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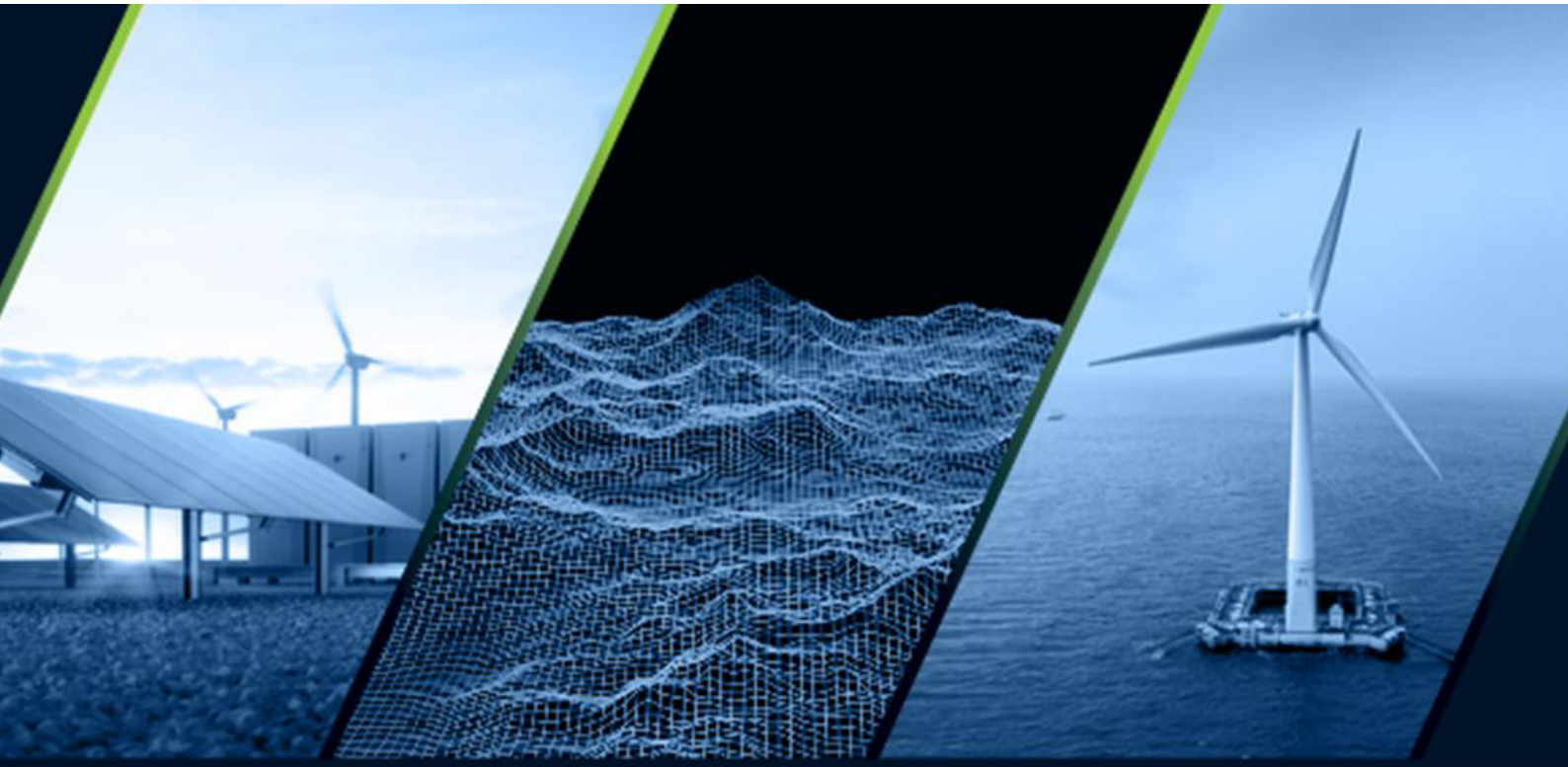

Millennium East Wind Farm
Technical Appendix 8.6 - Borrow Pit Assessment

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A	2025-05-20	A. Smyth	S. Pearce	A. Mills	First Issue
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Acronyms

Acronym	Full Term
AOD	Above Ordnance Datum
BGS	British Geological Survey
BP	Borrow Pit
DTM	Digital Terrain Model
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GSI	Geological Strength Index
OS	Ordnance Survey
PLHRA	Peat Landslide Hazard and Risk Assessment

1 Introduction

This report presents the findings of an initial desk study borrow pit assessment for the Millennium East Wind Farm ('the Proposed Development'), which was carried out by an Engineering Geologist with over 10 years' experience. It forms an appendix (Appendix 8.6) to Chapter 8: Hydrology, Hydrogeology and Geology and Peat of the Environmental Impact Assessment Report (EIAR) and should be read with reference to this chapter and associated figures. This appendix is supported by a set of four supporting figures (8.6.1 to 8.6.4).

The Proposed Development is proposed to consist of 8 wind turbines and associated infrastructure, including hardstandings and access tracks. The Site covers an area of approximately 19.12 km^2 located approximately 7 km due west of Fort Augustus and circa 7.5 km due north of Invergarry, south of Glen Moriston in the Scottish Highlands. The site sits close to the Inchnacardoch Forest. The Site is wholly within the Highland Council administrative area.

To minimise the volume of material imported to the Site and environmental impacts associated with increased traffic, it is anticipated that stone would be sourced from an on-Site borrow pit. It may be necessary to import some stone to the Site, dependent on post-consent verification and refinement of the findings of this initial assessment. To allow for this, a worst case scenario assumes that 50% may need to be imported to the Site for the purpose of traffic movement and related assessments.

Aggregate would be required for the construction of access tracks, crane pads, and compounds. Some material is expected to be gained from new cut and fill construction, but this is not expected to generate sufficient aggregate for all on-Site requirements. There is therefore a need for additional excavation of aggregate material.

Initially, two borrow pit locations were considered as potential sources of excavated material within the Site. These are listed in Table 1-1 and shown in Plate 1-1.

Table 1-1: Borrow Pit location summary

Borrow Pit ID	Name	Location (BP centre)		Current status	Extension of existing/ historical pit?
		Easting [m]	Northing [m]		
BP01 (preferred)	*Central Borrow Pit*	228175	808765	Not currently active	Yes
BP02 (backup)	*Northern Borrow Pit*	226462	810458	Not currently active	Yes

Of these two locations, one existing borrow pit has been identified as the optimum source of aggregate on Site (identified as BP01). This existing borrow pit is to be the site of the Main Construction Compound and the electrical substation. BP01 would therefore not require full reinstatement. The worked pit must also be at least as large as the footprints of the substation and Main Construction Compound in order to accommodate them.

