
Project:	Cloiche Wind Farm		
Our reference:	408095	Your reference:	
Prepared by:	K Young / K Munro	Date:	31/03/20
Approved by:	A Martin	Checked by:	J Adams
Subject:	Borrow Pit Appraisal Report Rev D		

1 Introduction

As part of a review of the overall site layout for Cloiche Wind Farm, SSE Renewables have appointed Mott MacDonald to identify and appraise the proposed borrow pit (BP) locations for the Proposed Development (Site).

1.1 Description of the Development

The Proposed Development comprises:

- Up to 36 wind turbines (WTGs)
- Control building
- Substation
- Temporary contractor's compounds
- Meteorological (met) masts
- Concrete batching plants
- Up to nine potential borrow pit locations
- 25.9km of new site access tracks

The Site is split into a western cluster and an eastern cluster, with the existing Stronelairg Wind Farm in the centre of the two areas, as shown on Figure A.1.

Crushed rock is required for the construction of the Proposed Development infrastructure and it is anticipated to source this material, where possible, from on-site borrow pits to reduce the need to import materials. In addition, rock extracted from borrow pits may be a suitable source of aggregate for on-site concrete batching.

For the purposes of borrow pit development it is necessary to identify rock of appropriate type and quality at shallow depth which may be worked.

1.2 Scope

The scope of the assessment comprises the findings of a desk top review of available information and site reconnaissance visit and provides an assessment of the prevailing ground conditions as they relate to

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potential borrow pit locations. A description and assessment of the likely suitability of the borrow pit locations and a summary of conclusions and recommendations for further investigation is outlined.

2 Desk Study

The desk study comprised an analysis of available published information relating to topography and geology of the Proposed Development, including a review of information provided for the adjacent Stronelairg Wind Farm. In addition, a site reconnaissance was undertaken to identify potential suitable borrow pit locations. The sources of information are provided below:

- Digital Aerial Photography, ESRI (Ref 1)
- BGS Onshore GeoIndex Viewer (Ref 2)
- BGS Sheet 63E – Dalwhinnie Solid and Drift; 1:50,000 Geological Mapping (Ref 3)
- BGS Sheet 73E – Foyers Solid; 1:50,000 Geological Mapping (Ref 4)
- BGS Onshore GeoIndex - Hydrogeology Viewer (Ref 5)
- Jacobs; Stronelairg Wind Farm Borrow Pit Assessment; May 2012 (Ref 6)
- Mott MacDonald; Cloiche Wind Farm Engineering Geology Appraisal Report; February 2020 DRAFT (Ref 7)
- Digital Terrain Model; provided by SSER (Ref 6)

2.1 Superficial Geology and Soils

The 1:50,000 BGS Superficial Geology Mapping (Refs 2 and 3) indicates variable superficial geology across the Site, with some areas underlain by Glacial Till (Diamicton) and localised alluvial deposits comprising clay, silt, sand and gravel indicated within the vicinity of watercourses. Peat is shown predominantly in the north of the western area of the Site on the published mapping. The Site is covered in blanket mire 'bog', wet modified 'bog' and basin mores 'fen'. The results of the peat probing surveys undertaken by Mott MacDonald in 2019, and previously on the Stronelairg site by Jacobs, indicate that blanket peat cover is present throughout the Site, up to 4m thick in places.

Superficial cover is indicated to be absent in some areas on the maps, suggesting that bedrock is at or close to the surface in these localities, notably in the south west of the western area of the Site.

2.2 Solid Geology

The BGS 1:50,000 solid geological mapping (Refs 2 to 4) indicates that solid geology is varied throughout the Site; predominantly comprising Neoproterozoic metamorphosed rock sequences (see Figure A.1).

The eastern area of the Site is underlain by the Allt Crom Granodiorite Formation; granodiorite with abundant rafts of psammite, appinitic diorite and semi-pelite. Similarly, the south eastern section of the western area of the Site is underlain by Granodiorite of the Allt Crom Complex. Granodiorite is an intrusive igneous rock which has penetrated the host sedimentary rocks (psammite – sandstone and semi-pelite – mudstone) which have in turn undergone periods of metamorphism and deformation.

The western area of the Site is generally underlain by metamorphic sequences of the Garva Bridge Psammite Formation and Loch Laggan Psammite Formation. The predominant rock type in these formations is pebbly and micaceous psammite (metamorphosed sandstone) occasionally interbedded with semi-pelite (finer grained metamorphosed sediments).

