only anecdotal evidence that the PWS was compliant prior to construction works commencing and no evidence of water quality monitoring from the residents has been able to be provided to the Planning Authority. Taking this into consideration and that the applicant did not undertake water sampling or monitoring prior to the felling of the forestry it is difficult to establish a baseline of the water quality and quantity. The Council has therefore based their assessment on the submitted information.
- 8.17 It is the resident's belief that the construction works for the tower and the track contaminated the PWS. They also state that the development has promoted lush vegetation that is attracting large herds of deer and other wildlife that would have been restricted by the dense forestry pre-construction. They consider that this is exacerbated by walkers using the track, frightening the deer causing them to run up the clearing leading to the PWS. The residents therefore seek appropriate mitigation in the form of a new water supply being provided by the applicant. If the PWS has been compromised during construction works then best practice would require the applicant to provide an alternative source of drinking water and water for general use.
- 8.18 In support of this application the applicant undertook a high-level desk based study and risk assessment for all 5 properties that the PWS supplies. This involved a review of existing information to understand the hydrological, geological and hydrogeological conditions surrounding the PWS and the related construction works. The risk assessment considered the type of hazard associated with the development, release and exposure potential and severity of impact.
- 8.19 The study and risk assessment notes that the risk to the hydrological and hydrogeological environment during construction vary based on the location of each source and how that source is fed i.e. groundwater spring, borehole or surface water abstractions. As a result, the assessment of risk of contamination to PWS due to activities associated with the OHL works considered the following:

- Type of private water supply and likely disruption potential;
- Distance from water source and known supply infrastructure to the nearest point of construction associated with the OHL; and
- Position of the source in relation to the felling and construction works in terms of topography and catchment influence zones.

- 8.20 The risk assessment considers the type of hazard associated with the development, the probability and magnitude of an impact occurring, based on topographical and hydrological relationships between the supply and construction activities, and the severity of such an impact based on a combination of the probability and magnitude values. All PWS are considered to be of high sensitivity due to the susceptibility of the receptors to change.
- 8.21 The methodology to assess the potential impact to private water supplies was judged in relation to the probability of an impact occurring on the receiving environment and the receiving environments sensitivity to change. The sensitivity was classified as high, medium, low or negligible based on professional judgement. The likelihood and magnitude of the potential impacts were combined to define the significance of the impact. If the magnitude of effects were unclear, then professional judgement was applied to determine the significance of the impact. This methodology does not raise any concerns with the Council or any statutory consultee and as such is accepted.
- 8.22 The OHL and access track intersects the PWS source to supply pipe, the PWS source lies 120m west of the OHL. The source and the catchment are located within the catchment of the River Nairn. The applicant has assumed the source type to be groundwater spring, with the PWS utilised for domestic and agricultural use. There is also a secondary holding tank noted to the west of Achvaneran. The PWS source tank consists of a concrete block square structure with an overflow pipe and metal covering, with handles for inspection. It is located within an area of flush vegetation, with the underlying ground soft and boggy. The PWS follows shallow v-shaped valley topography.
- 8.23 The applicant's assessment has highlighted that the BGS Geindex Permeability Data confirms that the spring source is in an area where groundwater flow is dominated by fracture flow, within a low productivity aquifer. The spring also lies 100m from the Middle Old Red Sandstone geological boundary. This formation is classed as a moderately produced aquifer. It is possible the groundwater source could be from the sandstone group. It is expected that groundwater flow will mirror the surrounding topography and flow will be towards the lowest point in the hydrogeological system which will be the surrounding watercourses that drain the area. SEPA has advised that the superficial geology map Figure 3.5a appears shifted approx. 600m south compared to BGS online geological maps. This may be due to a georeferencing issue on the applicant maps. This is obvious along the River Nairn where BGS maps show alluvium and glacio-fluvial deposits (as expected) and the Figure 3.5a show till.
- 8.24 The nature of the potential risk to the PWS is either a reduction in volume or reduction in quality of the water feeding the supply (or both). The applicant's assessment has looked at the risk the construction works may have had on the quality and quantity of water serving the supply. To minimise any construction effects on the hydrological environment (including PWS), specific mitigation measures were previously secured

through the CEMP, as well as Pollution Prevention Plans (PPP). Together these documents, considered the management of surface waters, borrow pits/quarries, felling, access tracks, tower construction, concrete works, handling of peat, and waste management. They also covered issues such as materials storage, surface water management, dewatering, construction of culverts, protection of watercourse crossings and accidental spillages.

- 8.25 Although the construction phase of the project is short term compared to the operational phase, the applicant acknowledges the risk of pollution and damage to the water environment during this phase as being very high, without appropriate mitigation. Rainfall increases the risk of pollution and damage to the surface and groundwater environment. Rainfall and associated surface water runoff during construction works can mobilise and transport pollutants such as sediment, oils, chemicals and other building materials into the surface and groundwater environment. Pollution from sediment and other pollutants can come from a number of sources during OHL activities, including:
- Tree felling and harvesting;
 - De-watering of excavations;
 - Runoff from roads and hardstanding areas;
 - Plant washing area; and
 - Fuel and chemical storage/ refuelling areas.
- 8.26 Construction activities can disrupt the hydrogeological regime by increasing or decreasing the volume of infiltration into the groundwater. Pollutants and oil from construction plant can also leach through the soils and into the groundwater. The excavation of foundations can have a significant effect on the hydrogeological regime by disrupting or altering flow patterns in the ground water.
- 8.27 The factors taken into consideration in the applicant's risk assessment included the proximity of the development to the PWS source, the likely presence of pathways between the development and the source, the local topographic conditions and the underlying geology.
- 8.28 As the tree felling and construction activities carried out prior to the first water sample being tested are deemed to be outwith the required specifications the applicant concludes there would have been no effect on the PWS quality or quantity. However, the applicant acknowledges that biological contaminants from animal faeces, could feasibly have entered the supply as no protection measures were in place. A pH of between 5.8 and 6.4 was observed in the results which is likely to be caused by the peaty nature of the soils and surrounding woodland plantation. If construction activities had caused an effect to pH, it may show a rise in alkalinity (pH 8-14) due to the nature of the materials used in construction (e.g., concrete). There were no failures observed in the results from hydrocarbons (e.g., if fuel or oil leaked from forestry or construction machinery). No incidents of this nature were recorded by the Applicant or their Contractor.
- 8.29 The water sample results submitted by the applicant are disputed by third parties. They state that the applicant has provided raw water tests for the September 2019 sample and that raw water tests do not highlight failures in specification. Those making representations consider there the results provided by the applicant prove

that the water fails both bacteriologically and chemically on all the test results provided. Both the Council's Environmental Health Officer and SEPA have not raised any concerns with the results presented by the applicant, and it is therefore accepted there are no failures, related to water quality, in these water samples.

- 8.30 Track 3 is located at 230m AOD, some 15m higher than the PWS that is located at approximately 245m AOD. The applicant's assessment identifies the PWS source to be situated approximately 230m west-southwest of the nearest point of the development and as the retained track is unlikely to have required an excavation >1m depth, the 100m LUPS31³ buffer applies. A representation has been accompanied by photographs of a drainage ditch associated with the track construction which appears to be greater than 1m in depth. However, what is not clear is the original ground level upgradient or down gradient of the ditch which may or may not have been lower. However, on clarifying this matter with the applicant it has set out that the excavation shown in the representation is not adjacent to the tracks subject to this application but another excavation elsewhere on the site. The applicant's assessment sets out that as the location of the PWS source is situated upgradient of the development there is no potential for a pathway between the receptor (PWS) and a potential source (development) the probability of impact is considered remote and the magnitude of any impact occurring is insignificant. Therefore, the combined risk is considered to be negligible and not significant. As such the applicant considered that no new or additional mitigation is required.
- 8.31 The applicant also took into consideration changes in the climate on the quality and quantity of the PWS. Stating that since rainfall is the primary input, with limited evidence to infer contributions from groundwater, the potential for variations in prevailing weather to influence the quantity and quality of the water at the abstraction is high with any changes in the catchment rapidly translating into an effect at the abstraction. This is supported by Met Office Rainfall data, which reports that for late spring / summer 2018 there were occurrences of long periods of dry weather in the region but that these were also interspersed with short phases of unsettled conditions. Whilst the dry weather will almost certainly result in a reduction in water quantity to some extent, it is the brief periods of typically abrasive summer rainfall on hardened dry ground that result in significant levels of solute and debris mobilisation.
- 8.32 The applicant advises that the presence of pathogenic bacteria within water samples can be an indicator for the presence of faecal matter, which would have originated from the guts of mammals such as deer or livestock (if present). Coliform bacteria, E. Coli and Enterococci were identified in the July 2018 sample, with Coliform bacteria also identified in November 2018. Given the absence of any penstock fencing around the abstraction and the likelihood of mammals being present in the wider catchment and having unrestrained access (faecal evidence of which the applicant has witnessed subsequently in close proximity to the source), the presence of indicator microorganisms is therefore unsurprising, this theory is supported by the Council's Environmental Health Officer. Microbiological contamination is a specific water quality issue for water supplies which utilise overland flow or recently infiltrated water as water turnover is quick and potentially within the microbial half-life and not afforded a level of natural filtration from the bedrock or soil. In the context of this PWS, the applicant recorded the presence of multiple microbiological failures in water quality during July 2018 is likely to have been exacerbated by cyclical patterns

of prolonged dry weather (allowing mammalian faecal matter to accumulate at the surface with warmer temperatures also improving survival rates), followed by episodes of abrasive rainfall transporting faecal material into the supply network. However, it is noted that in subsequent monitoring that this was not an issue.

8.33 In addition, construction activities and associated works would be expected to contribute to the following potential effects:

- Increases in pH as a result of the introduction of cementitious materials, crushing and subsequent dissolution of rock used for track construction etc;
- Increases in Turbidity as a result of silt loading in runoff from construction areas;
- Increases in Nitrate as a result of felling and subsequent reduced uptake;
- Other unusual increases in trace metals not inherent from the geology; and
- Other unusual increases in chemicals, hydrocarbons etc.

None of these were identified in the sampling undertaken between 2018 – 2019. As noted in para 8.28 these results are disputed by third parties. When applying the precautionary principle, it is not considered that severe damage could occur to either the environment or the wellbeing of communities as a result of the development.

8.34 The applicant's assessment attributes variations in temperature, rainfall, intensity of local agricultural / ecology activity within the catchment to be the cause of the reduced water quality of the PWS. This is supported by the water quality sample results undertaken by the applicant that showed a continued improvement throughout the course of construction, and as such any construction activities are unlikely to have had an adverse effect on the PWS abstraction. Furthermore, water quality sampling collected between July 2018 and September 2019 also demonstrates that construction activities had no effect on the supply. As such, the probability of impact from the construction and retention of the access tracks is considered remote and the magnitude of any impact occurring is insignificant. Therefore, the combined risk is considered negligible.

8.35 SEPA also note that the PWS is upgradient of Track 3 in its 15m section with an elevation difference between the PWS and the track of approximately 10m. SEPA have based their advice on the information provided by the application, this includes the construction of this section of the track that followed a 'cut design' with excavations of less than 1m in depth. In accordance with SEPA guidance LUPS-GU31 the applicable buffer zone in these settings would be 100m. As noted in para 8.29 above representations dispute the excavation depths submitted by the applicant. Nevertheless, the PWS is over 200m from the track and SEPA agrees that the relevant buffer has been applied. Given that the PWS is upgradient of the track and outside the applicable buffer SEPA agree with the applicant that the PWS is at negligible risk from the retrospective development (i.e. Track 3 in its 15m section) and do not raise any further concerns.

8.36 As no concerns have been raised by either the Council's Environmental Health Officer or SEPA the applicant's assessment is accepted, and it is therefore unlikely that the construction and retention of the tracks would have significantly affected the PWS.

Impact on Public Access

- 8.37 The site, like most land in Scotland, is subject to the provisions of the Land Reform (Scotland) Act 2003. There are significant recreational access resources within the proposed site boundary, and wider site. Public recreational access to the site is a significant concern that has been raised by third parties as the access track provides unrestricted access adjacent to and above the PWS, stating that this creates significant risk to the PWS. Furthermore, as there is no through route after Track 3 (to Strathnairn) due to the track ending at Tower 20 has resulted in concerns in relation to access. Concerns have been raised regarding recreational users taking short cuts to Strathnairn by cutting through properties. The Council's Access Officer has suggested that a link and circuit for walkers and cyclists is delivered. This would also result in a reduction in recreational trips reducing the impacts on residential properties and the PWS. As such a link between Tower 20 and Strathnairn will be secured through a planning condition. The access tracks should be accessible to a wide variety of users and all access gates should be "easy open" accesses that can be unlocked to responsible access takers. To ensure enhanced recreational access opportunities are provided, a Recreational Access Management Plan (RAMP) will be required. This will also be required to include details of signage to be included on the site to provide advanced notice to users of the paths within the development and wider development of any hazards such as maintenance or potential ice throw from the overhead lines during winter. The RAMP should also detail any other plans to improve recreational access across the site including signage and car parking provision.

Impact on Natural Heritage

- 8.38 As the proposed development is located within an area of mature commercial forestry, principally consisting of commercial conifers and broadleaves the applicant has provided Woodland and Forestry Assessment due to the loss of woodland. Approximately 350m to the northwest of Track 1 lies an area of Ancient Woodland, however this is not affected by the development and therefore not considered further.
- 8.39 It is noted that the felling associated with the construction of Tracks 1 and 3 were undertaken under the s37 consent for the Knocknagael to Tomatin 275 kV OHL to form an 'Operational Corridor'. Tree felling associated with the construction of Track 2 was undertaken via the landowners (Bunachton Woodlands) Long-term Forest Design Plan (LFDP), as this track is required by them to extract commercial timber the B861. Track 2 is out with the operational corridor and would result in a permanent loss of 0.23ha of commercial forest plantation as a result of the retention of this section of track.
- 8.40 The Council's Forestry Officer has no objection to the development subject to the applicant submitting a Compensatory Tree Planting Plan which offers 0.23ha of new woodland of the same character as the woodland which has been lost. The applicant has committed to deliver 0.23ha of compensatory planting for this area of woodland on the Mauld Estate near Cannich in Strathglass as part of a larger planting scheme. The applicant is currently finalising a legal agreement to secure the delivery of compensatory planting and requests that the compensatory planting and maintenance arrangement for 5 years is secured through a planning condition. It is

requested that the timescale for delivery of planting is no later than the end of the 2023 planting season.

- 8.41 It is considered that there would be no significant effects on woodland as the result of the retention of the tracks subject to compensatory planting being secured.

Additional Mitigation

- 8.42 As noted in para 8.16 a significant third-party concern is the increase in deer around the PWS source, as such it is considered that additional mitigation is required to address these concerns. A Deer, Livestock and Carrion Management Plan (DLCMP) will be secured via a planning condition this will detail further fencing around the PWS source and abstraction point to exclude deer and livestock. The DLCMP will also include provisions that the areas within 50m of the PWS are checked regularly to remove any carcasses from the area.