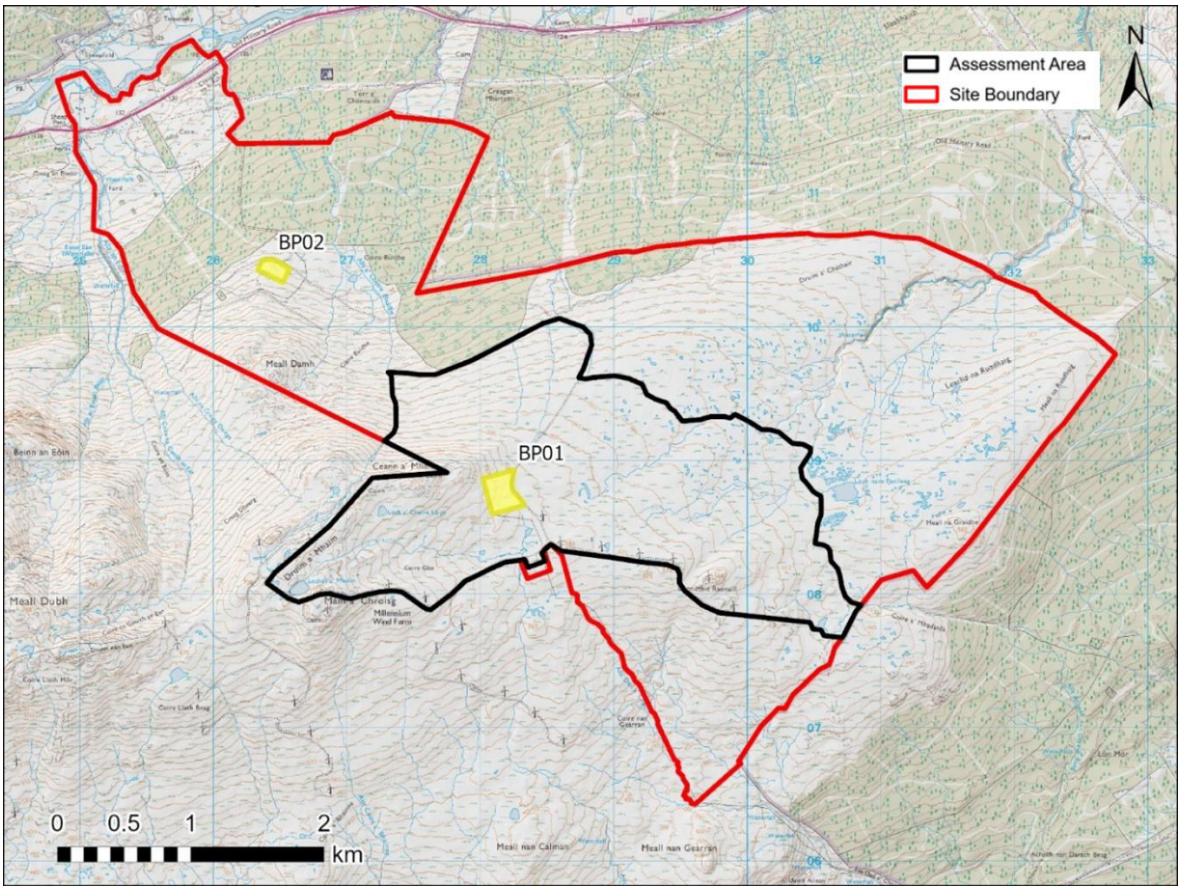

Plate 1-1: Map showing potential borrow pits

2 Objectives

The primary aim is to investigate the suitability of BP01 to support wind farm construction within the Proposed Development Site. Also identified is an alternate area (BP02) as a possible backup.

Three borrow pit options are considered:

i) Expand existing/historical workings;

ii) Open a new borrow pit; or

iii) A combination of the above.

The scope of work involves the investigation and identification of a suitable borrow pit search area sufficient in size and suitable in expected quality to maximise the use of Site-won materials for the purpose of constructing the Proposed Development.

Dependent on the degree of uncertainty in ground conditions following a pre-construction ground investigation, the number / cumulative area of the search areas may exceed what is needed to satisfy the aggregate volumes required. The intention is to ensure that a sufficient number of borrow pits are consented to support construction, albeit these may not all be used.

All borrow pit information provided within this report is indicative only. It is based solely on available desk study information. No reconnaissance visits to the Site have taken place, and no intrusive investigation has been carried out for the purpose of assessing borrow pit suitability, so the suitability of rock, suggested extraction methods, and volumes are initial estimates and should not be unconditionally relied upon. Further intrusive investigation to determine the rock characteristics is expected to be carried out post consent to verify rock suitability for the intended use.

Site-wide peat probing has been carried out (see Appendix 8.2: Peat Survey Report of the EIAR), including detailed probing within borrow pit search areas. The probing results have been incorporated as part of this assessment to understand potential overburden depths in the search areas.

3 Method

The desk study was carried out by an Engineering Geologist with 10 years' experience. Site visits have been carried out by others for various purposes as part of the EIA, and some of these included outcrop observations and photograph collection. The desk study made use of a range of information sources, which were reviewed and interpreted as part of the assessment to provide a target search area for on-Site observations. The following key sources were reviewed:

- British Geological Survey (BGS) 1:50,000 scale web mapping service [1];
- BGS GeoIndex online database and viewer [2];
- BGS 1:50,000 scale published map sheets (Solid and Drift sheets for Invermoriston, sheet 73W) [3];
- BGS Geology of the Invermoriston district. Memoir for 1:50 000 Geological Sheet 73W (Scotland) [4];
- BGS rock lexicon [5];
- Geograph online photograph database [6]; and
- Ordnance Survey (OS) mapping and 5 m Digital Terrain Model (DTM) data.

The desk study used these data sources to identify the likely ground conditions within the Site, including at existing borrow pits, and for considering possible new borrow pit locations.

The study area for the assessment was considered to be the area enclosed by the Site redline boundary.

Table 3-1 summarises the aggregate requirements for the Proposed Development.

Table 3-1: Conservative aggregate requirements

Proposed Development Requirements	Volume [m^3]
Access Tracks	44,149
Turbine Hardstand	
Construction Compounds	
Substation Compound	
Concrete Aggregate	
Contingency (20%)	8,830
Total including contingency	**52,979**

4 Desk Study

4.1 Topography

The site rises from the A887 road to the north of the Site Boundary via forestry and sloping hills towards a series of rolling NE-SW aligned summit ridges, including Meall Damh (520 m AOD) and Ceann a Mhaim (670 m AOD).