During the site reconnaissance, psammite outcrops were observed in the south western area of the Site around turbines C15 and C16.

2.3 Structural Geology

Faults are shown to traverse the Site at several locations. They are all noted to be trending in a NE-SW direction which is typical of the wider area within the Great Glen. Two faults are shown to bisect areas of proposed infrastructure, 'The Stronelairst Fault' close to C5 in the western area of the Site and one at the location of the substation.

The Stronelairst Fault is indicated on published geological maps to present as intensely fractured rock including fault breccia. There is potential for rock beneath turbines in this area (particularly C5) to be gouged or weak with variable or poor engineering properties for foundation design and this should be targeted for intrusive ground investigation pre-construction.

3 Borrow Pit Appraisal

3.1 Appraisal

A site reconnaissance survey was undertaken by Mott MacDonald geologists in 2019 during the two phases of peat probing. Locations were visually inspected, both existing restored Stronelairst Wind Farm borrow pits and new proposed borrow pits, with a view to assessing potential suitability for use during construction of the Proposed Development.

In identifying potential borrow pit locations, consideration was paid to the practical aspects of borrow pit development, including ease of access for development, proximity to likely access track alignments and areas where borrow pit development would have high visual impact or impact upon environmentally sensitive areas.

A subjective visual assessment was made at each location:

- General site topography;
- Identification of rock type, where possible;
- Estimated thickness and classification of overburden material;
- Photographic record of any rock exposures encountered; and
- Hand specimens visually inspected of typical rock types observed (where available).

It should be noted that no intrusive ground investigations have been undertaken at this stage. A site-specific ground investigation would be required to confirm any assumptions made with regards to geotechnical properties and suitability of the potential rock resources for use during construction of the Proposed Development.

Through development of the site layout and discussions with the EIA team, nine locations have been selected for potential extraction during construction of the wind farm. Three of these locations are within the existing Stronelairst Wind Farm site and have been identified as having potential to be re-worked to extract further material for use in construction. The rock types that are potentially available at the identified borrow pits are expected to comprise granodiorite, psammite and semi-pelite.

The rock types have been assumed for the majority of the borrow pits (five), where no rock exposures were found at the surface during the field work. The geology has been estimated based on geological maps for the Site. Dimensions of the borrow pits and volumes of rock have been estimated based on cross-sectional

areas through a digital terrain model (DTM). These are required to be confirmed by future intrusive ground investigation works.

Detailed in Table 1 below are the nine potential borrow pits identified during the site reconnaissance surveys of the Cloiche Wind Farm area.

Table 1: Summary of Borrow Pit Locations

BP No.	Location	Estimated Peat Thickness ¹	Geology	Comments	Environmental Considerations
BP1	Track from C3	0.65m	Psammite	No rock outcrops observed – assumed to be psammite based on geology maps.	Caochan Uilleim (watercourse) located approximately 250m to west. Habitat comprises blanked bog.
BP2	Track between C15 and C16	0.2m	Psammite	Light grey, fine – medium grained fresh/slightly weathered psammite.	River Tarff (watercourse) located approximately 200m to east. Habitat comprises wet heath / acid grassland mosaic.
BP3	Track to C25	0.1m	Granodiorite with psammite	No rock outcrops observed – assumed to be granodiorite with rafts of psammite based on geology maps.	Allt Mor (watercourse) located approximately 250m to north-west. Habitat comprises blanket bog / wet modified bog.
BP4	Track between C11 and C12	2.0m	Semi-pelite	No rock outcrops observed – assumed to be semi-pelite based on geology maps.	Caochan Uilleim tributary (watercourse) located approximately 175m to north-west. Habitat comprises wet heath / acid grassland mosaic and unimproved acid grassland.
BP5	Track to C28	0.5m	Granodiorite with semi-pelite	No rock outcrops observed – assumed to be granodiorite with rafts of semi-pelite based on geology maps.	Allt Creag tributary (watercourse) located approximately 90m to west.
BP6	Track to C36	1.5m	Granodiorite with psammite	Restored Stronelairg Wind Farm BP19. Granodiorite material observed.	Crom Allt tributary (watercourse) located approximately 115m to north. Habitat comprises blanket bog / wet modified bog.
BP7	Track to C29	0.5m	Granodiorite with psammite	No rock outcrops observed – assumed to be granodiorite with rafts of psammite based on geology maps.	Crom Allt tributary (watercourse) located approximately 50m to north-west. Habitat comprises blanket bog / wet modified bog.
BP8	Off existing access track towards C6-C8	0.25m	Psammite	Restored Stronelairg BP2.	Small unnamed watercourse located approximately 225m to north-west. Habitat comprises wet modified bog. Existing borrow pit present at location.
BP9	Off existing access track west of BP8	0.25m	Granodiorite with psammite	Restored Stronelairg BP7.	Allt na Craidhleig tributary (watercourse) located approximately 225m to north-west. Existing borrow pit present at location. Lochans within vicinity of borrow pit which are to remain undisturbed.