Other material considerations

- 8.43 As there were no potential GWDTE habitats identified within the 100m buffer distance adjacent to Track 1 or Track 3, the permanent retention of these tracks will have no effect on GWDTE habitats. There are wet habitat communities situated between the existing track (Track 2) and Loch Bunacton include areas of M6 acid neutral flush, M9 transition mire and W4 woodland. Given the development is situated downgradient of the GWDTE communities and no further works are planned, the permanent retention of the track at Track 2 is unlikely to affect continuity of these GWDTE habitats. SEPA did not raise any concerns and as such the applicant's assessment is accepted.
- 8.44 As the tracks are already constructed it is unlikely there would be any other significant effects as a result of their retention and as such no further matters have been considered other than those within this report.
- 8.45 There are no other material considerations or other relevant material factors highlighted within representations for consideration of this application.

Non-material considerations

- 8.46 It should be noted that whilst concerns have been raised in relation to the location of Tower 18, the Scottish Government have confirmed that the tower was constructed within the limits of deviation. However, the Council are currently investigating a potential breach of planning control related to the location of Tower 18 related to the micro-siting limits within the limits of deviation.
- 8.47 The issue of illegal use of the access track (for example by trail bikers) is not a material planning consideration.
- 8.48 The applicant has previously offered a financial contribution to the residents to allow residents to upgrade their water supply as a goodwill gesture. The contribution remains available to the residents if they so wish to take up the offer from the applicant.

- 8.49 Representations have highlighted concern over the assessment undertaken within the original application, the potential impact on the private water supply construction of tracks upgradient, and concerns over the Council's approach to enforcement of the breach of planning control. These matters, having been considered by officers and can not form part of the assessment of this application due to the matters not relating to the matters in front of the Planning Authority related to this application.

Matters to be secured by Legal Agreement / Upfront Payment

- 8.50 None.

9. CONCLUSION

9.1 Given the relative elevation and topographical differences between the abstraction and Track 3, and its notable absence in the likely upslope contribution zones (catchment), it is unlikely that construction works related to Track 3 would have impacted either the quality or the quantity of water. The shape of the local topography and the propensity for surface water / groundwater to be confined by it, would therefore suggest that a connection between workings areas and the PWS catchment and abstraction is highly unlikely.

9.2 The application has attracted a number of representations objecting to the application. There are no outstanding objections from statutory consultees. It is considered that third party concerns raised can be addressed through additional appropriate mitigation as detailed within this report.

9.3 While officers do recognise and acknowledge the PWS could have been affected by the felling of forestry, the water sample results have demonstrated that the water quality has improved over the construction period. Further mitigation of the impacts will be secured by the planning conditions, including further fencing to protect the PWS abstraction point and the submission of a Deer Management Plan.

9.4 The Council has determined its response to this application against the policies set out in the Development Plan, principally Policy 28 of the Highland-wide Local Development Plan.

9.5 All relevant matters have been taken into account when appraising this application. It is considered that the proposal accords with the principles and policies contained within the Development Plan and is acceptable in terms of all other applicable material considerations.

10. IMPLICATIONS

10.1 Resource: Not applicable

10.2 Legal: Not applicable

10.3 Community (Equality, Poverty and Rural): Enhanced Recreational Infrastructure

10.4 Climate Change/Carbon Clever: Not applicable

10.5 Risk: Not applicable

10.6 Gaelic: Not applicable

11. RECOMMENDATION

Action required before decision issued N

Notification to Scottish Ministers Y

Subject to the above actions, it is recommended to **GRANT** the application subject to the following conditions and reasons

1. Within 3 months of the date of this Planning Permission a Deer, Livestock and Carrion Management Plan (DLCMP) shall be submitted for the written approval of the Planning Authority. For the avoidance of doubt the plan shall include deer fencing to avoid access to the Blar Buidhe Private Water Supply by deer. Thereafter the approved plan shall be implemented to the satisfaction of the Planning Authority within 6 months of the date of the approval of the DLCMP.

Reason: To protect Blar Buidhe private water supply from contamination.

2. Within 3 months of the date of this Planning Permission an Access Management Plan shall be submitted for the written approval of the Planning Authority. The plan shall include details of a link, including a circuit for walkers, cyclists and other non-motorised users between Tower 20 and Strathnairn. Thereafter the approved plan shall be implemented in full to the satisfaction of the Planning Authority within 6 months of the date of the approval of the Access Management Plan.

Reason: In the interests of securing enhanced public access and to protect Blar Buidhe private water supply.

3. Within 3 months of the date of this Planning Permission a woodland planting scheme to compensate for the removal of 0.23 hectares of existing woodland ("the Replanting Scheme") has been submitted for the written approval of the Planning Authority in consultation with the Highland Council's Forestry Officer and Scottish Forestry.

(1) The Replanting Scheme shall include:

- (a) details of the location of the area to be planted;
- (b) the nature, design and specification of the proposed woodland to be planted;
- (c) the phasing and associated timescales for implementing the Replanting Scheme;

- (d) proposals for reporting to the Planning Authority on compliance with timescales for obtaining the necessary consents and thereafter implementation of the Replanting Scheme; and
- (e) details demonstrating compliance with The UK Forestry Standard and the Scottish Government's Policy on Control of Woodland Removal (as amended or replaced from time to time).

The approved Replanting Scheme (or, as the case may be, an approved amended Replanting Scheme) shall be implemented in full, unless otherwise agreed in writing by the Planning Authority in consultation the Highland Council's Forestry Officer and Scottish Forestry.

Reason: To secure replanting to mitigate against effects of deforestation arising from the Development.

4. Within 3 months of the date of this Planning Permission a Water Quality Monitoring Strategy shall be submitted for the written approval of the Planning Authority. This shall include provision for the monitoring of the private water supply at Blar Buidhe prior to, and within 3 months of completion of the implementation of the mitigation measures outlined in conditions 1 and 2 above and details of how impacts on the private water supply will be avoided during implementation of the above mitigation. Thereafter the approved Water Quality Monitoring Strategy shall be implemented.

Reason: In the interests of amenity and protection of the water environment.

Signature: David Mudie

Designation: Area Planning Manager – South

Author: Claire Farmer/Simon Hindson

Background Papers: Documents referred to in report and in case file.

Relevant Plans:

Plan 1 - LT000019-ENV-030-OHL-AP5-T&C-RETRO Figure 10 Location Plan

Plan 2 - LT19-ENV-030-OHL-AP5-T&C-FIG1A Figure 1a Location Plan

Plan 3 - LT19-ENV-030-OHL-AP5-T&C-FIG1A Figure 2a Track 1 Site Layout Plan

Plan 4 - LT19-ENV-030-OHL-AP5-T&C-FIG1A Figure 2b Track 1 Site Layout Plan

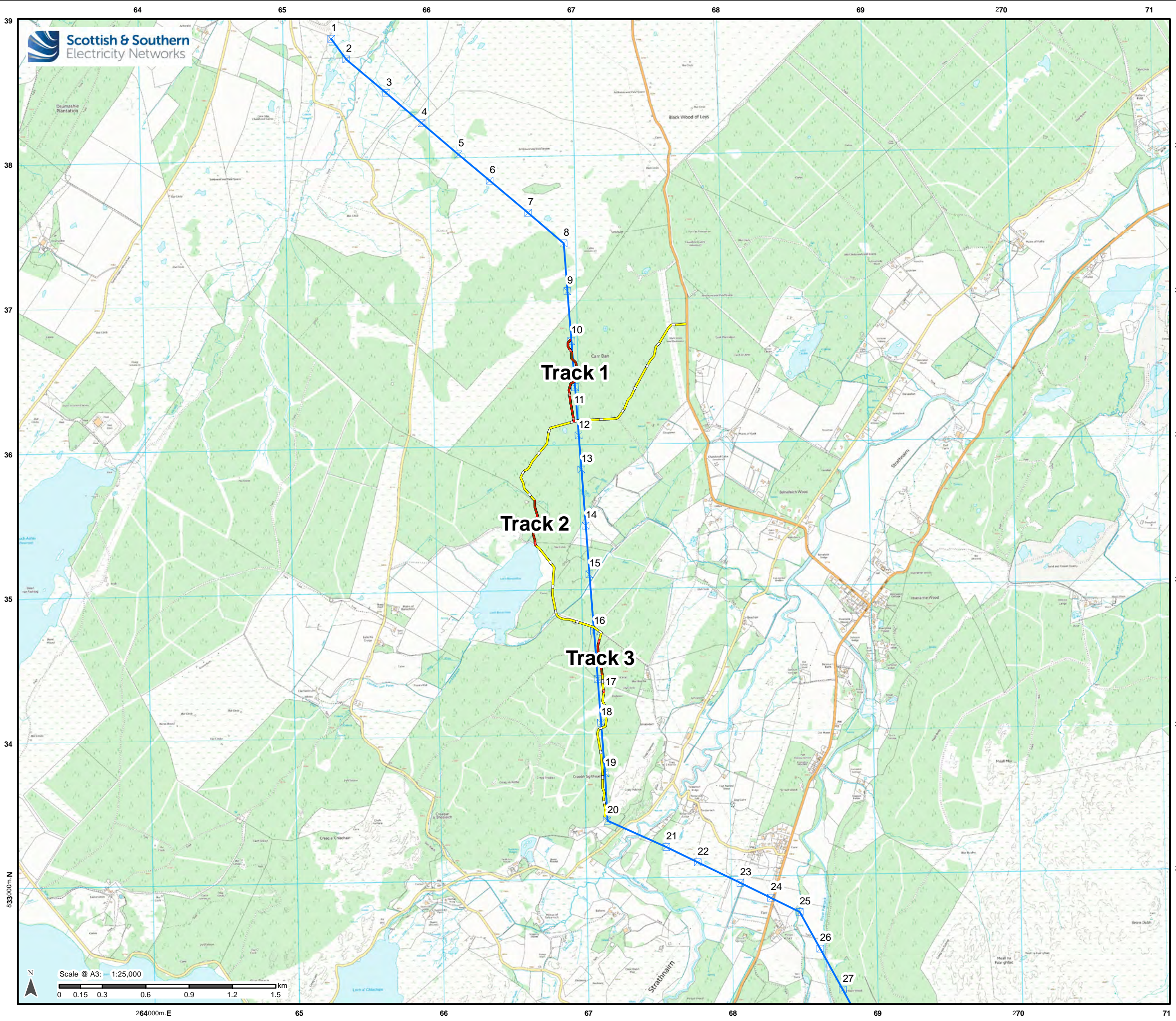
Plan 5 - LT19-ENV-030-OHL-AP5-T&C-FIG1A Figure 2c Track 2 Site Layout Plan

Plan 6 - LT19-ENV-030-OHL-AP5-T&C-FIG1A Figure 2d Track 3 Site Layout Plan

Plan 7 - 1692-OHL-275KV CMA1-CMA2-DWG-0804-1111-01 Drainage Details

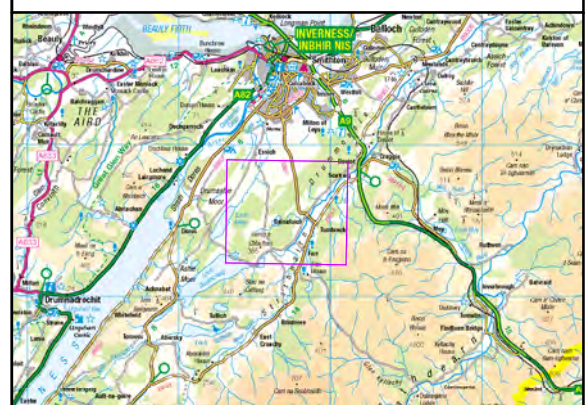
Plan 8 - 1692-OHL-275KV-CMA1-CMA2-DWG-0804-1101-01 Section Details

Plan 9 - 1692-OHL-275KV-CMA1-CMA2-DWG-0804-1102-01 Section Details



Legend

- Redline Boundary
- Retrospective T&C Permission Required
- Permanent OHL Access Track
- As Built 275kV OHL
- As Built Towers



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Project No: LT000019
Project: Knocknagael to Tomatin Reinforcement

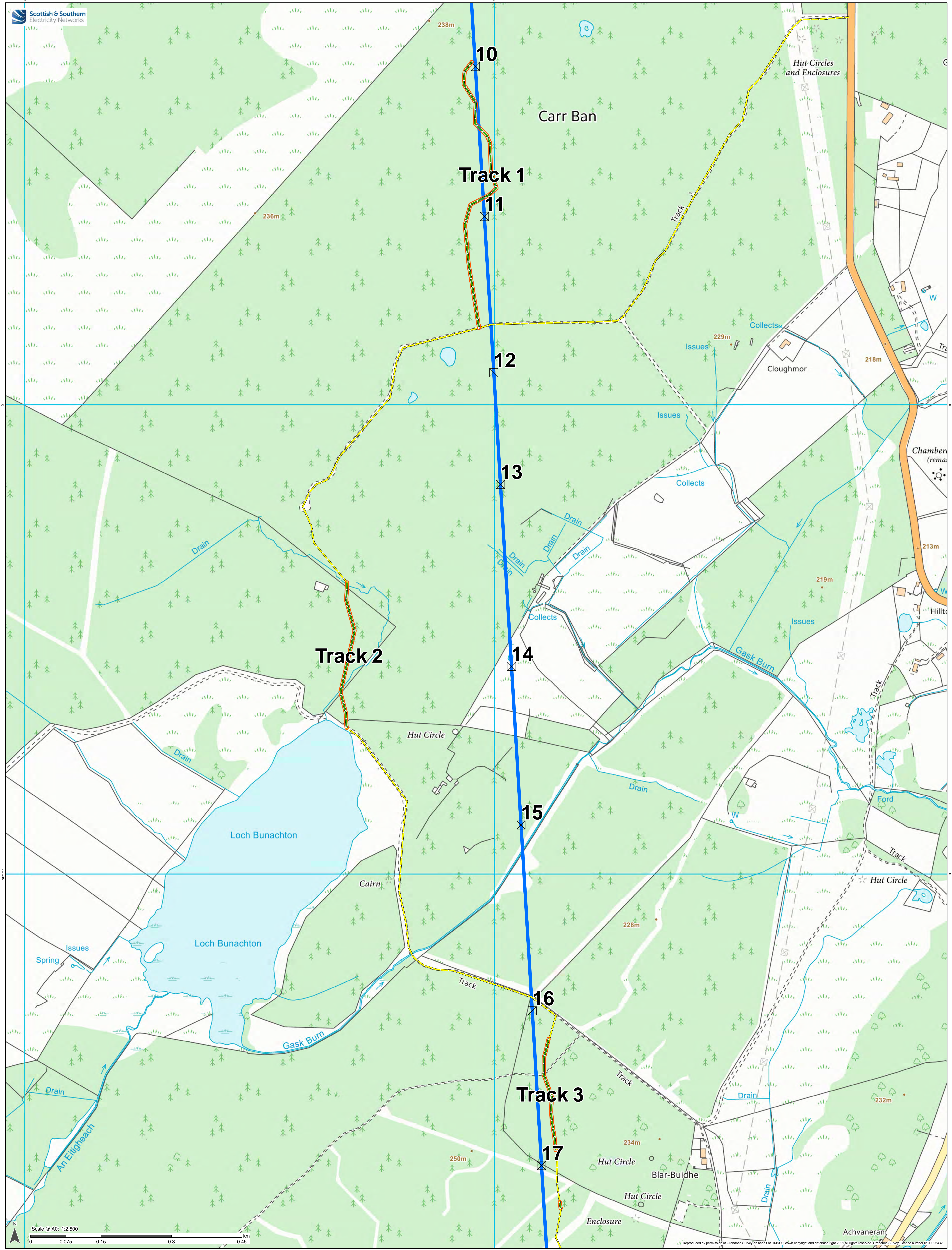
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Drawn by: KJR Date: 12/07/2021