The part of the Site above c. 450 m AOD, where the majority of the planned infrastructure would be located, comprises gentle (<5°) to moderate (>5° and <10°) slopes, though these steepen rapidly to above 15° some areas. Areas of very gentle terrain (< 3°) suitable for floating track construction are present in the centre of the Site. The steepest area is close to Ceann a Mhaim in the west of the Site (>15°).

Bedrock exposed at the ground surface is common and a good proportion of the Site has thin to no till or peat cover overlying the bedrock. The peat thickness at BP01 is less than 0.3 m.

4.2 Geology

This section summarises the geology based on desk study information, with particular focus on aspects of the geology of relevance for the borrow pit assessment, such as bedrock type and distribution, and extent of superficial cover. Intrusive investigation has not yet been undertaken on Site other than peat probing (see Appendix 8.2), the results of which have been considered when assessing potential borrow pit suitability.

4.2.1 Superficial deposits

Published geological maps [1] [3] indicate the presence of Holocene and Pleistocene superficial deposits across most of the eastern extent of the Site. The BGS superficial geology map shows that peat is the dominant superficial cover. This is underlain by till (diamicton), as indicated by the BGS boreholes in the northwest of the Site (between ~2.5 to 6 m thick). The till comprises a mixed grain size sand and gravel glacial deposit. Only a small area of till at surface is shown in the relevant part of the BGS map.

Peat probing across the site correlates well with BGS mapping (see Appendix 8.2). Much of the west of the Site has little to no surficial cover and bedrock is close to surface.

Thick superficial deposits should be avoided when identifying suitable borrow pit locations to minimise the amount of additional spoil excavation and storage that would be required prior to working a new pit. Given the extent of thin or no superficial cover across the Site, it should be possible to avoid having to remove large quantities of this cover. Table 4-1 summarises the anticipated superficial deposits at and in the vicinity of the Site.

Table 4-1: Summary descriptions of anticipated superficial deposits

Superficial deposit	Distribution	Summary geological description
Peat	Shown by the BGS superficial (drift) map and peat probing to be widespread across the site	Organic accumulations rich in plant remains
Glacial till	Mapped by the BGS only in a small section of the site. Encountered below peat in boreholes ~3 km from site.	Diamicton (unsorted sediment with sand and gravel in a fine mud/clay matrix) formed by glacial action (ice flows). Some gneiss cobbles also present in the till.

Previous (existing) Borrow Pit excavations have been in the west of the Site, given the minimal overburden in this area.

4.2.2 Peat extent and stability

Peat probes carried out in the vicinity of the proposed borrow pits are summarised in Table 4-2 below:

Table 4-2: Summary of peat probe observations

Borrow Pit ID	Peat probe observations
BP01 (preferred)	Typically 0 – 0.05 m thick, with local deposits c. 0.25m around periphery. One location c. 0.8 m at western edge of proposed expanded area.
BP02 (backup)	No peat or soil was recorded at this location, being in an area of crags adjacent to an existing track.

A Peat Landslide Hazard and Risk Assessment (PLHRA, Appendix 8.4 of EIAR) which has been undertaken of the Proposed Development has not identified any potential source zones at the borrow pit locations, and therefore there should be no stability concerns at either option, provided good practice construction measures are undertaken in line with recommendations in the Appendix 8.4 report.

4.2.3 Bedrock formations

The 1:50,000 BGS Bedrock Geology Map [1] and BGS Solid Geology Map Sheet 73W [7] indicate that the solid geology underlying the Site comprises psammite with micaceous layers and calc-silicate pods of the Tarvie (also called the Upper Garry) Psammite Formation. This formation is part of the Lough Eli Group.

Four minor unnamed igneous bodies (microdiorite dyke, granodiorite, diorite and leucogranite) are indicated across the site. Additional igneous activity is mapped outside the site boundary, primarily belonging to the Glen Gary Vein Complex.

The Lough Eli Group is Precambrian in age (1,000 to 541 Ma) [5] [8] which is particularly old. These rocks are fine to medium grained metamorphics that were originally sedimentary and are part of the 'Amphibolite facies metamorphic zone' of the Northern Highlands.

North of the Great Glen Fault the Moine rocks were deposited during Late Precambrian times as clastic sediments, resting unconformably on older gneiss (Lewisian), which is not exposed in the area. The Tarvie Psammite is sedimentary rock deposited in a marine environment and subsequently metamorphosed, which transformed sandstone to psammite, and siltstone and shales into semi-pelites. Calcareous concretions are represented by calc-silicate rocks. The primary minerology is quartz + feldspar + mica (mica <20%). It also contains kyanite, muscovite, biotite and quartz/quartzite. Garnet is also abundant. The metamorphic overprint on the Tarvie Psammite Formation is likely to have created foliation where there are abundant platy minerals. Despite some original sedimentary cross bedding observations, the mineralogy consists of fine to medium recrystallised grains.

Table 4-3 provides summary descriptions for the anticipated bedrock units.

Table 4-3: Summary geological descriptions of anticipated bedrock formations on Site

Bedrock Units	BGS lexicon [5] description	BGS map sheet description [7]
Tarvie Psammite Formation	Predominantly psammite, thin-bedded, siliceous to micaceous. Local, thin semipelite beds are muscovite-rich and locally migmatitic.	Beds of psammite intercalated with thinner layers of micaceous psammite. Calc silicate pods abundant throughout. Very distinctive fine grain laminated semi-pelite forms units up to 100 m thick.

Definitions:

Semipelite - A type of metasedimentary rock composed largely of quartz, feldspar and mica. In the Rock Classification Scheme, it is one with mica component 20 - 40%, and quartz + feldspar 60 - 80% of quartz + feldspar + mica. The mica component includes all minerals other than quartz and feldspar, with the exception of calcsilicate and carbonate minerals [9]

Psammite - A type of metasedimentary rock composed largely of quartz, feldspar and mica. In the Rock Classification Scheme, it is one with mica component <20%, and quartz + feldspar 80 - 100% of quartz + feldspar + mica. The mica component includes all minerals other than quartz and feldspar, with the exception of calcsilicate and carbonate minerals [10].

4.2.4 Bedrock sampling and quarrying records

An existing excavation pit is present within the Site. This is apparent on aerial imagery and confirms that the Tarvie Psammite Formation rocks have been extracted, presumably as aggregate for track / general construction use. There is an additional excavation Site to the north of the wind farm along the entry access track. Photographs from Site indicate that the bedrock should be of sufficient quality for aggregate use.