Source: EGAR (Ref 5)

The location of the nine borrow pits is shown on Figure A.1 in Appendix A.

Figure 1 – Rock outcrop at proposed BP2



Figure 2 – Restored Stronelairg BP19 (BP6)



3.2 Principals of Borrow Pit Design and Restoration

The method of borrow pit extraction is expected to vary between locations, being dependent on variables including nature of material, depth of weathering, and fracture matrix. A combination of techniques including digging, ripping and blasting is anticipated, followed by crushing. Excavated soils, where possible, should be segregated based on distinct soil horizons, which should be stored separately for later use / reinstatement.

When opening a borrow pit, care should be taken not to destabilise any peat situated up or down slope. The design of drainage, both temporary (during operations) and permanent (following restoration), will be required as part of borrow pit design.

Borrow pits should be opened up and utilised only when rock extraction is required, and should be restored promptly following completion of extraction works. Reinstatement options may include complete, partial and minimal reinstatement, based on site specific conditions, and under the direction of an Ecological Clerk of Works.

For the purpose of restoration, peat may be reused within borrow pits, providing that the method of reuse and final restoration profile are consistent with the habitat, meets environmental reinstatement objectives / requirements, and prevents no harm to human health or risk of pollution to the environment (Ref 9).

4 Conclusions and Recommendations

4.1 Conclusions

4.1.1 Quality and Rock Type Properties

The inferred quality of rock is based on a subjective visual assessment of rock outcrops and these descriptions will require to be verified by intrusive ground investigation, sampling and material laboratory testing.

4.1.1.1 Granodiorite

Granodiorite, an intrusive igneous rock is known to be present at the Site. During the site reconnaissance, several potential borrow pits were identified within granodiorite areas. It is expected that the material will be hard-wearing and suitable for use as wearing course, sub-base for access tracks and as structural fill below turbine foundations. Depending on chemical composition it may be suitable for use as aggregate within concrete.

4.1.1.2 Psammite

Psammite, a metamorphosed sandstone is present within the Site, and is noted to be occasionally interbedded with semi-pelite and is found to be typically moderately strong to very strong. Visual inspection indicates that the material is moderately strong to extremely strong. Therefore, psammite is considered to be a suitable rock resource for the construction of the majority of the proposed wind farm infrastructure, including the temporary construction compound, crane hardstanding areas, new access tracks and track lay-by areas. It is understood that psammite has been used extensively in the construction of Stronelairg Wind Farm. Where psammite is micaceous, this would not be considered suitable for use as surface wearing course/capping material.

4.1.1.3 Semi-pelite

Semi-pelite, a metamorphic rock with a fine-grained matrix is present within the Site and is noted to be interbedded with psammite and granodiorite. Generally, semi-pelite is considered to be a suitable rock

resource for the construction of the majority of the proposed wind farm infrastructure. However, due to its argillaceous nature, its use in construction may be limited to general fill. Laboratory testing will be required to assess suitability. Where semi-pelite is micaceous, this would not be considered suitable for use as surface wearing course / capping material. Where interbedded with other rock types, additional processing may be required to separate out the borrow pit material for different uses during construction.

4.1.2 Limitations

It should be noted that the actual locations and extents of extraction areas within each borrow pit may change during the project development i.e. following a detailed intrusive ground investigation at the proposed locations.

The volumes of potential borrow pits may vary, depending on:

- Natural variations in rock material quality
- The presence and depth of highly and moderately weathered zones
- Offset of favourable rock type caused by faulting
- Thickness of overburden
- Access constraints to borrow pits (i.e. slope gradients)
- Environmental constraints
- Methods of excavation

Rock outcrops were limited at the Site, therefore the majority of locations have been chosen based on topography, geological desk based review and their previous use (if relevant).