Drawing: LT000019_ENV_030_OHL_AP5_T&C_Retro

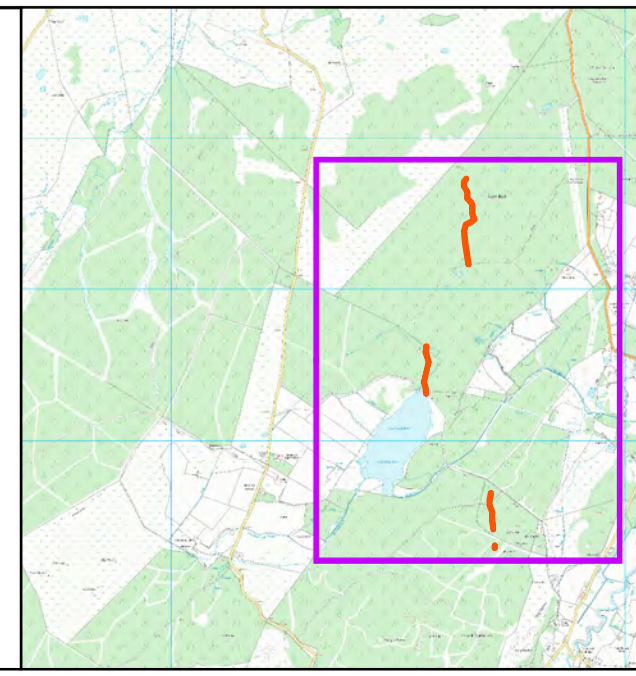
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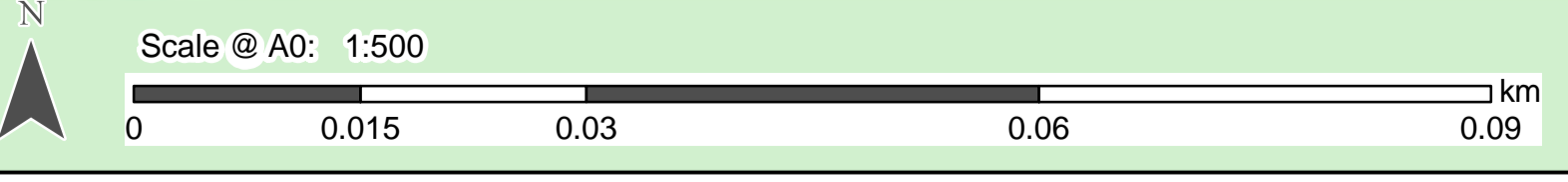
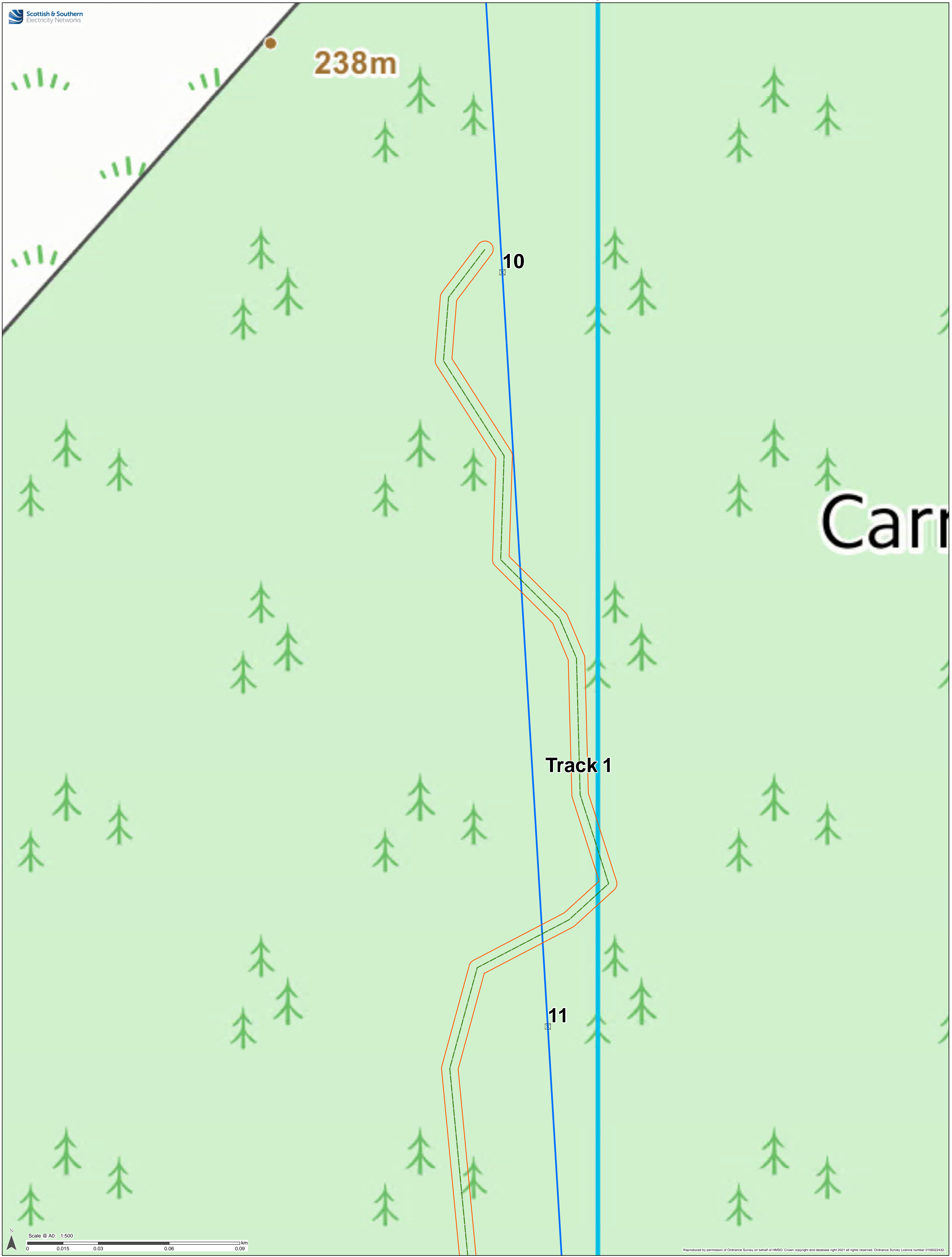


Legend

- Redline Boundary
- Retrospective T&C Permission Required
- Permanent OHL Access Track
- As Built Tower
- As Built 275kV OHL

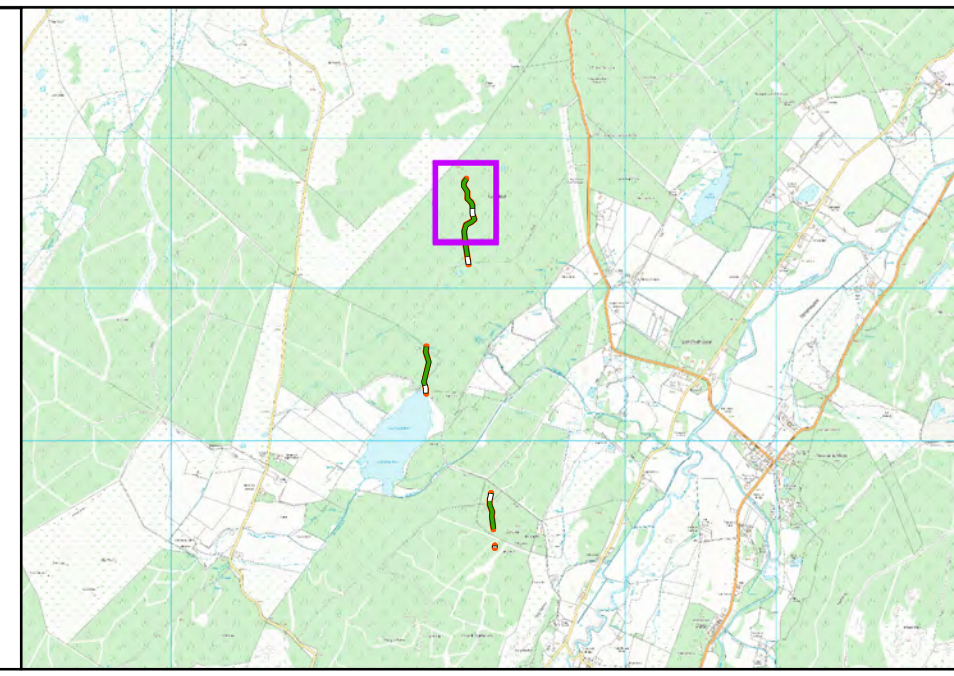


Project No: LT000019
 Project: Knocknagael to Tomatin 275kV Reinforcement
 Title: Figure 1a: Location Plan
 Drawn by: KJR Date: 04/10/2021
 Drawing: LT19_ENV_030_OHL_AP5_T&C_Fig1a

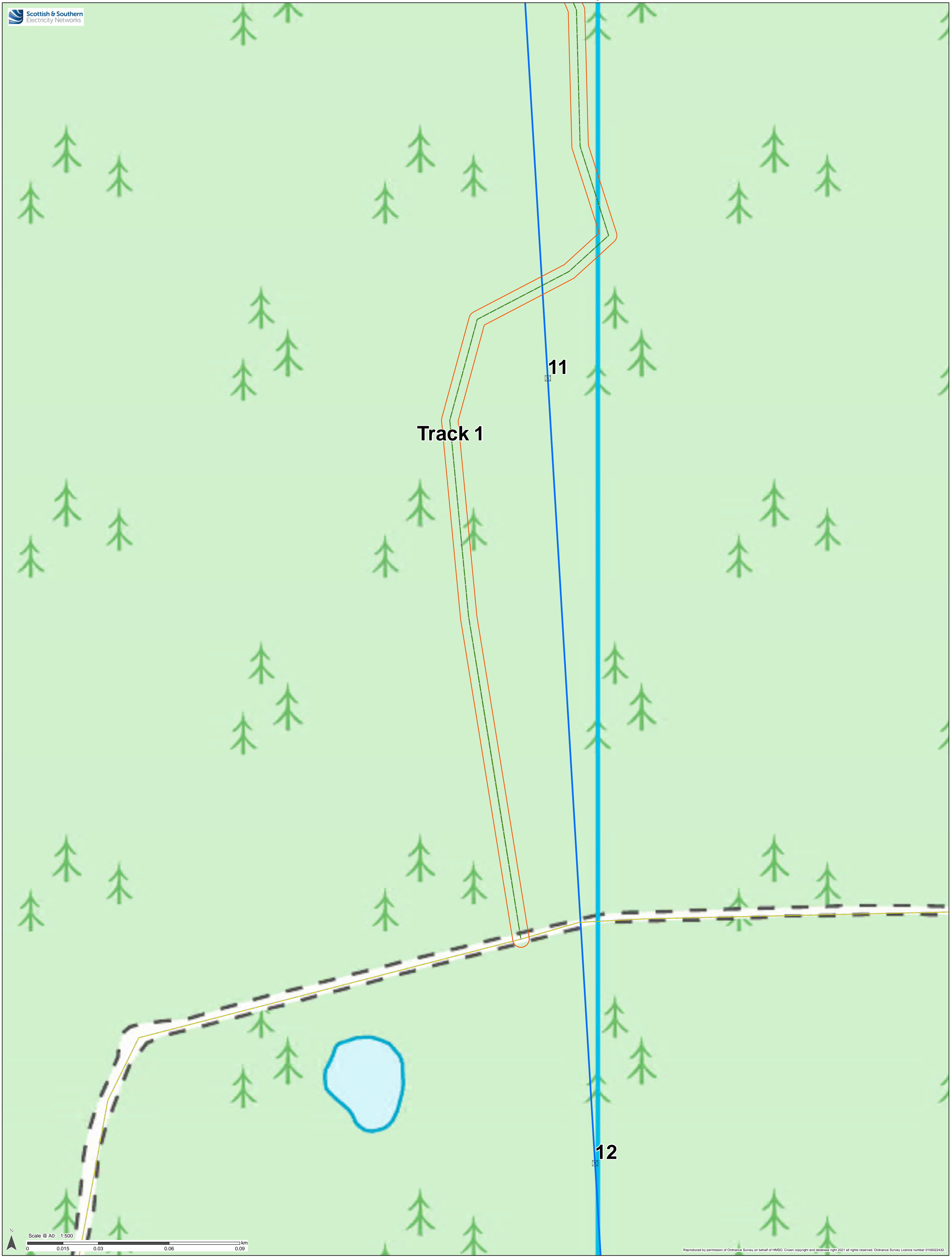


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- Legend**
- Redline Boundary
 - Retrospective T&C Permission Required
 - Permanent OHL Access Track
 - As Built Tower
 - As Built 275kV OHL

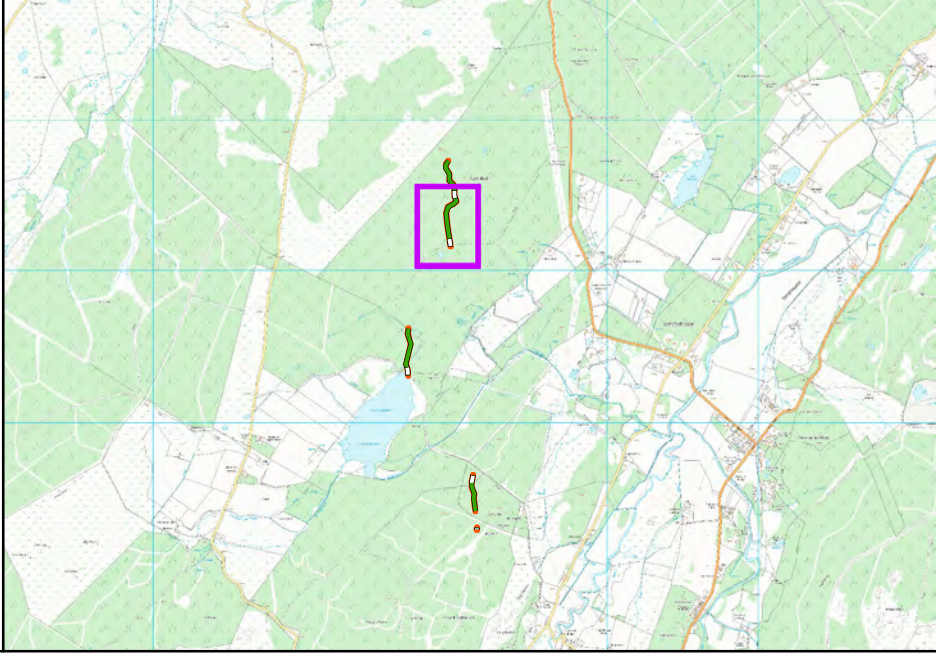


Project No:	LT000019
Project:	Knocknagael to Tomatin 275kV Reinforcement
Title Figure 2a: Track 1 Layout Plan - Sheet 1	
Drawn by:	KJR
Date:	14/07/2021
Drawing: LT19_ENV_030_OHL_AP5_T&C_Fig1a	