Based on this information, at least some of the bedrock at the Site is likely to be suitable, but there is likely to be local variability between less weathered, weakly foliated rock (relatively suitable) and more weathered and strongly foliated rock (less suitable). This local variability will be difficult to fully predict prior to intrusive ground investigations and may mean that the percentage of useable material extracted from on-Site borrow pits is relatively low.

4.2.5 Bedrock structure

The Site area is part of the Scottish Highland belt, bound by the Great Glen Fault and Loch Ness to the south. The Great Glen Fault is a major fracture which operated during the later stage of the Caledonian orogeny and has been subsequently re-activated during the Devonian and later periods. BGS maps indicate that the regional geological structure is predominantly aligned southwest-northeast with the same structural trend as Loch Ness and the Great Glen Fault itself, with inclined (subvertical) strata younging towards the east.

Faults are present to the north and southwest of the Site, mainly oriented south-west to northeast although some faults have a north-south alignment.

Given the strong grain of the regional geological structure and strong foliation in some beds, it may be preferable to work borrow pits along-strike, once a good source of material is identified. This would minimise the likelihood of working up or down the stratigraphic sequence, thereby avoiding sudden changes in aggregate properties. The viability of this approach would depend on the exact geometry of the individual borrow pit, as well as rock properties, and other practical limitations, but should be considered during borrow pit design work.

4.2.6 Preferred borrow pit BP01

The location of BP01 is shown in Plate 1-1. The selection of this borrow pit has been based primarily on its previous use as a borrow pit. It is adjacent to the existing wind farm track, bedrock is close to surface and peat deposits are thin or absent at this location, so a minimal amount of excavation is required to access the resource with minimal impact on peat deposits.

The borrow pit would later become the site of the wind farm electrical substation and Main Construction Compound and therefore the pit would not require reinstatement after working.

The finished footprint of the worked pit must be at least as large as the footprints of the substation and Main Construction Compound in order to accommodate them. Some aggregate material would likely need to be extracted for the construction of the substation and Main Construction Compound anyway. Given that this pit must be reopened, extension of the pit to provide aggregate for the wider development is a logical basis for this being the primary source of aggregate.

The exact extent of previous working is somewhat unclear, but BP01 has the potential to be extended to the north, west, and south, where bedrock is expected at or close to surface. Some peat has been identified in the northern part of the BP01 search area, so the preference is to extend the existing pit in such a way that this area is avoided if possible.

No site-specific rock samples have been acquired in support of this borrow pit assessment., The BP01 excavation pit was used for the construction of the currently operational Millenium Field. It is therefore anticipated that the aggregate is of suitable quality for the construction of the East Millenium wind farm. Further testing (post consent) is required to confirm this, as well as confirm the thickness of the psammite beds versus any more foliated and fissile semi-pelite beds in the Tarvie Psammite Formation at this location.

4.2.7 Additional borrow pit BP02

In addition to BP01, an additional search area referred to as BP02 was considered as a potential source of aggregate. Its location is also shown in Plate 1-1.

Observations from Google Earth and other satellite maps indicate that there is an existing excavation pit/quarry on the wind farm access road to the northwest of the assessment area. However, it is some distance from the planned turbines, and slightly less convenient than BP01 as a result. Photographs from this search area suggest good potential as an aggregate source, but BP01 is preferred due to its more central location.

It has also been demonstrated that BP01 is likely to yield sufficient aggregate that there would not be a need to open a second borrow pit at BP02 (see Section 5). However the BP02 search area should be retained as a backup option in case BP01 proves insufficient or the aggregate quality is found to be lower than expected.

4.3 Site Photographs

Photographs included in this report (Plate 4-1 and Plate 4-2) were taken by Fluid Environmental Consulting during a site visit for another aspect of the EIAR, but provide useful information to support this initial borrow pit assessment.

All photographs are assumed to be the Tarvie Psammite Formation based on BGS maps. As expected, some outcrops are shown to exhibit strong foliation, which is not ideal for aggregate, but there is also evidence of more thickly bedded rock, likely to be the more suitable psammite.

Table 4-4: Summary of photographic sets

Photograph Set	Location Description	Bedrock Unit (based on BGS maps)
1	BP01 existing borrow pit	Tarvie Psammite Formation
2	BP02 existing borrow pit	Tarvie Psammite Formation