4.2 Summary

From the information gathered, it is concluded that:

- A total of nine borrow pits have been identified within the Site (as shown on Figure A.1), all of which are recommended for use during construction of the wind farm.
- The potential rock resources that can be won from within the Site boundary predominantly comprise granodiorite, psammite and semi-pelite.
- Rock is generally not visible as outcrop across the Site, with the majority of borrow pit locations chosen due to favourable topography and geographical location within the development. Observations noted during the site reconnaissance confirmed rock types published on BGS geological maps.
- Overburden thickness is likely to vary at each borrow pit location.
- Anticipated aggregate volumes are shown on Figures A.2 to A.10, along with indicative sections through the proposed search areas.
- Granodiorite and psammite are considered to be a suitable rock aggregate resource for surfacing and sub-base material for unbound tracks and hardstanding areas such as turbine crane assembly areas and construction compound. Both may be suitable for use as concrete aggregate subject to geochemical laboratory testing. Semi-pelite may be suitable for use general fill.
- Weathering of the rock, as well as potential faulting, will impact on the geotechnical properties and suitability for re-use during construction. There will be a requirement to manage unsuitable material and extend existing excavations into less weathered 'fresh' and unfaulted rock to obtain sufficient quality for the purposes outlined above.
- Further intrusive investigation is required to determine rock quality and estimate potential volume available for extraction. It is considered that nine borrow pit locations may not be needed in terms of required material volumes, however, all nine are being proposed as search areas due to the potential for

unsuitable rock types being encountered during investigation and due to the significant site extents. For those borrow pits to be opened during construction, it is not anticipated that the full search areas will be required to be exploited.

4.3 Recommendations

It is recommended that an intrusive ground investigation is undertaken to investigate the nature of the rock (i.e. rock type and quality) and resource quantities at each potential borrow pit location.

The ground investigation should comprise rotary cored boreholes in addition to trial pits, to determine the thickness of overburden i.e. depth to 'fresh' (unweathered) rock and practicable depth of excavation. In addition, consideration should also be given to the stability of slopes formed by borrow pit workings, particularly in fractured rock strata and overlying superficial materials around the margins of any borrow pit.

An engineering geologist should inspect the borrow pit during construction to ascertain depth to competent material. It is also recommended that samples of rock are obtained during the ground investigation for geotechnical and aggregate laboratory testing to establish rock parameters for use during construction.

5 References

1. Digital Aerial Photography, ESRI
2. BGS Onshore GeoIndex Viewer
3. BGS Sheet 63E – Dalwhinnie Solid and Drift; 1:50,000 Geological Mapping
4. BGS Sheet 73E – Foyers Solid; 1:50,000 Geological Mapping
5. BGS Onshore GeoIndex Hydrogeology Viewer
6. Jacobs; Stronelairg Wind Farm Borrow Pit Assessment; May 2012
7. Mott MacDonald; Cloiche Wind Farm Engineering Geology Appraisal Report; February 2020 DRAFT
8. Digital Terrain Model; provided by SSER
9. Scottish Renewables & SEPA, Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste, January 2012