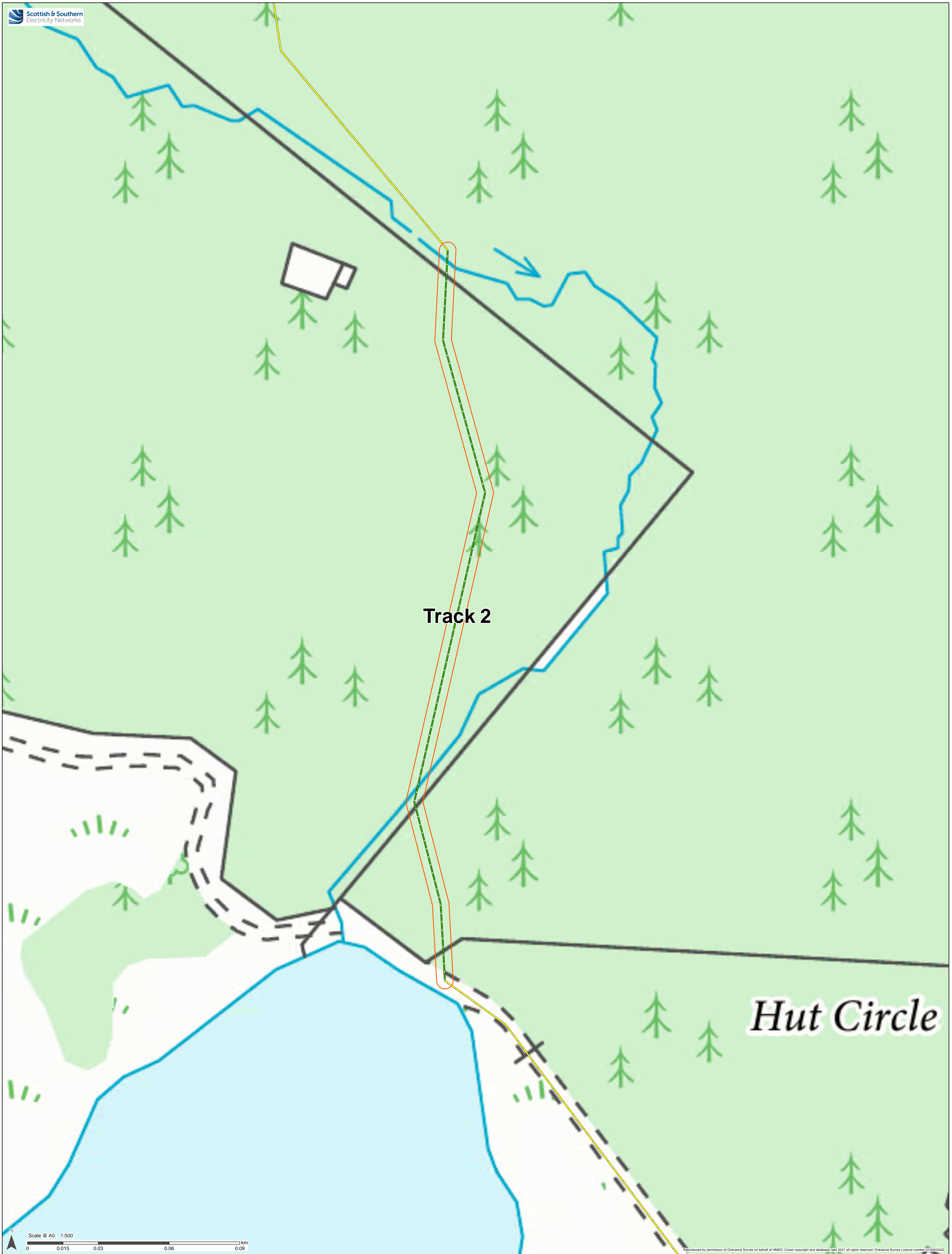


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- Legend**
- Redline Boundary
 - Retrospective T&C Permission Required
 - Permanent OHL Access Track
 - As Built Tower
 - As Built 275kV OHL

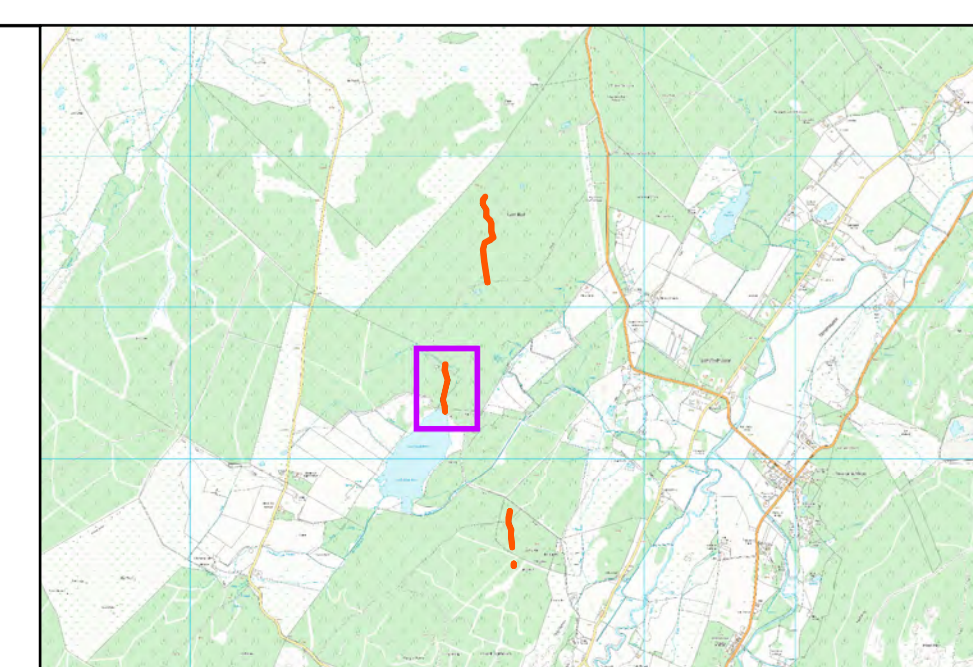


Project No: LT000019
Project: Knocknagael to Tomatin 275kV Reinforcement
Title Figure 2b: Track 1 Layout Plan - Sheet 2
Drawn by: KJR Date: 14/07/2021
Drawing: LT19_ENV_030_OHL_AP5_T&C_Fig1a

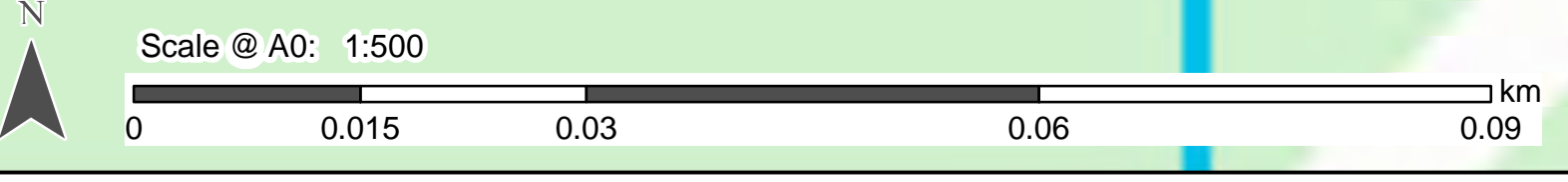
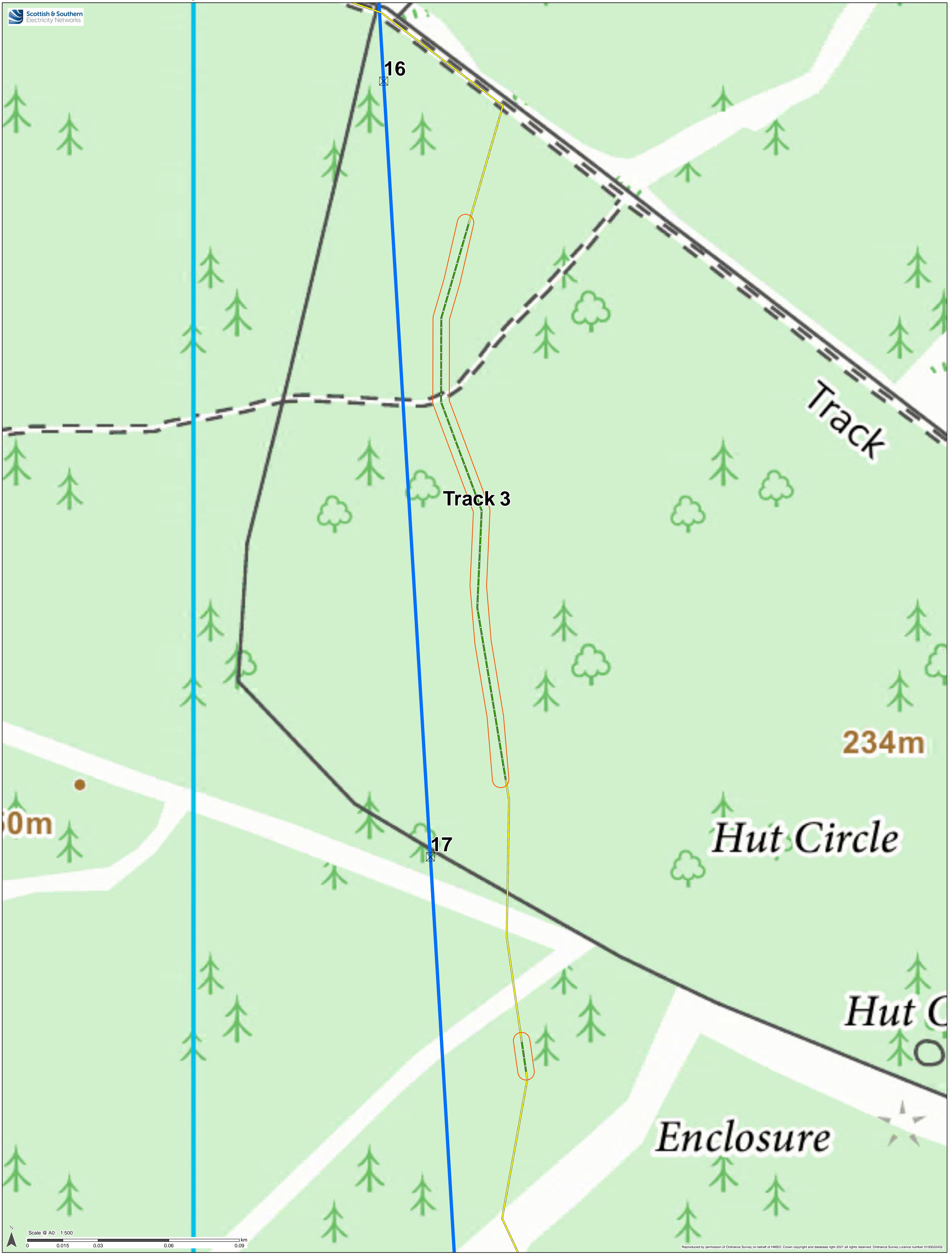


Legend

- Redline Boundary
- Retrospective T&C Permission Required
- Permanent OHL Access Track

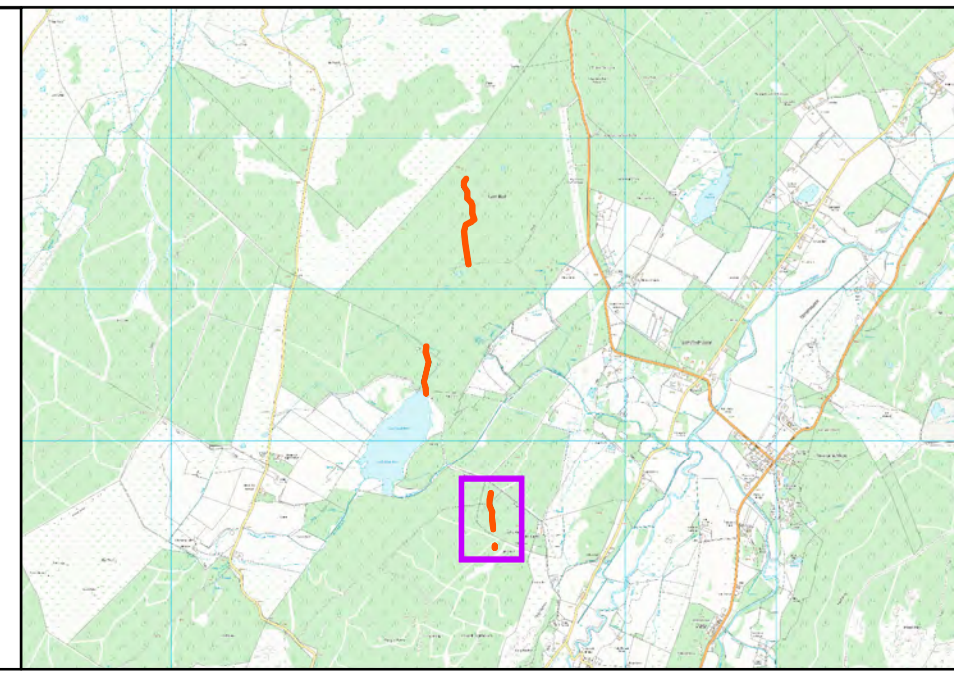


Project No: LT000019
Project: Knocknagael to Tomatin 275kV Reinforcement
Title: Figure 2c:Track 2 Layout Plan
Drawn by: KJR Date: 04/10/2021
Drawing: LT19_ENV_030_OHL_AP5_T&C_Fig1a