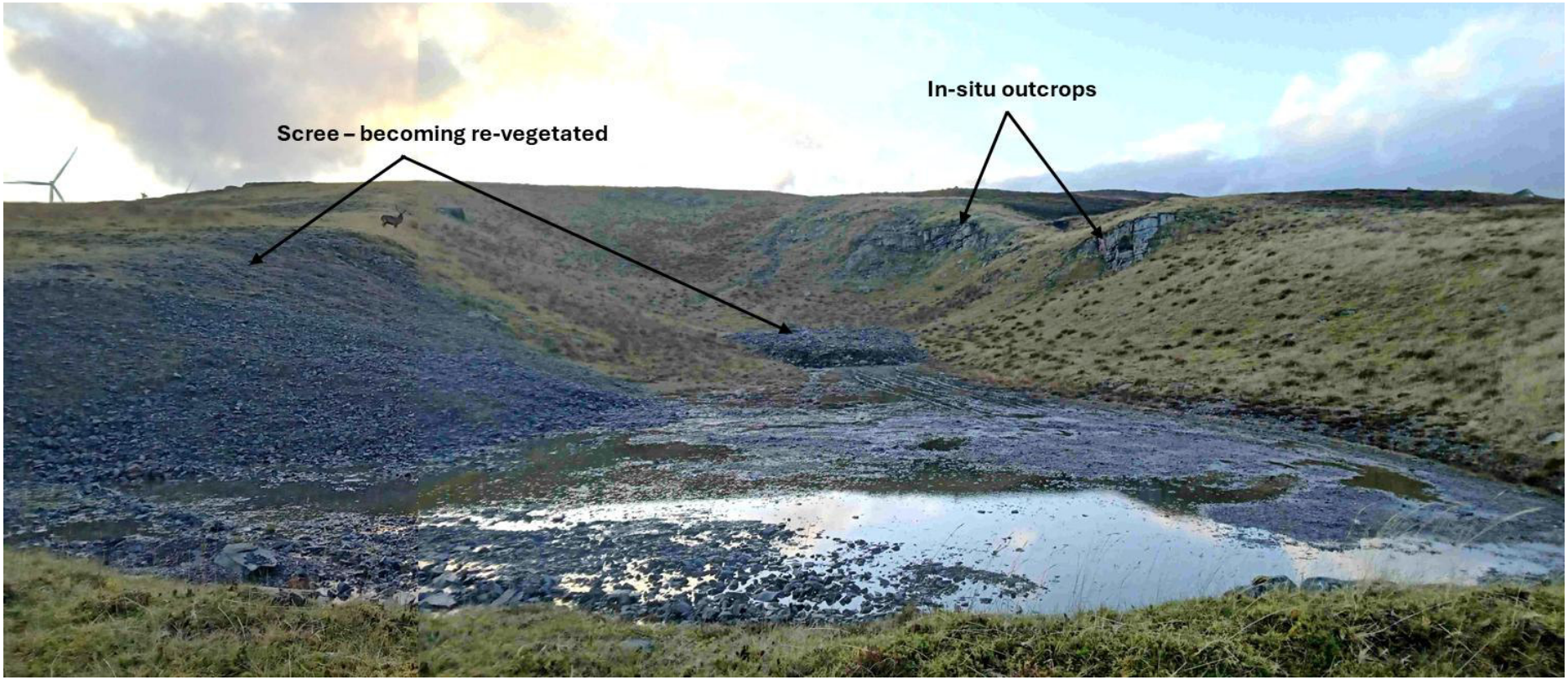

Plate 4-1: Photograph Set 1, BP01, existing borrow pit proposed for extension. View towards the west.

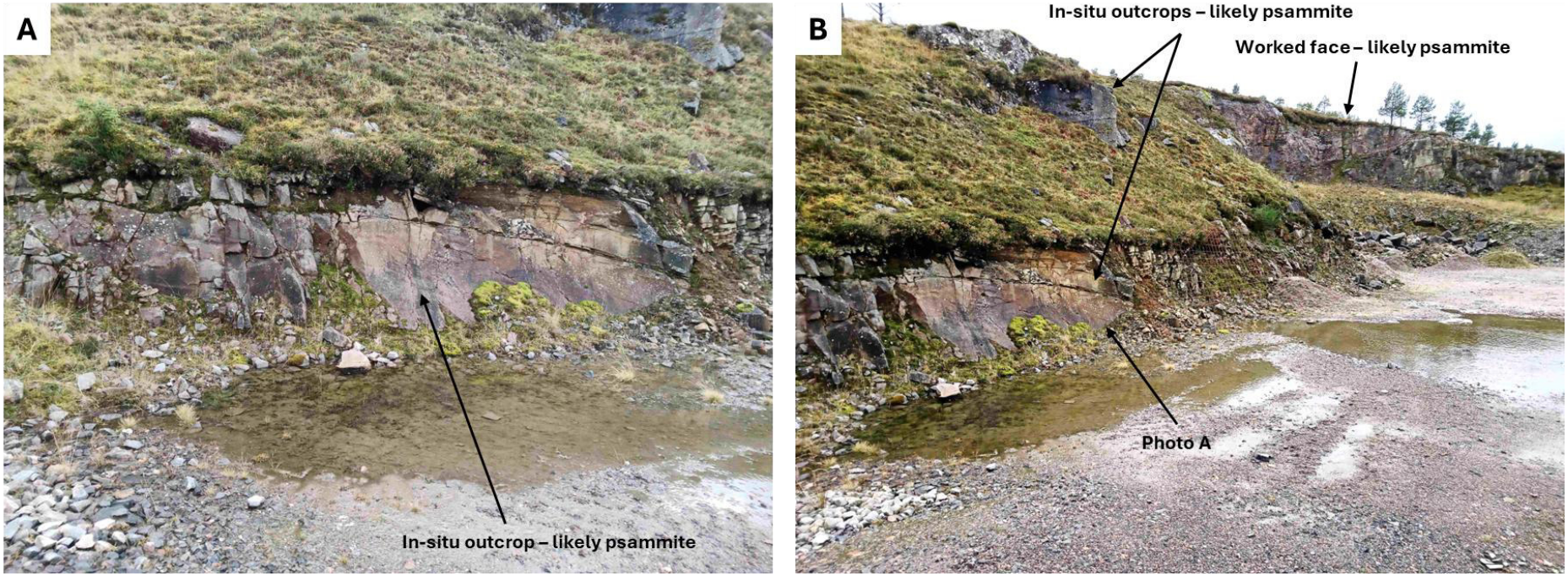

Plate 4-2: Photograph Set 2, BP02 search area, existing excavated site. Views towards the southwest.

5 Aggregate Resource and Suitability

5.1 Suitability of the material

Table 5-1 provides summary descriptions of engineering properties of the Tarvie Psammite Formation based on regional BGS information, which is the rock type expected at the Site.

Crushed psammites are known to be used as an aggregate, however their hardness and resistance are likely to be strongly affected by:

- % mica component (platy minerals e.g. biotite, muscovite) compared to harder blocky crystalline minerals (e.g. quartz, epidote, pyroxene),
- degree of weathering, and
- extent of foliation (mineral layering of platy minerals) within the rocks.

It is expected that the Tarvie Psammite Formation would contain some useable material though care would need to be taken to avoid or process out highly foliated or weathered zones. The Tarvie Psammite Formation can be stratified between layers of higher and lower strength and durability as dictated by both their primary depositional origin (sedimentary shallow marine – tidal and availability of sand) and subsequent metamorphic overprint and weathering.

No Geological Strength Index (GSI) for the rock outcrops has been acquired due to the general lack of exposure (the existing workings are now partly obscured by vegetation). Rock material strength is expected to range from medium strong to very strong. However, fragmentation is controlled by the foliation.

It is not clear whether site-won materials would be suitable for use as concrete aggregate. The potential for alkali silica reaction (ASR), a chemical reaction between pore solutions and aggregates used for concrete, cannot be ruled out for these rocks. The reaction product can in certain circumstances absorb water and swell, causing expansion and cracking. Suitable materials testing should be carried out to determine the suitability of the rock materials at all borrow pits as part of ground investigation works. If intended to be used as concrete aggregate, appropriate testing is required to assess the potential for ASR is recommended.

In general, the bedrock is not particularly well exposed in outcrop, other than in the BP01 and BP02 previously excavated areas.

Table 5-1: Table of engineering properties summarised from the BGS GeoIndex 1:1M Bedrock Engineering Geology map

Bedrock Units	BGS lexicon [5] description	BGS map sheet description [7]	BGS Engineering Geology description	BGS Engineering Geology notes
Tarvie Psammite Formation	Psammite and semi-pelite.	Beds of psammite intercalated with thinner layers of micaceous psammite. Calc silicate pods abundant throughout. Very distinctive fine grain laminated semi-pelite forms units up to 100 m thick.	Granofels: Strong to extremely strong medium to widely jointed non-foliated fine to coarse-grained GRANOFELS. Weathers to a sandy gravel or gravelly sand. Medium to very low permeability flow is through discontinuities. Includes QUARTZITE, GRANULITE, HORNFELS and AMPHIBOLITE.	**Foundations**: Potentially good foundation conditions, but may be dependent on degree of metamorphism and variability of interbedded metamorphic lithologies and associated weathering profiles. **Excavation**: Highly weathered zones may be excavatable by hard digging or ripping but blasting usually required for fresher material. **Engineered Fill:** Suitable as selected granular fill if care taken in selection and abstraction. **Site Investigation:** Important to determine spacing, orientation and nature of discontinuities, and depth and properties of weathered zone materials.