A. Figures

A.1 Site Overview and Solid Geology

A.2 Borrow Pit 1

A.3 Borrow Pit 2

A.4 Borrow Pit 3

A.5 Borrow Pit 4

A.6 Borrow Pit 5

A.7 Borrow Pit 6

A.8 Borrow Pit 7

A.9 Borrow Pit 8

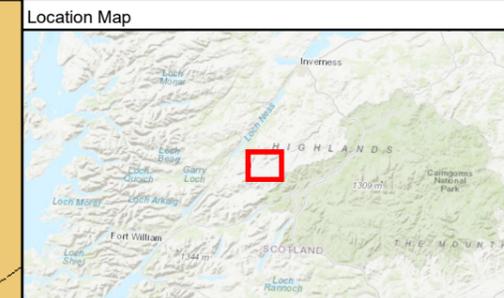
A.10 Borrow Pit 9



BGS 1:50,000 Published Geology

Solid Geology

- ALLT CROM COMPLEX - GRANODIORITE
- ALLT CROM GRANODIORITE WITH RAFTS DOMINANTLY OF APPINITIC DIORITE - GRANODIORITE AND APPINITIC DIORITE
- ALLT CROM GRANODIORITE WITH RAFTS OF THE COIRE NAN LAOGH SEMIPELITE FORMATION - GRANODIORITE WITH RAFTS OF SEMIPELITE
- ALLT CROM GRANODIORITE WITH RAFTS OF THE GARVA BRIDGE PSAMMITE FORMATION - GRANODIORITE WITH RAFTS OF PSAMMITE
- ALLT CROM GRANODIORITE WITH RAFTS OF THE LOCH LAGGAN PSAMMITE FORMATION - GRANODIORITE WITH RAFTS OF PSAMMITE
- COIRE NAN LAOGH SEMIPELITE FORMATION - SEMIPELITE, GNEISSOSE
- GAIRBEINN PEBBLY PSAMMITE MEMBER - PEBBLY PSAMMITE AND MICACEOUS PSAMMITE
- GARVA BRIDGE PSAMMITE FORMATION - PSAMMITE AND MICACEOUS PSAMMITE
- GLEN DOE PSAMMITE FORMATION - PSAMMITE, MICACEOUS
- LOCH LAGGAN PSAMMITE FORMATION - PSAMMITE, MICACEOUS
- NORTH BRITAIN SILURO-DEVONIAN CALC-ALKALINE DYKE SUITE - FELSITE
- NORTH BRITAIN SILURO-DEVONIAN CALC-ALKALINE DYKE SUITE - MICRODIORITE



Key to Symbols

- Site Boundary
- Turbine
- LiDAR
- Track**
- Cut
- Float
- Borrow Pit
- Site Boundary
- Compound
- Batching Plant
- Hardstanding
- Substation