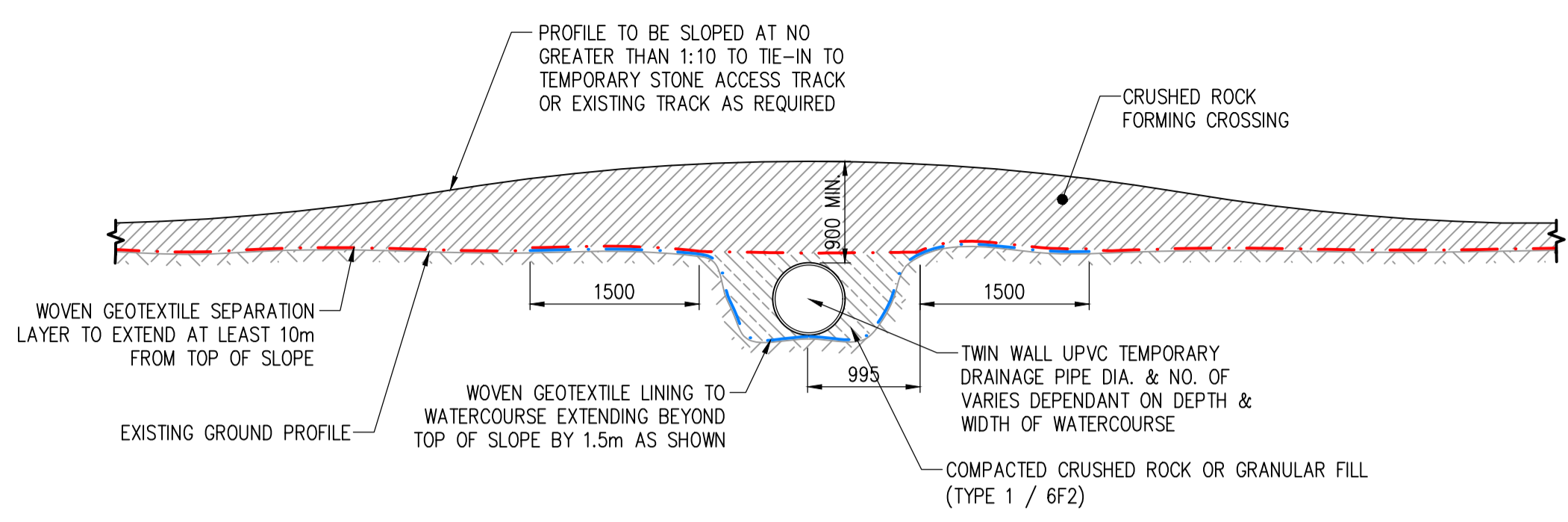


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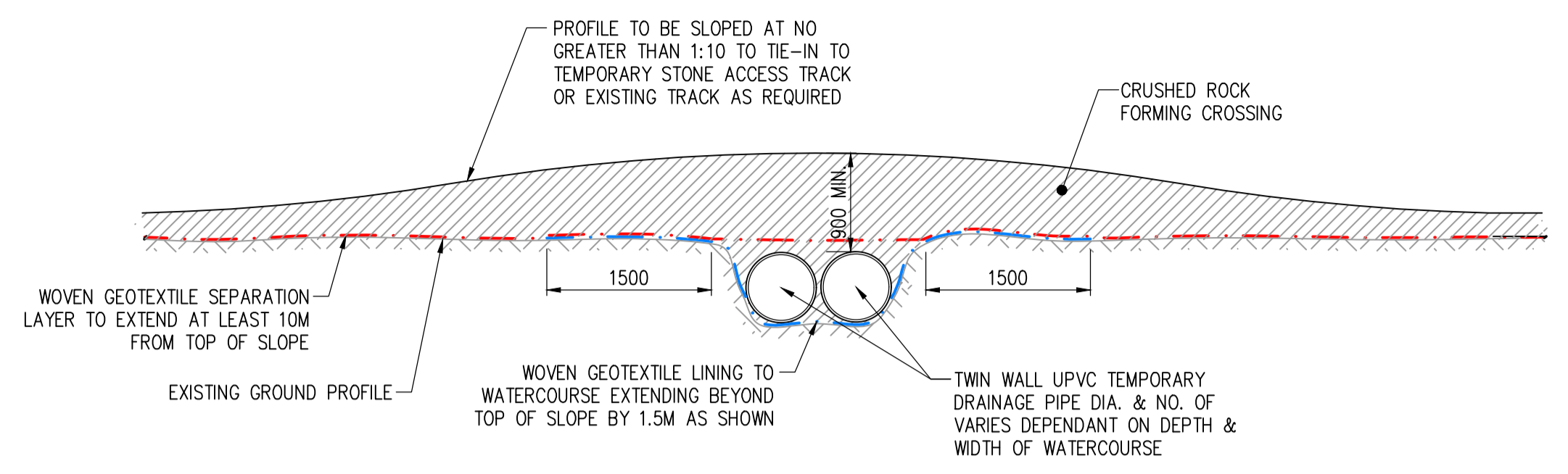
- Legend**
- Redline Boundary
 - Retrospective T&C Permission Required
 - Permanent OHL Access Track
 - As Built Tower
 - As Built 275kV OHL



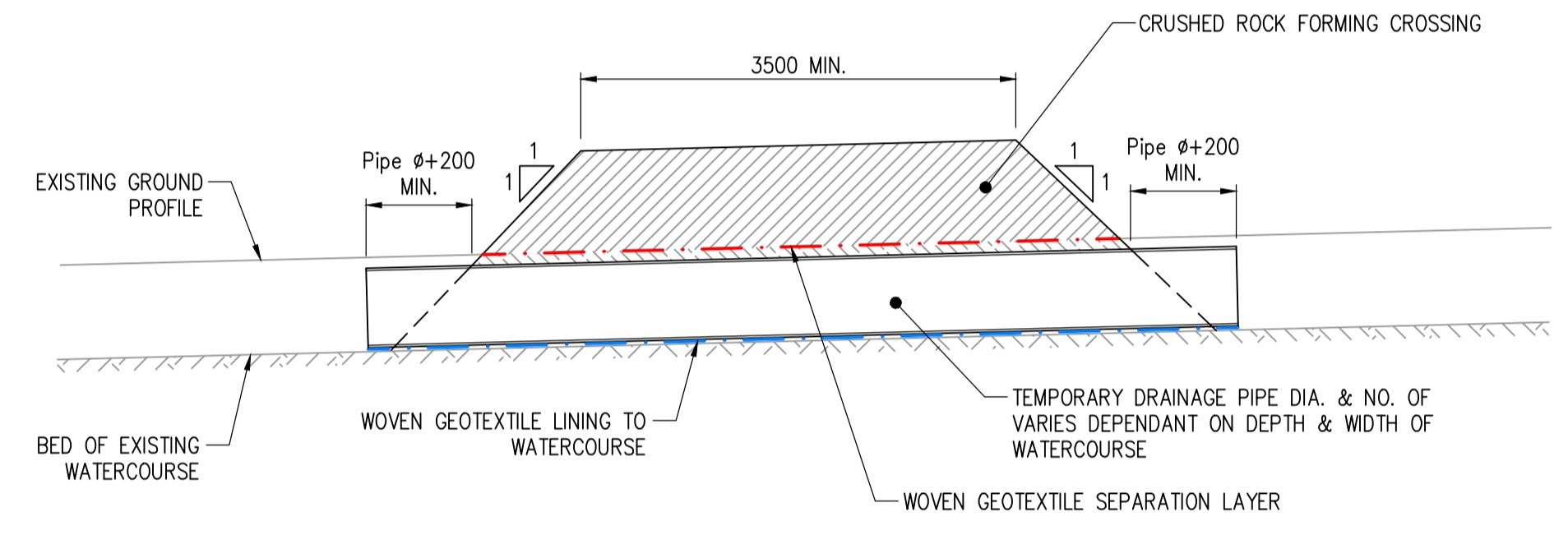
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Title:	Figure 2d:Track 3 Layout Plan
Drawn by:	KJR
Date:	04/10/2021
Drawing:	LT19_ENV_030_OHL_AP5_T&C_Fig1a



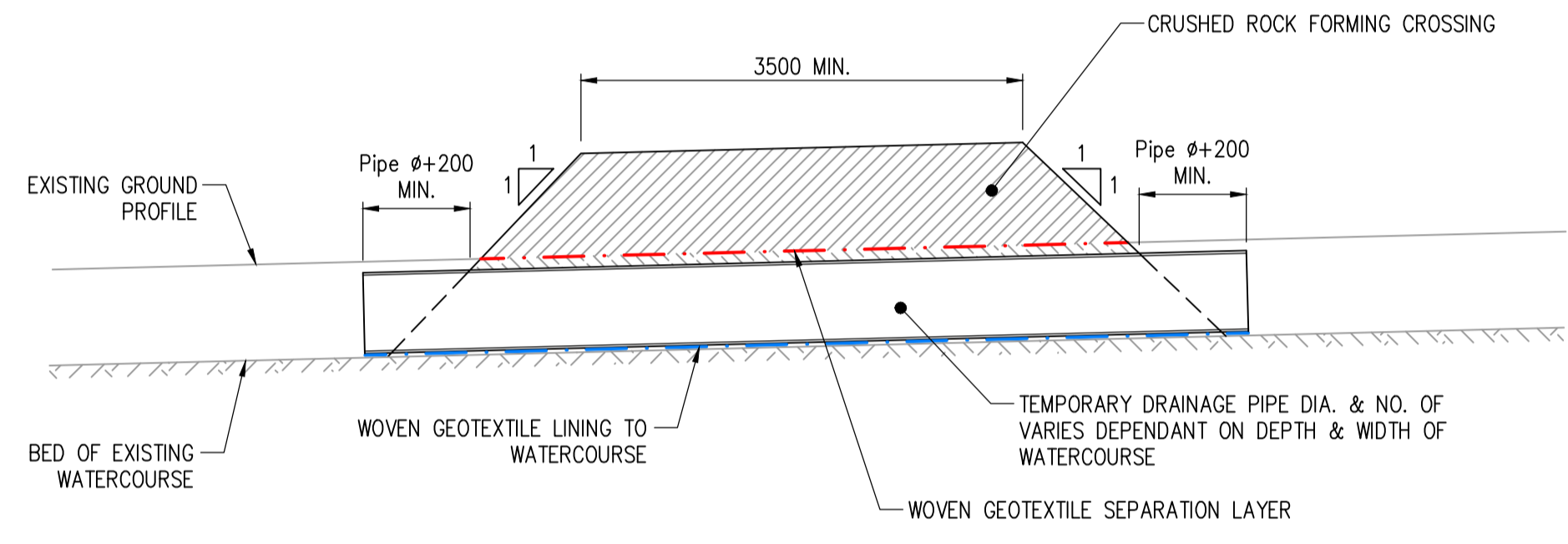
TYPICAL CROSS-SECTION THROUGH TEMPORARY WATERCOURSE CROSSING (SINGLE PIPE)
SCALE 1:50



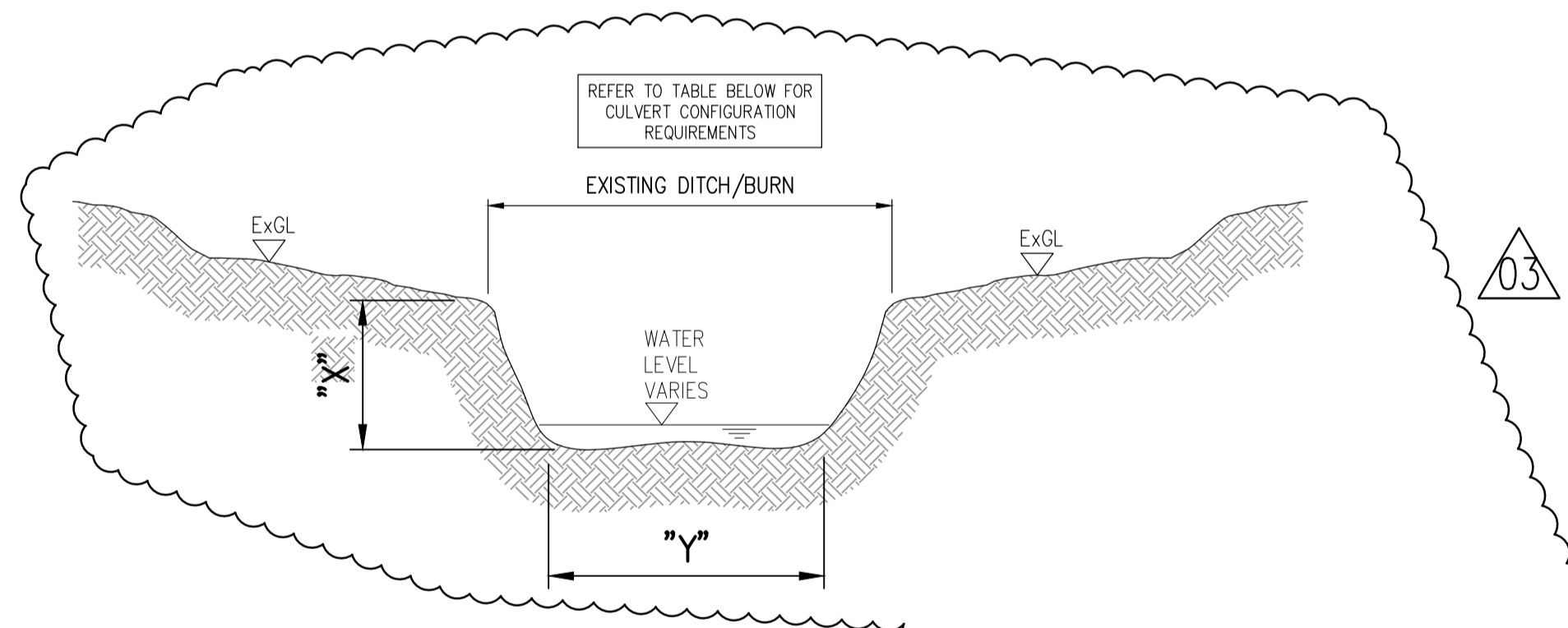
TYPICAL CROSS-SECTION THROUGH TEMPORARY WATERCOURSE CROSSING (DOUBLE PIPE)
SCALE 1:50



TYPICAL LONG-SECTION THROUGH TEMPORARY WATERCOURSE CROSSING
SCALE 1:50



TYPICAL LONG-SECTION THROUGH TEMPORARY WATERCOURSE CROSSING
SCALE 1:50



		WHERE "Y" IS																		
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WHERE "X" IS	300	1 x 300mm \varnothing	1 x 300mm \varnothing	1 x 300mm \varnothing	1 x 300mm \varnothing	2 x 300mm \varnothing	2 x 300mm \varnothing	2 x 300mm \varnothing	3 x 300mm \varnothing	3 x 300mm \varnothing	3 x 300mm \varnothing	4 x 300mm \varnothing	4 x 300mm \varnothing	4 x 300mm \varnothing	4 x 300mm \varnothing	5 x 300mm \varnothing	5 x 300mm \varnothing	5 x 300mm \varnothing	5 x 300mm \varnothing	REFER NOTE 1
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	700	N/A	N/A	N/A	N/A	1 x 600mm \varnothing	1 x 600mm \varnothing	1 x 600mm \varnothing	1 x 600mm \varnothing	1 x 600mm \varnothing	1 x 600mm \varnothing	2 x 600mm \varnothing	2 x 600mm \varnothing	2 x 600mm \varnothing	2 x 600mm \varnothing	2 x 600mm \varnothing	2 x 600mm \varnothing	3 x 600mm \varnothing	3 x 600mm \varnothing	REFER NOTE 1
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NOTE:
1. CONTACT ENGINEER TO AGREE PIPE SIZE & ARRANGEMENT FOR ANYTHING GREATER THAN STATED ON TABLE.