5.2 Quantity of the material

Based on estimates by the design team, it is expected that approximately 44,149 m^3 of suitable aggregate would be required for the construction and upgrade of access tracks, and construction of crane pads and compounds. An additional 20% contingency has been applied to the required volume when assessing aggregate resource and suitability from on-Site borrow pits.

Simplifications have been made regarding assumed depth of cover (overburden), and excavation geometry. The percentage of material from BP01 deemed suitable for its intended use to construct the Proposed Development is assumed to be 50% for the purpose of this assessment, and it is envisaged that BP01 could still meet the total required aggregate if this was the case.

The proposed BP01 is in an area where the superficial deposits are expected to be minimal or absent. The assessment does not consider the potential for fortuitous 'winning' of rock during construction work elsewhere on Site. The calculations provided in this report generally take a conservative approach to volume estimation. Where geometries have been simplified for ease of calculation, this is expected to result in a slight under-estimate of the available aggregate.

5.3 BP01 indicative design

Table 5-2 presents the proposed dimensions and estimated extraction volumes for BP01. Figure 8.6.4 shows the proposed borrow pit indicative design in plan and section view. The volumes given have been calculated from a simplified cut/fill calculation, considering the existing topography, borrow pit footprint dimensions, and indicative face dimensions (including benches).

The provided borrow pit dimensions and volumes are estimates and are likely to vary. The indicative borrow pit design (see Figure 8.6.4) includes a location map showing the borrow pit within the Site, an extract from OS mapping at the borrow pit search area, a plan view layout showing the proposed borrow pit footprint, and a schematic cross-section. They are produced using available 5m cell size DTM data and are not to be used in place of detailed designs.

Probable extraction methods have been estimated based on anticipated rock mass properties but should be refined following more detailed ground investigation and design work. Excessively weathered bedrock, if present, may be dug or ripped out using standard methods of excavation and is unlikely to be suitable to the intended use.

Aggregate suitability, extraction methods, and borrow pit design should be re-assessed following detailed ground investigations and geotechnical testing. It is anticipated that, upon completion of the Proposed Development, the borrow pit would be repurposed at the site of the wind farm electrical substation and Main Construction Compound, so would not require full reinstatement.

Table 5-2: Indicative dimensions and extraction volumes for BP 01

Borrow Pit ID	Approx. working area footprint [m^2]	Max. depth [m]	Approx. volume [m^3]	Assumed overburden thickness [m]	Suggested extraction methods
BP 01	26,286 Incl. existing pit	22	177,814	0.5 m	Blasting, hammer, ripping, digging
Estimated useable extraction volume (assuming 50% suitability and after 0.5m overburden removed) [m^3]:					80,110

Notes:

1. Aggregate suitability is conservatively estimated to be 50% of the volume presented for wind farm use (i.e. 50% may be unsuitable for the intended application).
2. Bulking factors (i.e. volumetric increase following extraction) are not considered in this assessment. All volumes are subject to future refinement.

5.4 Availability of suitable aggregate

Based on the calculations above, an estimated 80,110 m^3 of useable stone material would be available from BP 01. This is greater than the estimated requirement of 44,149 m^3 required for the Proposed Development. It therefore may not be necessary to bring in additional material from off-site.

The key uncertainty lies in the percentage of suitable aggregate. This is currently assumed to be 50%, but the actual percentage is uncertain at this stage. If the suitability falls below 50% this could result in the need for additional aggregate being excavated through a larger borrow pit or the opening of a second pit at BP02. Alternatively, material could be sourced from off Site. Site-specific intrusive ground investigation would help to reduce this uncertainty and refine the borrow pit design.

6 Conclusions and Recommendations

Based on the available information and visit to the site (by Fluid Environmental Consulting), potentially suitable borrow pit areas have been identified. BP01 has the potential to provide the full estimated aggregate requirement for the Proposed Development assuming 50% suitability of excavated material. A cautious approach would be to allow for some material being sourced from off site, though this may prove not to be necessary.

Geotechnical risks that require consideration by further investigation and/or design are summarised as follows:

1. Potential for variable / unexpected thickness of superficial deposits;
2. Potential for unsuitable aggregate properties;
3. Potential for insufficient yield (e.g. unfavourable rock mass restricting slope geometry);
4. Uncertain groundwater conditions;
5. Need for rock slope stability assessment and bench design; and
6. Change in aggregate requirements (e.g. due to Proposed Development layout change).

For items 1 to 5, intrusive ground investigation is strongly recommended, followed by design refinement. In the case of Hazard 6, expansion of the proposed pits or the import of additional aggregate from off site may be required to meet demand. A worst case scenario of 50% has been assumed for the purpose of assessment in the Traffic and Movement chapter of the EIA.

The borrow pit assessment presented in this report is indicative, based on desk-based study only, supported by peat probing data. No other ground investigation has been carried out to date. This indicative assessment would therefore require refinement following ground investigation and testing. It is recommended that geotechnical testing includes determination of:

- Unconfined Compressive Strength;
- Point Load;
- Slake Durability Index;
- Los Angeles Abrasion Coefficient; and
- Sulphate Soundness.

Geophysical profiles may also be of value.

As part of borrow pit design refinement, consideration should be given to ground investigation results (including materials testing to confirm suitability), management of surface water runoff, management of groundwater, processing and storage of excavated materials, slope stability (including bench design), earthworks, and restoration options. Borrow pits should be designed and operated in accordance with the HSE Quarry Regulations (1999, updated 2013).