CULVERT CONFIGURATION MATRIX

FOR CONSTRUCTION

03	CULVERT CONFIGURATION MATRIX EXTENDED.	DA	05/11/2017	NS	CS
02	CULVERT CONFIGURATION MATRIX ADDED.	DA	28/09/2017	NS	CS
01	CONSTRUCTION ISSUE	DA	08/08/2017	NS	CS
P01	FIRST ISSUE	DA	08/08/2017	NS	CS
Revision	Description	Drawn	Date	Checked	Approved



Project: **KNOCKNAGAEI - TOMATIN OVERHEAD LINE WORKS**
Title: **DRAINAGE DETAILS**

Scale: **1:50** Drawn LP Checked DA Approved N/A
(when plotted @ A1) Date: 08/08/2017 Date: 08/08/2017 Date: N/A
CAD Ref: L:\Projects\30001127 - Knocknagael\09_CAD\03_BH\04_civil\Model Information (MFI)\Plot Drawings



Project number	Drawing number	Revision
30001127	IDV-2110	03

SSEN Drawing number
1692_OHL 275kV CMA1-CMA2_DWG_0804_1111-01

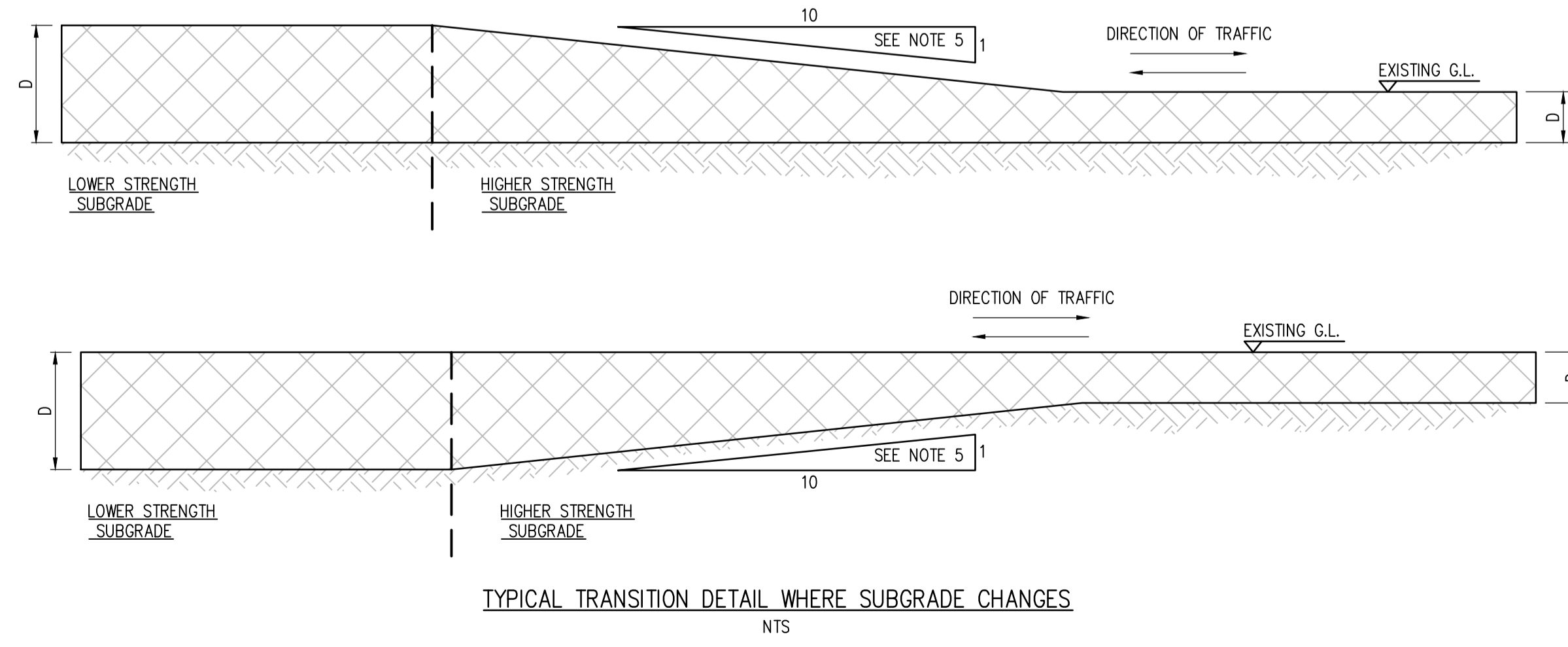
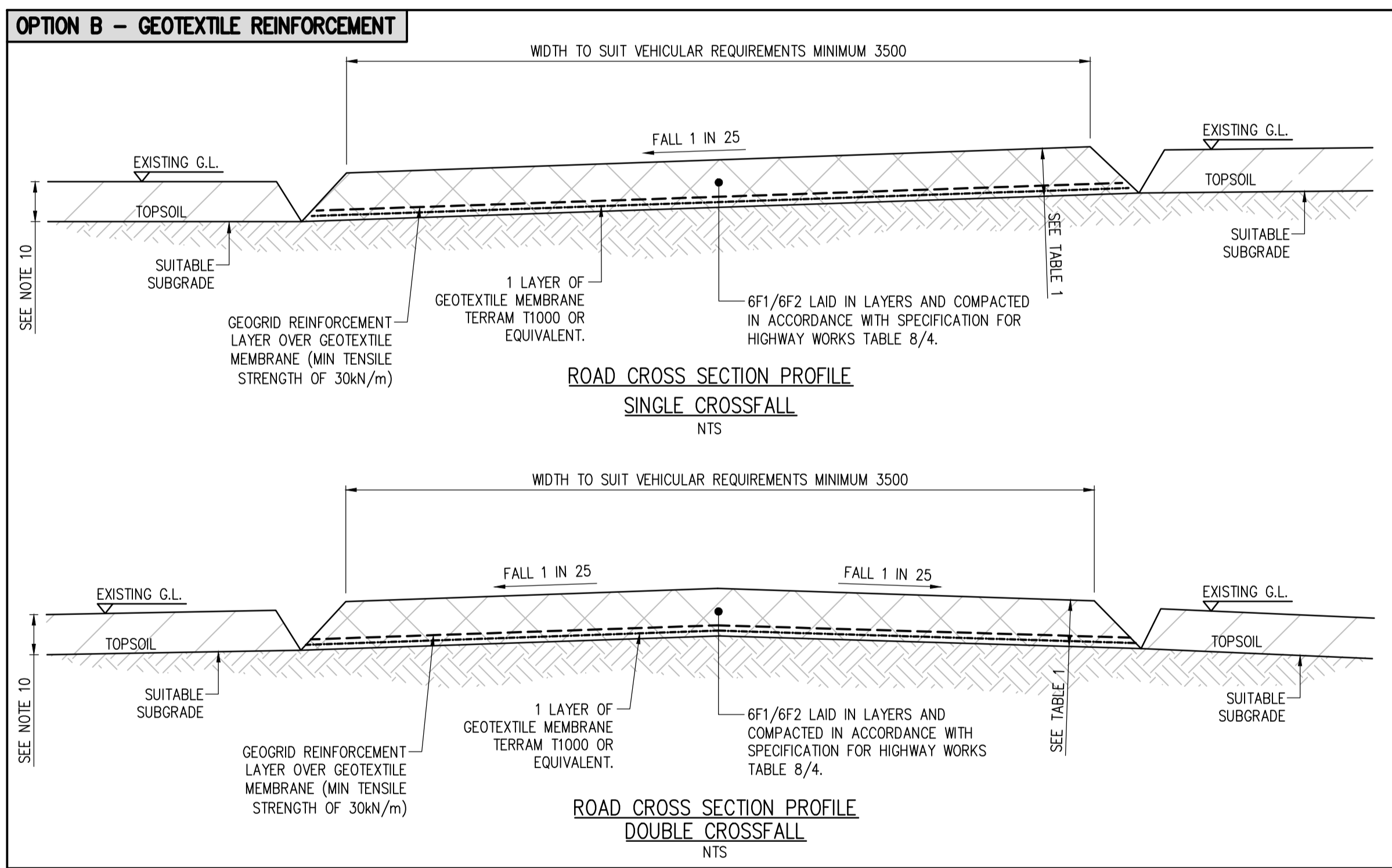
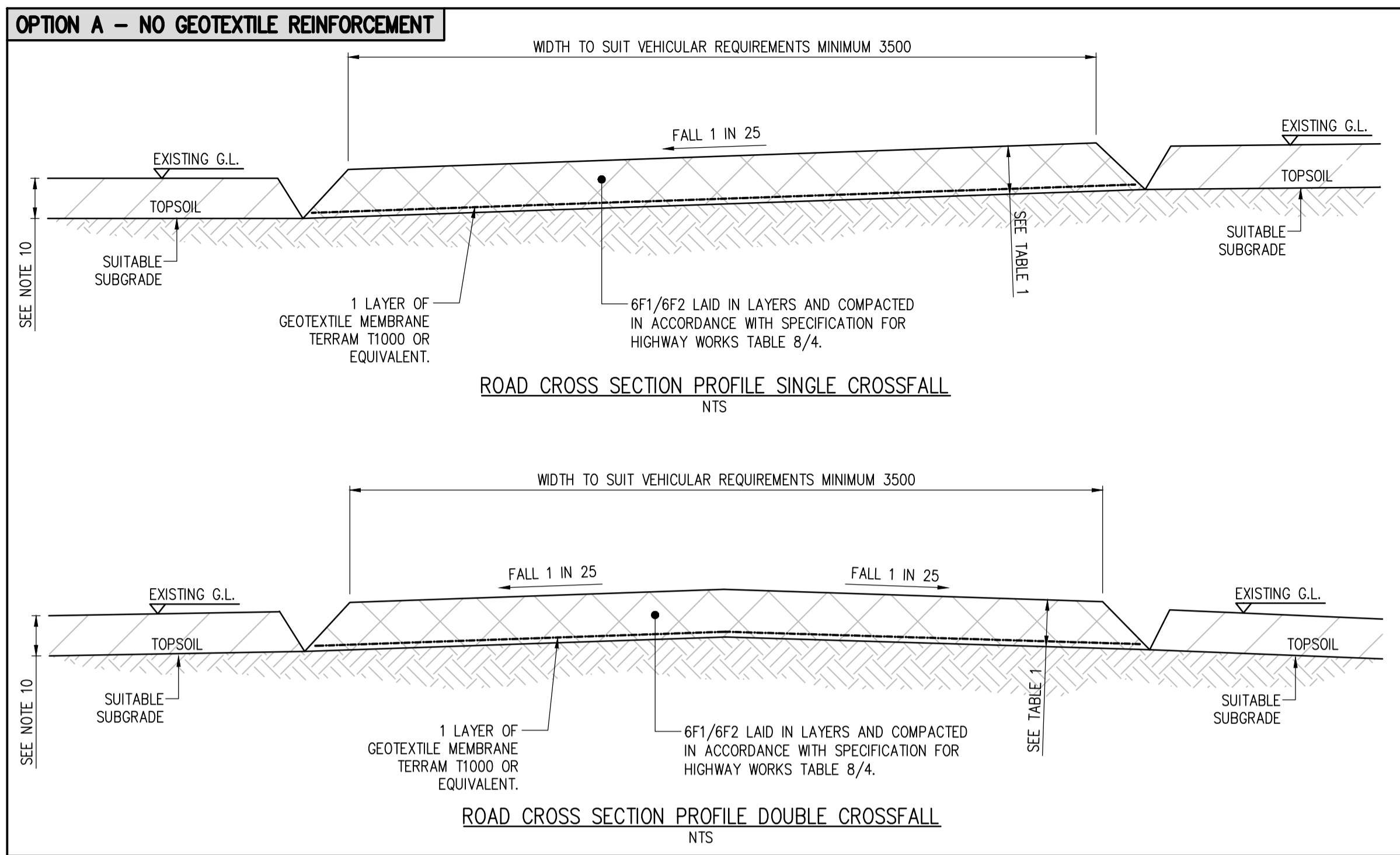


TABLE 8/4: (11/04) COMPACTION REQUIREMENTS FOR UNBOUND MIXTURES

TYPE OF COMPACTION PLANT	CATEGORY	NUMBER OF PASSES FOR LAYERS NOT EXCEEDING THE FOLLOWING COMPACTED THICKNESSES		
		110mm	150mm	225mm
SMOOTH WHEELER ROLLER (OR VIBRATORY ROLLER OPERATING WITHOUT VIBRATION)	MASS PER METRE WIDTH OF ROLL:			
	OVER 2700kg UP TO 5400kg OVER 5400kg	16 8	UNSUITABLE 16	UNSUITABLE UNSUITABLE
PNEUMATIC-TYRED ROLLER	MASS PER WHEEL			
	OVER 4000kg UP TO 6000kg OVER 6000kg UP TO 8000kg OVER 8000kg UP TO 12000kg OVER 12000kg	12 10 16 8	UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE	UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE
VIBRATORY ROLLER	MASS PER METRE WIDTH OF VIBRATING ROLL:			
	OVER 700kg UP TO 1300kg OVER 1300kg UP TO 1800kg OVER 1800kg UP TO 2300kg OVER 2300kg UP TO 2900kg OVER 2900kg UP TO 3600kg OVER 3600kg UP TO 4300kg OVER 4300kg UP TO 5000kg OVER 5000kg	16 6 4 3 3 2 2 2	UNSUITABLE 16 10 9 8 7 6 5	UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE UNSUITABLE
VIBRATING PLATE COMPACTOR	MASS PER SQUARE METRE OF BASEPLATE:			
	OVER 1400kg/m ² UP TO 1800kg/m ² OVER 1800kg/m ² UP TO 2100kg/m ² OVER 2100kg/m ²	8 5 3	UNSUITABLE 8 6	UNSUITABLE UNSUITABLE 10
VIBRO-TAMPER	MASS:			
	OVER 50kg UP TO 65kg OVER 65kg UP TO 75kg OVER 75kg	4 3 2	6 8 4	UNSUITABLE 10 8
POWER RAMMER	MASS:			
	100kg – 500kg OVER 500kg	5 5	8 8	UNSUITABLE 12

TABLE 1. HAUL ROAD THICKNESS

PURPOSE OF ROAD	GROUND STRENGTH	DESIGN OPTION A	DESIGN OPTION B
NEW BUILD TOWERS	CBR<1%	FLOATING ROAD (REFER TO DETAILS TYPE 2 AND 3 ON DRAWING, 1692_OHL_275kV_CMA1-CMA2_DWG_0804_1101-01)	
	1%-CBR<2%	760	510
	2%-CBR<3%	490	260
	3%-CBR<4%	380	160
	4%-CBR<5%	320	150
	5%-CBR<6%	275	150
	6%-CBR<7%	250	150
TENSION TOWERS REFURB	CBR<1%	FLOATING ROAD (REFER TO DETAILS TYPE 2 AND 3 ON DRAWING, 1692_OHL_275kV_CMA1-CMA2_DWG_0804_1101-01)	
	1%-CBR<2%	875	430
	2%-CBR<3%	440	210
	3%-CBR<4%	340	150
	4%-CBR<5%	280	150
	5%-CBR<6%	250	150
	6%-CBR	225	150
SUSPENSION TOWERS REFURB	CBR<1%	FLOATING ROAD (REFER TO DETAILS TYPE 2 AND 3 ON DRAWING, 1692_OHL_275kV_CMA1-CMA2_DWG_0804_1101-01)	
	1%-CBR<2%	445	220
	2%-CBR<3%	285	150
	3%-CBR<4%	225	150