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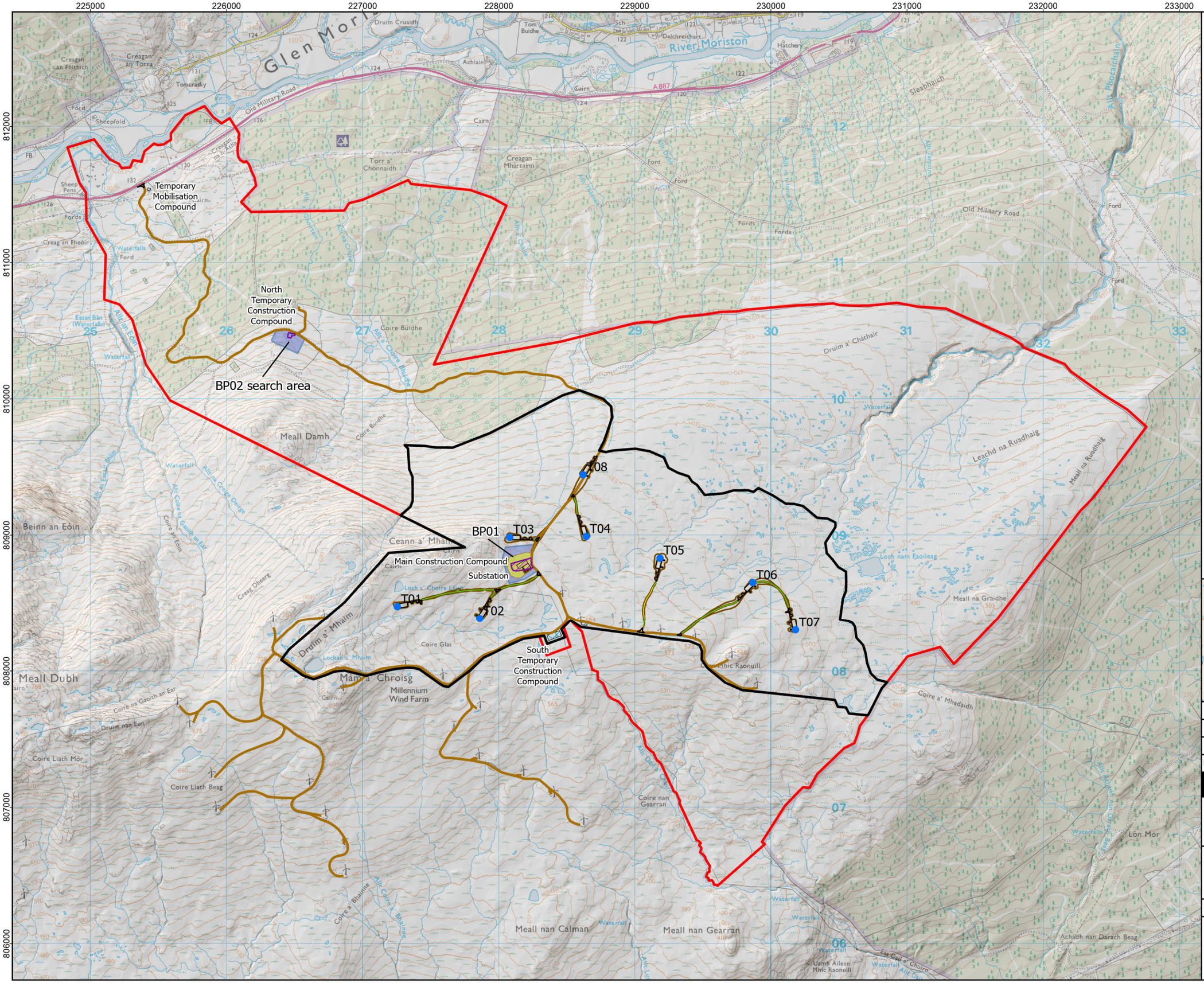
8 Figures



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01	07/08/2025	Second Draft	SP	AM	AM
00	09/05/2025	First Draft	SP	AM	AM

Millennium East Wind Farm

RSK nadara

TITLE: Figure 8.6.1: Site Layout

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225000 226000 227000 228000 229000 230000 231000 232000 233000

812000 811000 810000 809000 808000 807000 806000

Temporary Mobilisation Compound

North Temporary Construction Compound

BP02 search area

BP01

T01 T02 T03 T04 T05 T06 T07 T08

Main Construction Compound

Substation

South Temporary Construction Compound

Millennium Wind Farm

Glen Moriston

River Moriston

Meall Damh

Meall Dubh

Beinn an Eoin

Mám a' Chroisg

Meall nan Calman

Meall nan Gearran

Meall na Graidhe

Lon Mór

Loch Cluanie

Loch Garry

Cuaich

Coille Inbhirwick

Legend:

- Assessment Area
- Site Boundary
- Proposed Turbine Locations
- Turbine Hardstanding
- Junction or Turning Head
- Existing Borrow Pits
- Existing Wind Farm Track
- Floating Track
- New Track
- Temporary Mobilisation and Construction Compounds
- Main Construction Compound
- Substation
- Borrow Pit Search Area
- Indicative Borrow Pit Extent

Superficial Geology (BGS)

- Peat
- Head
- Alluvium - Sand, gravel, boulders
- River terrace deposits (undiff.) - Sand and gravel
- Glaciofluvial deposits, Devensian - Silt, sand, gravel, boulders
- Hummocky (moundy) glacial deposits, Devensian - Diamicton, sand and gravel
- Till, Devenisan - Diamicton

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

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Millennium East Wind Farm

RSK nadara

TITLE: Figure 8.6.2: Superficial Geology

ID:043649_MillenniumEast_BPA_Working_Fig2_SuperficialGeology

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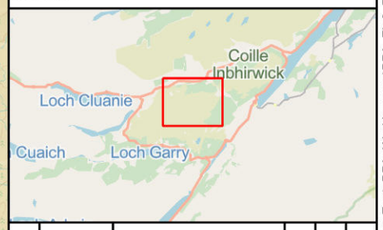
Legend:

- Site Boundary
- Assessment Area
- Proposed Turbine Locations
- Turbine Hardstanding
- Junction or Turning Head
- Existing Borrow Pits
- Borrow Pit Extension
- Existing Wind Farm Track
- Floating Track
- New Track
- Temporary Mobilisation and Construction Compounds
- Main Construction Compound
- Substation

Bedrock Geology (BGS)

- Tarvie Psammite Formation - Psammite
- Tarvie Psammite Formation - Semipelite
- Upper Garry Psammite Formation - Psammite and Semipelite
- Various minor igneous intrusions
- West Highland Granite Gneiss Intrusion - Granite, Gneissose

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



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Millennium East Wind Farm

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TITLE: Figure 8.6.3: Bedrock Geology

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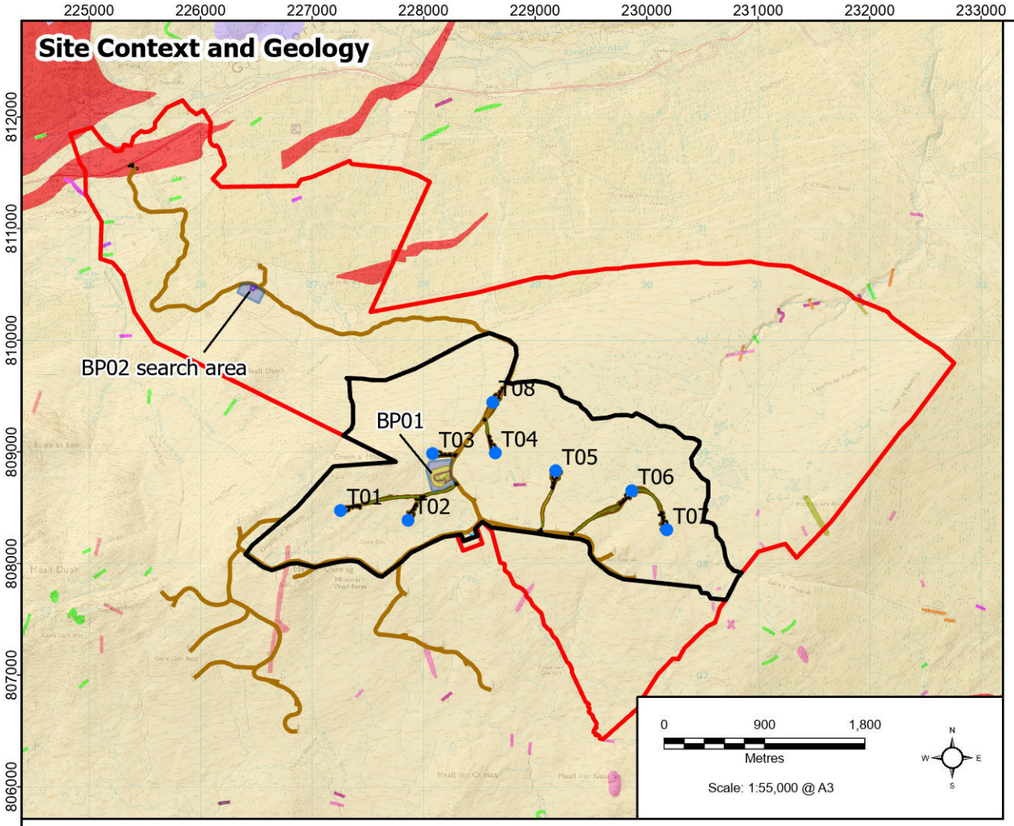
Site Context and Geology



Existing Situation

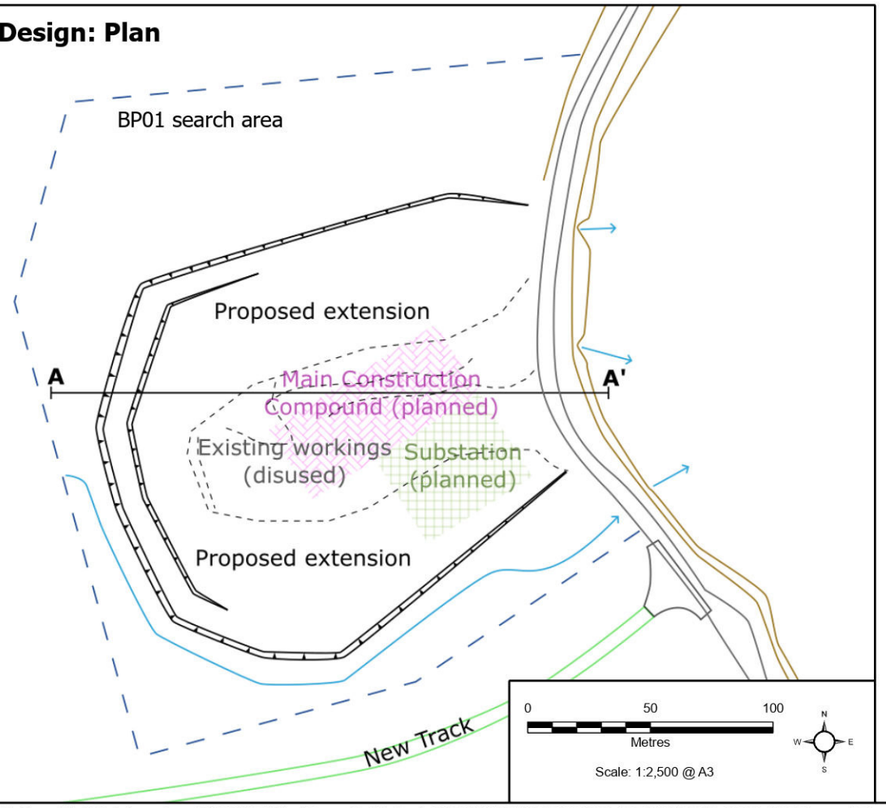
Legend:

- Assessment Area
- Site Boundary
- Proposed Turbine Locations
- Turbine Hardstanding
- Junction or Turning Head
- Existing Wind Farm Track
- Floating Track
- New Track
- Temporary Mobilisation and Construction Compounds
- Main Construction Compound
- Substation
- Indicative Borrow Pit Extent
- Borrow Pit Search Area

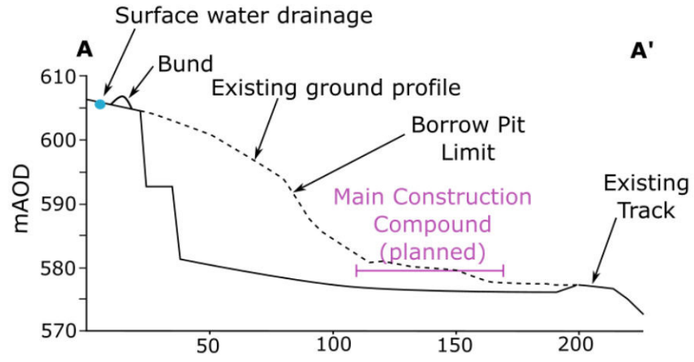
Bedrock Geology (BGS)

- Tarvie Psammite Formation - Psammite
- Upper Garry Psammite Formation - Psammite and Semipelite
- Various minor igneous intrusions
- West Highland Granite Gneiss Intrusion - Granite, Gneissose

Initial Design: Plan

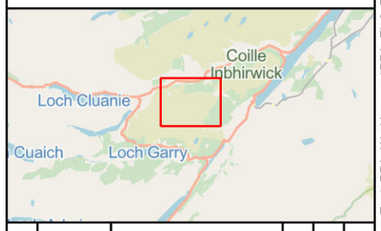


Initial Design: Indicative Section



Not to scale

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



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Millennium East Wind Farm

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TITLE: Figure 8.6.4: BP01 Indicative Design

ID:043649_MillenniumEast_BPA_Working_Fig4_BP01

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