TABLE 2. ESTIMATED VEHICLE MOVEMENTS

VEHICLE TYPE	GROSS WEIGHT KGS	NUMBER OF VEHICLE MOVEMENTS			
		NEW BUILD TOWERS	FITTINGS ONLY	REFURB TENSION TOWERS	REFURB SUSPENSION TOWERS
WELFARE VAN/PEOPLE CARRIER	3500	1600	50	800	40
LORRY 4X4	12000	10	0	0	0
LOW LOADER LORRY	60000	20	0	0	0
MOBILE CRANE	60000	10	0	0	0
MAN 18T 4X4 SIDE DROP CRANE	17500	224	20	100	40
DUMPER	3000	10	0	0	0
EXCAVATOR	30000	10	0	0	0
TRACKED PILING RIG	50000	10	0	0	0
WINCH TRACTOR	5430	20	10	100	40
TRAILERS	20000	196	0	0	0
WINCHES	15000	20	0	112	0
COMPRESSORS	1000	5	0	0	0
READY MIX CONCRETE LORRY	28000	120	0	0	0
TOW TRACTOR	20000	20	0	10	0
8X8 AVENGER 750 EFF ALL TERRAIN VEHICLE	570	224	0	0	0
40FT ARTICULATED LORRY AND TRAILER	44000	20	0	20	0
TRACKWAY LORRY AND TRAILER	25000	40	10	40	0
SUCTION TRUCK	7500	0	5	40	0
SKIP LORRY	18000	30	0	10	0

- GENERAL NOTES**
- ALL DIMENSIONS IN MILLIMETRES UNLESS STATED OTHERWISE AND MUST BE CHECKED ON SITE AND NOT BE SCALED FROM THIS DRAWING.
 - PEG OUT THE REQUIRED AREA AND CHECK FOR SERVICES BEFORE COMMENCEMENT OF WORK.
 - THICKNESS AND COMPACTION OF NEWLY INSTALLED ROAD TO BE CONFIRMED BY A COMPETENT PERSON PRIOR TO USE. CBR OF ROAD CONSTRUCTION TO BE MINIMUM OF 80
 - 10 MPH SPEED LIMIT TO BE MAINTAINED AT ALL TIMES.
 - WHEN TRANSITIONING BETWEEN DIFFERING STRENGTH SUBGRADES THE SLOPE SHOULD BE 1 IN 10 AND SHOULD BE BUILT ENTIRELY ON THE STRONGER SUBGRADE.
 - DESIGNS ARE BASED ON VEHICLE MOVEMENTS SHOWN IN TABLE 2. IF EXPECTED VEHICLE MOVEMENTS EXCEED THOSE STATED, CONTACT THE TEMPORARY WORKS DEPARTMENT.
- PAVEMENT CONSTRUCTION NOTES**
- THE FINISHED SURFACE SHOULD BE UNIFORM, WATER BOUND AND SEALED WITH FINES. THE MINIMUM COMPACTION THICKNESS IS FOUND IN TABLE 1.
 - 6F1/6F2 GRANULAR MATERIAL TO BE TRANSPORTED, LAID & COMPACTED IN ACCORDANCE WITH HASHW CLAUSE 802, TABLE 8. COMPACTION REQUIREMENTS FOR UNBOUND MIXTURES.
 - THE HAUL ROAD SIDES TO BE BATTERED TO 45° FROM THE EDGES OF THE SHOULDERS.
 - ROAD TO BE CONSTRUCTED ON SUBGRADE AS INDICATED TOPSOIL TO BE STRIPPED PRIOR TO INSTALLATION DEPTH OF THE SOIL WILL VARY AND THE REQUIRED STRIP DEPTH IS TO BE ASSESSED BY THE SITE ENGINEER.
 - THE THICKNESS OF THE ROAD SHALL SUIT THE STRENGTH OF THE LOCAL GROUND CONDITIONS. SHOULD THE THICKNESS NEED TO BE ADJUSTED TO ACCOMMODATE CHANGES IN STRENGTH, THEN THIS SHALL BE IN ACCORDANCE WITH THE TRANSITION DETAIL.
-PEAT OVER 1m THICK – FLOATING.
-PEAT LESS THAN 1m THICK – STANDARD DESIGN.
- ALIGNMENT NOTES**
- ROADS SHALL FIT INTO THE LANDSCAPE AND BE CONSTRUCTED TO A UNIFORM HORIZONTAL AND LONGITUDINAL PROFILE.
 - UNSTABLE GROUND AND ANY FEATURES THAT REQUIRE PRESERVATION SHALL BE AVOIDED WHEREVER POSSIBLE. TO ENCOURAGE DRAINAGE THE MINIMUM RECOMMENDED LONGITUDE GRADIENT IS TO BE MAINTAINED IN THE 3-7% (1 IN 19) – (1 IN 8) RANGE.
 - THE SITE ENGINEER IS TO SET OUT THE HAUL ROAD AREA BASED ON THE REQUIRED ROUTE. THE MINIMUM TOTAL WIDTH IS 3500. A SHOULDER EQUAL TO THE DEPTH OF THE PLATFORM SHOULD ALSO BE SET OUT SO THERE IS A SAFE OPERATING AREA.
 - THE SPECIFIED 3500 WIDTH IS BASED UPON A STRAIGHT SECTION FOR SINGLE TRAFFIC. TWO WAY TRAFFIC WOULD REQUIRE A WIDTH OF 6500. ADDITIONAL WIDTH REQUIREMENTS FOR BENDS AND PASSING PLACES ARE DETAILED SEPARATELY ON TONY GEE DRAWINGS.
- BRIDGE APPROACH NOTES**
- APPROACHES ARE TO HAVE A MINIMUM STRAIGHT OF 20M EITHER SIDE.
- FORMATION NOTES**
- ORGANIC SOIL AND ALL UNSUITABLE MATERIALS ARE TO BE TOTALLY STRIPPED EXCEPT WHERE FLOATING ROADS ARE PROPOSED.
 - THE FORMATION SHALL BE SHAPED TO THE CAMBER OR FALLS SPECIFIED, SITED ON UNDISTURBED GROUND, COMPACTED WHERE POSSIBLE, FREE OF RUTS AND STANDING WATER.
 - ALLOWANCE SHALL BE MADE FOR SETTLEMENT IN ACHIEVING THE FINISHED FORMATION LEVEL.
 - THE FORMATION SHALL BE FREE FROM DEBRIS & DELETERIOUS MATTER.
 - ENSURE THE FORMATION IS LEVEL & THERE ARE NO PROTRUSIONS.
 - THE FORMATION SHOULD BE TREATED AS A LAYER OF THE PLATFORM AND BE ROLLED AS PER TABLE 8 FOR A 150mm THICK LAYER, EXCEPTION IN VERY POOR OR SUBMERGED CONDITION.
 - DURING CONSTRUCTION EVERY EFFORT SHOULD BE MADE TO PROTECT THE SUB-GRADE BY CONSTRUCTING AND PROTECTING FOUNDATION LAYERS BEFORE RAIN CAN SOFTEN IT.
 - GROUND MATERIAL STRENGTH TO BE IDENTIFIED BY A COMPETENT PERSON.
- GEOTEXTILE NOTES**
- WHERE A ROAD HAD BEEN CONSTRUCTED USING GEOTEXTILE, UNLESS SPECIFIED OTHERWISE THERE WILL BE A MINIMUM COMPACTED THICKNESS OF 300mm OF CRUSHED STONE ABOVE ANY GRID. GEOTEXTILE REINFORCEMENT TO BE LAID TO MANUFACTURERS INSTRUCTIONS.
 - GEOTEXTILE TO HAVE A MINIMUM TENSILE STRENGTH OF 30kN/M.
 - GEOTEXTILE MEMBRANE TO BE TERRAM T1000 OR SIMILAR APPROVED.
- TESTING NOTES**
- CBR'S TO BE CARRIED OUT AT 250m CENTRES OR WHERE THERE IS A CHANGE OF GROUND CONDITIONS.

0 100
This drawing may have been reduced original scale 1:100mm

Reference Drawings Legend Notes

RESIDUAL RISKS

- THE SITE ENGINEER IS TO CONFIRM THE STRENGTH OF THE SUBGRADE FOLLOWING TOPSOIL STRIP & PRIOR TO INSTALLATION AND SELECT THE APPROPRIATE SOLUTION.
- LOCATION OF BURIED SERVICES SHOULD BE IDENTIFIED IN THE RELATION TO PROPOSED ROAD. IF SERVICES ARE IN CLOSE PROXIMITY TO OR WILL BE BENEATH THE ROAD, CONSULT WITH THE TEMPORARY WORKS DEPARTMENT FOR FURTHER ADVICE.
- IF GROUNDWATER IS PRESENT OR SUSPECTED AT A DEPTH LESS THAN 5m BELOW GROUND LEVEL, CONSULT WITH TEMPORARY WORKS DEPARTMENT AND/OR PROJECT ENVIRONMENTAL CONSULTANT FOR WATER MANAGEMENT DURING CONSTRUCTION. REFER ALSO TO MSVE-L119-CEMP-001 "SECTION 3.8 HYDROLOGY AND HYDROGEOLOGY"
- PLANT MOVEMENTS SHOULD NOT ENCRUCH ON THE HAUL ROAD SHOULDER AT ANY TIME.
- UNDERTAKE WEEKLY INSPECTION ON THE HAUL ROAD TO ENSURE ITS INTEGRITY IS MAINTAINED AND CARRY OUT REMEDIAL WORK AS NECESSARY.

FOR CONSTRUCTION

NOTE C AMENDED AND TABLE 1 UPDATED FOR CLARIFICATION RE FLOATING ROAD, IN LINE WITH COMMENTS RECEIVED FROM SSE.

Revision	Description	Drawn LP	Date	Checked DA	Approved GJ
03	MINOR AMENDMENTS AS HIGHLIGHTED IN LINE WITH SSE COMMENTS.	DA	13/10/2017	NS	GJ
02	CONSTRUCTION ISSUE	DA	25/10/2017	NS	GJ
01	FIRST ISSUE	DA	16/08/2017	NS	GJ

Scottish & Southern Electricity Networks

Project: **KNOCKNAGAE - TOMATIN OVERHEAD LINE WORKS**

Title: **HAUL ROAD SECTION DETAILS SHEET 1**

Scale: NTS Drawn LP Checked DA Approved GJ
(when plotted @ A1) Date 24/05/2017 Date 24/05/2017 Date 24/05/2017

CAD Ref: L:\Projects\30001127 - Knocknagael\09_CAD\03_BH\04_civil\Model Information (WP)

MORGAN SINDALL
MSVE TRANSMISSION
VINCI

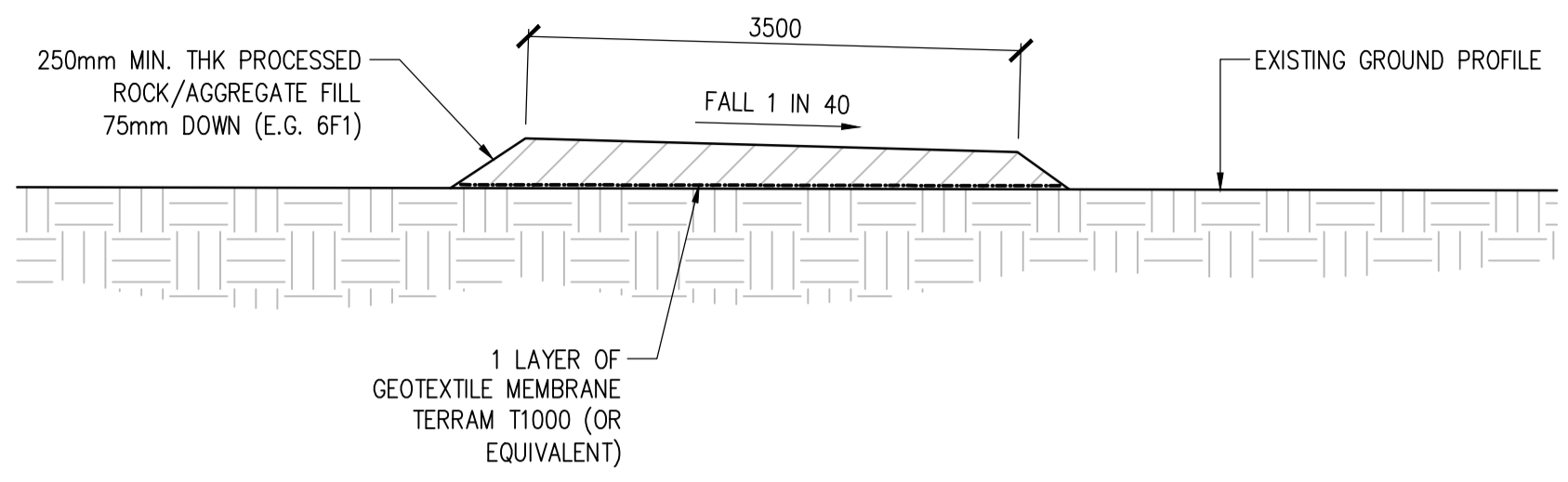
MSVE Transmission Corporation Street Rugby Warwickshire CV21 2DW Tel: 01789 204 288

Project number: 30001127 Drawing number: IDV-2100 Revision: 03

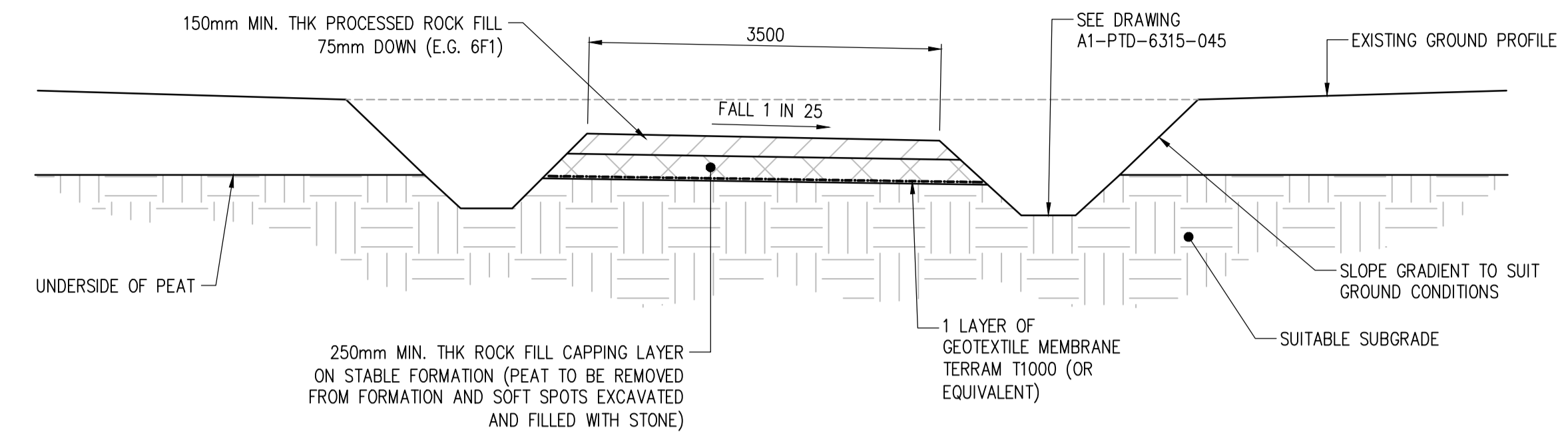
SSEN Drawing number: 1692_OHL_275kV_CMA1-CMA2_DWG_0804_1101-01

NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. DO NOT SCALE.
2. THE ROAD CONSTRUCTION LAYERS, GEOGRID & GEOTEXTILES ARE SHOWN BASED ON RECOGNIZED CONSTRUCTION PRACTICE PROVEN ON MOST MOORLAND AND PEAT LANDSCAPES. THE DETAILS ARE TYPICAL & NOT BASED ON SPECIFIC SITE GROUND CONDITIONS AS THERE IS NO APPLICABLE DESIGN CRITERIA FOR DETERMINATION OF ROAD THICKNESS IN THESE CONDITIONS. AS SUCH THE ROAD WILL NEED TO BE CONTINUALLY MONITORED FOR INTEGRITY OF CONSTRUCTION AND REPAIRED WHERE NECESSARY.
3. IF ANY DOUBT ARISES OVER ROAD CONSTRUCTION OR CONTINUED INTEGRITY OF THE ROAD CONSTRUCTION CONSULT THE TEMPORARY WORKS ENGINEERING DEPARTMENT.
4. DETAILS WHERE ROAD IS SUPPORTED ON NON-PEAT FORMATION CONSIDER THE FORMATION TO HAVE A CBR NOT LESS THAN 5%. IF THIS CRITERIA IS NOT MET CONSULT THE TEMPORARY WORKS ENGINEERING DEPARTMENT.
5. ONCE INSTALLED & PRIOR TO USE, THE GRANULAR HAUL ROAD SHOULD BE TESTED FOR COMPACTION BY A COMPETENT PERSON. THE ROAD SHOULD ACHIEVE A CBR DENSITY OF 80%.
6. WHERE FILL IS USED TO CREATE AN EMBANKMENT THE FILL MATERIAL SHALL BE FREE DRAINING AND NON-COHESIVE.
7. FILL SHALL BE PLACED IN LAYERS IN ACCORDANCE WITH TABLE 8/4 OF THE SPECIFICATION FOR HIGHWAY WORKS TO PROVIDE A STABLE EMBANKMENT.
8. BATTERS SHALL BE CUT TO A STABLE AND UNIFORM ANGLE OF REPOSE AND FREE FROM OVERHANGS AND LOOSE ROCK.
9. ON STEEP SIDED SLOPES, CROSS FALL SHOULD SLOPE INWARDS.



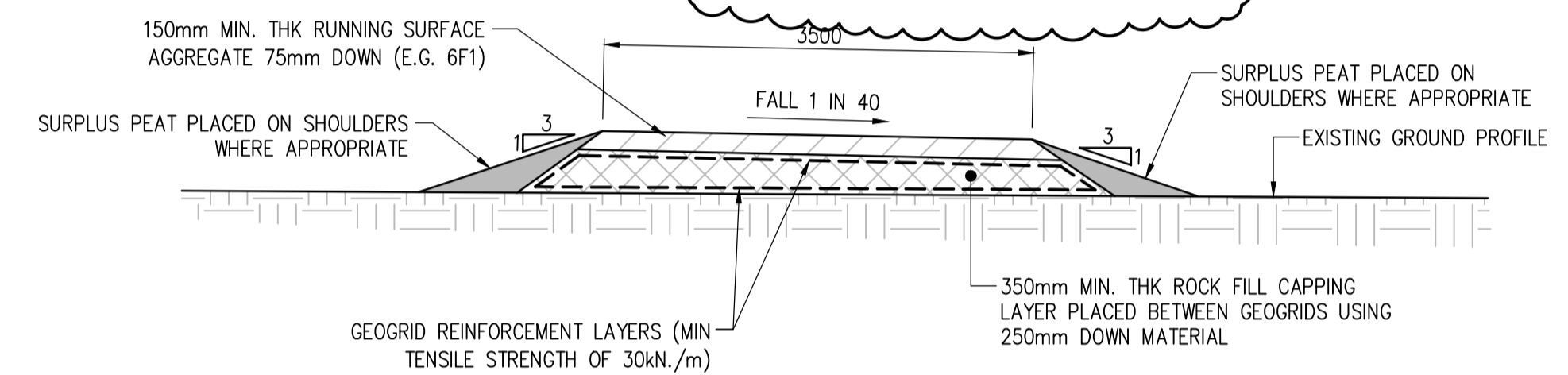
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NTS



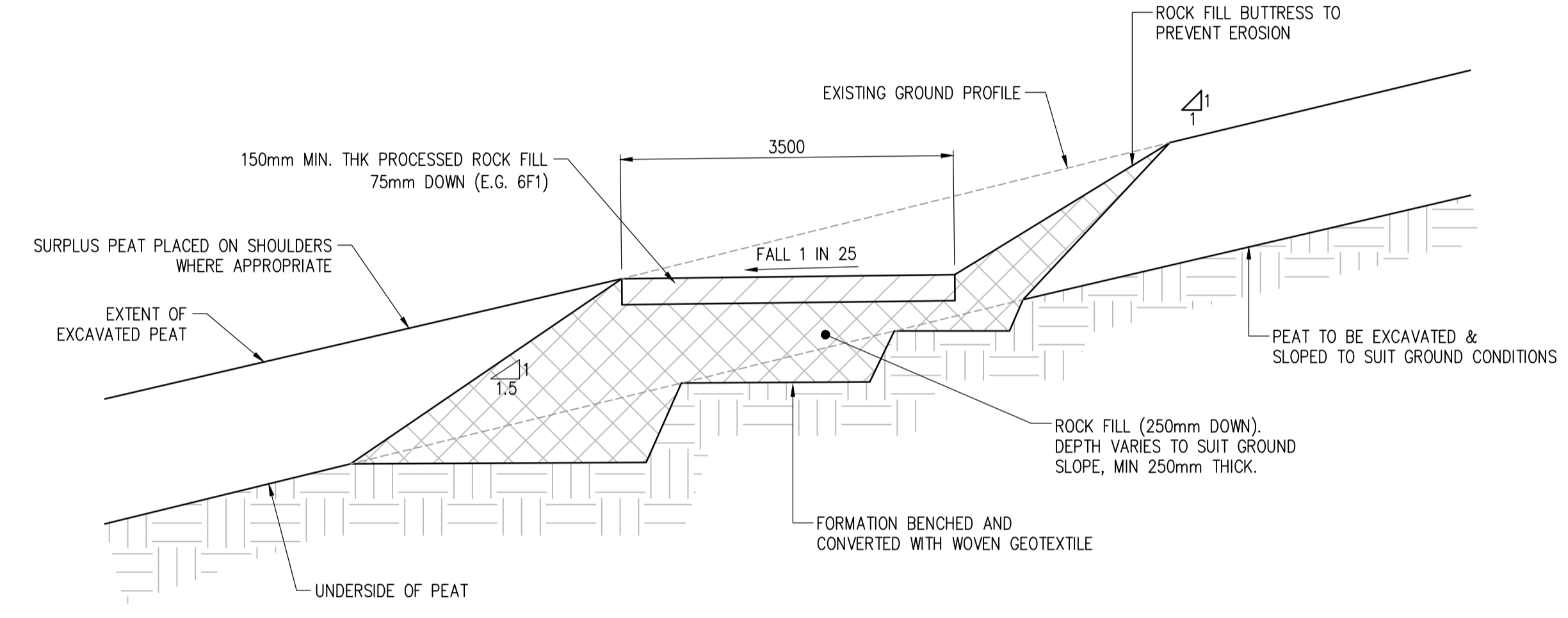
TYPE 5: TYPICAL SECTION FOR ROAD CONSTRUCTED ON SUBGRADE BELOW PEAT
NTS

NOTE:
ONE LAYER OF GEOGRID CAN BE OMITTED IF INSITU LOAD BEARING TESTS ARE CARRIED OUT WHICH SHOULD ACHIEVE EQUIVALENT OF 15T AXLE LOAD ON FINAL SURFACE. CONTRACTOR TO VALIDATE.

04



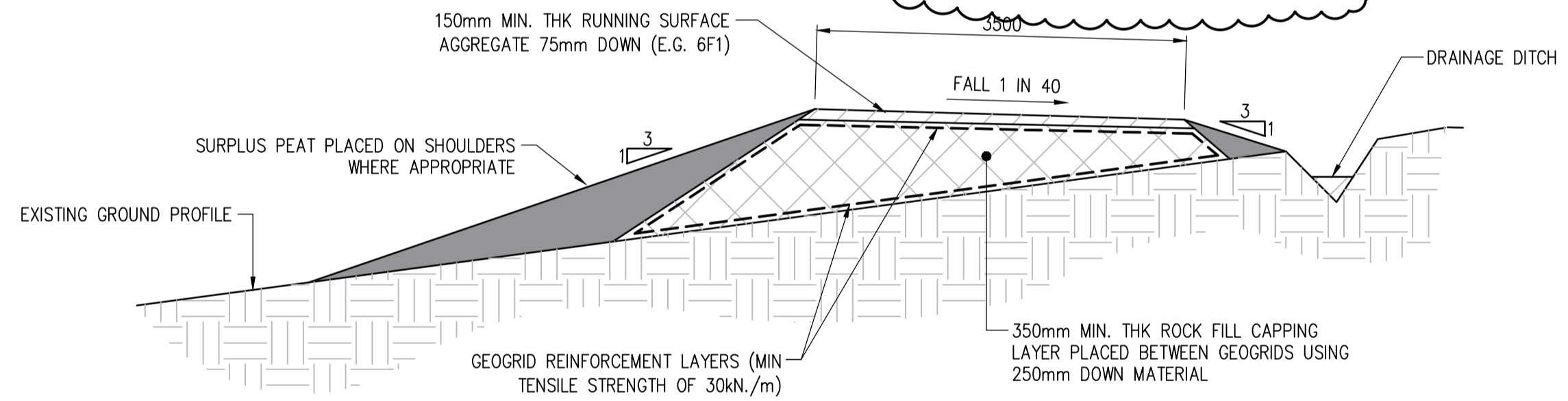
TYPE 2: TYPICAL SECTION THROUGH FLOATING ROAD OVER PEAT
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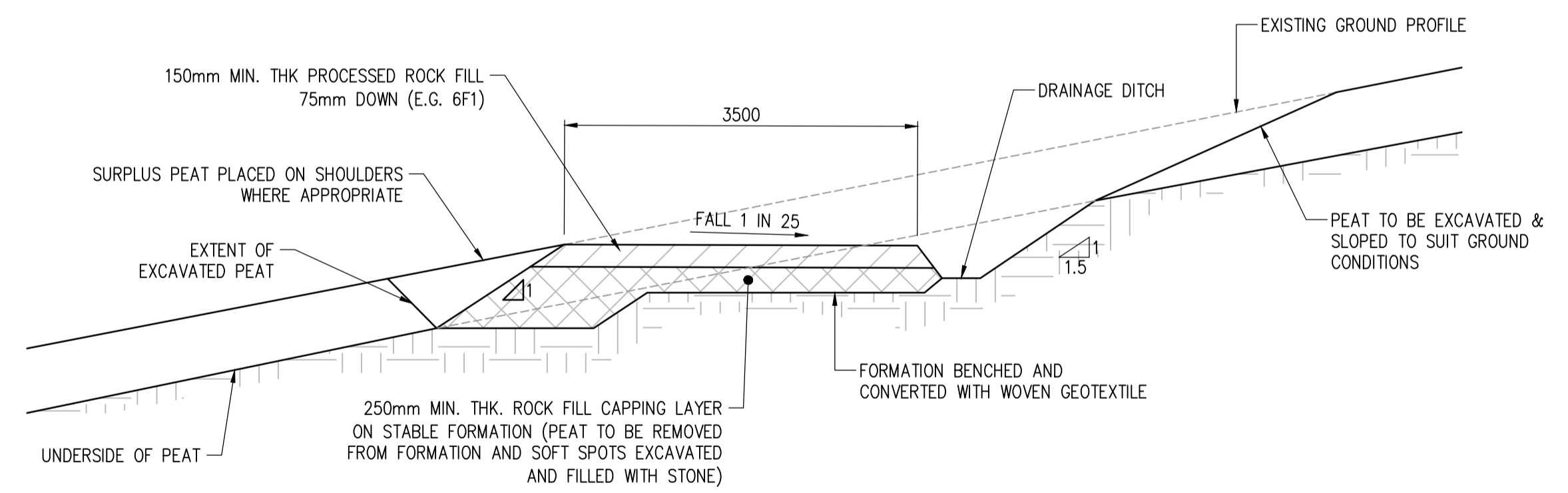
TYPE 6: TYPICAL SECTION FOR ROAD ON SIDE SLOPE WITH DEEP / UNSTABLE PEAT
NTS

NOTE:
ONE LAYER OF GEOGRID CAN BE OMITTED IF INSITU LOAD BEARING TESTS ARE CARRIED OUT WHICH SHOULD ACHIEVE EQUIVALENT OF 15T AXLE LOAD ON FINAL SURFACE. CONTRACTOR TO VALIDATE.

04



TYPE 3: TYPICAL SECTION THROUGH FLOATING ROAD OVER PEAT
NTS



TYPE 7: TYPICAL SECTION FOR ROAD ON SIDE SLOPE WITH SHALLOW / STABLE PEAT
NTS

FOR CONSTRUCTION

04	TITLES UPDATED FOR CLARIFICATION PURPOSES.	DA	08/12/2017	NS	GJ
03	TITLES UPDATED FOR CLARIFICATION PURPOSES.	DA	31/10/2017	NS	GJ
02	MINOR AMENDMENT AS HIGHLIGHTED.	DA	25/10/2017	NS	GJ
01	CONSTRUCTION ISSUE	DA	16/09/2017	NS	GJ
P01	FIRST ISSUE	LP	07/08/2017	DA	GJ
Revision	Description	Drawn LP	Date	Checked DA	Approved GJ



Project: **KNOCKNAGAE - TOMATIN OVERHEAD LINE WORKS**
Title: **HAUL ROAD SECTION DETAILS SHEET 2**

Scale	AS SHOWN	Drawn LP	Checked DA	Approved GJ
(when plotted @ A1)	Date 24/05/2017	Date 24/05/2017	Date 24/05/2017	Date 24/05/2017

CAD Ref L:\Projects\30001127 - Knocknagael\09_CAD\03_BH\04_civil\Model Information (WIP)



Project number	30001127	Drawing number	IDV-2101	Revision	04
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SSEN Drawing number
1692_OHL 275kV CMA1-CMA2_DWG_0804_1102-01