Notes

1. All dimensions are approximate.
 2. The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation.

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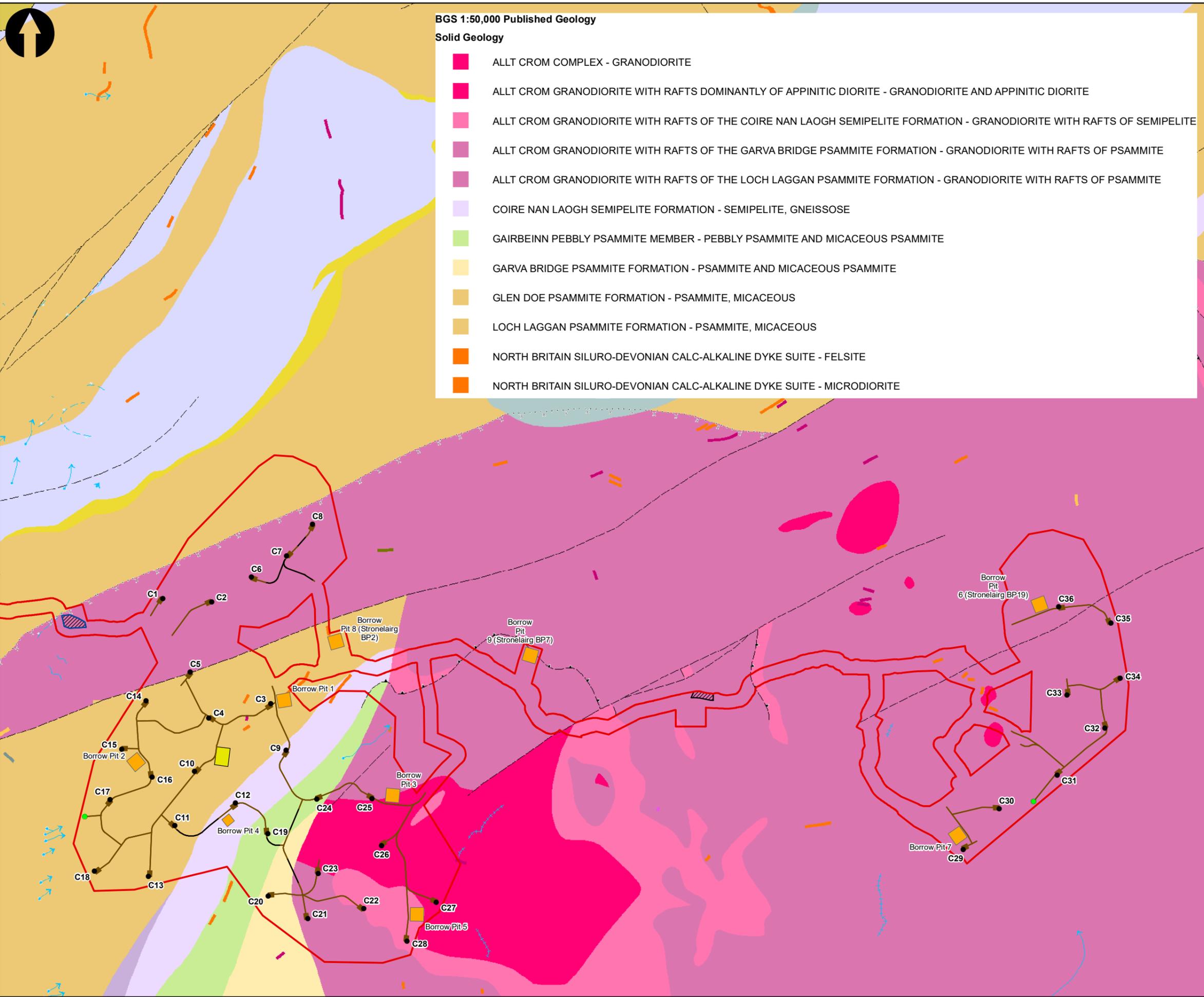
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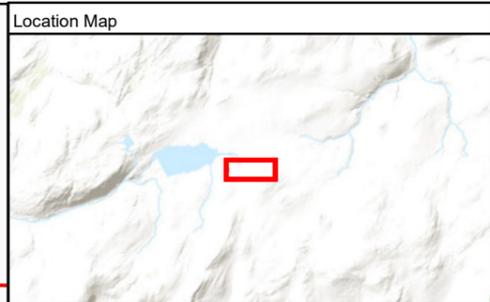
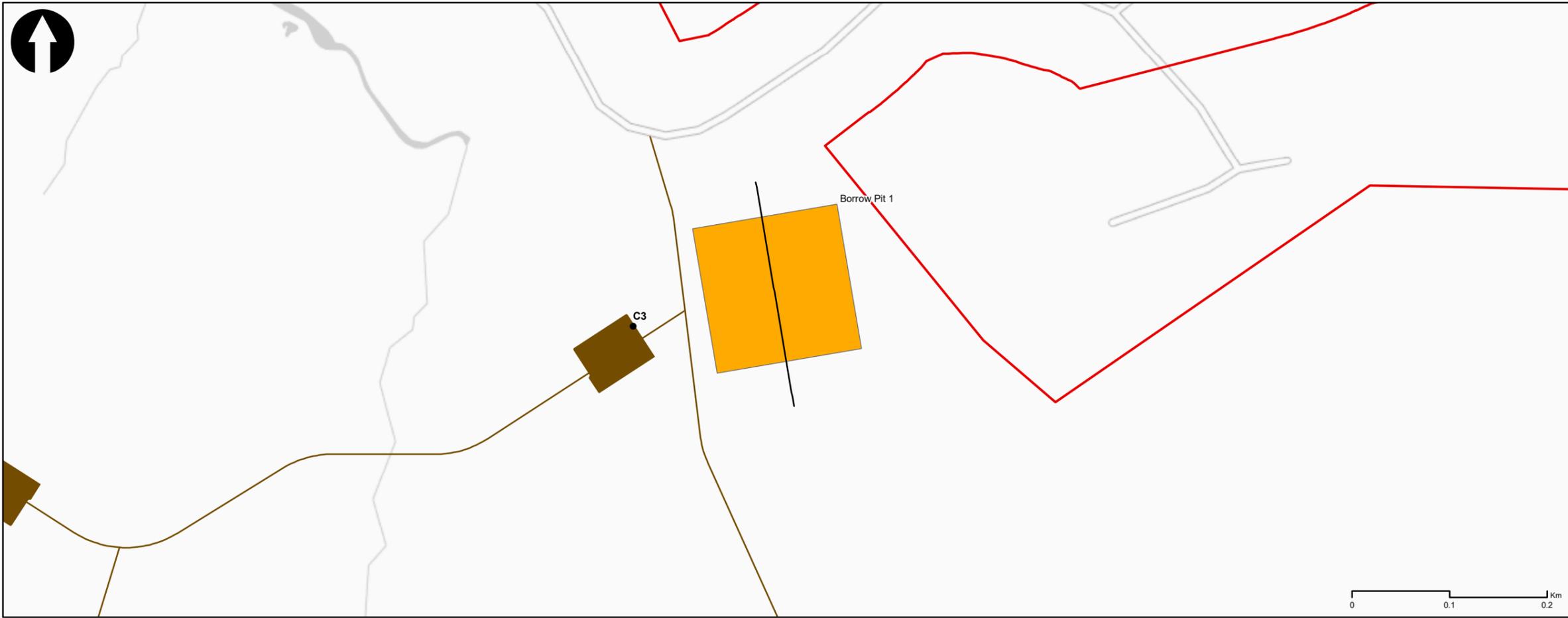
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Title
Figure A.1
Borrow Pit Appraisal
Site Layout and Solid Geology

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Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	A Martin
Scale at A3	Status	Rev	Security
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Drawing Number
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Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
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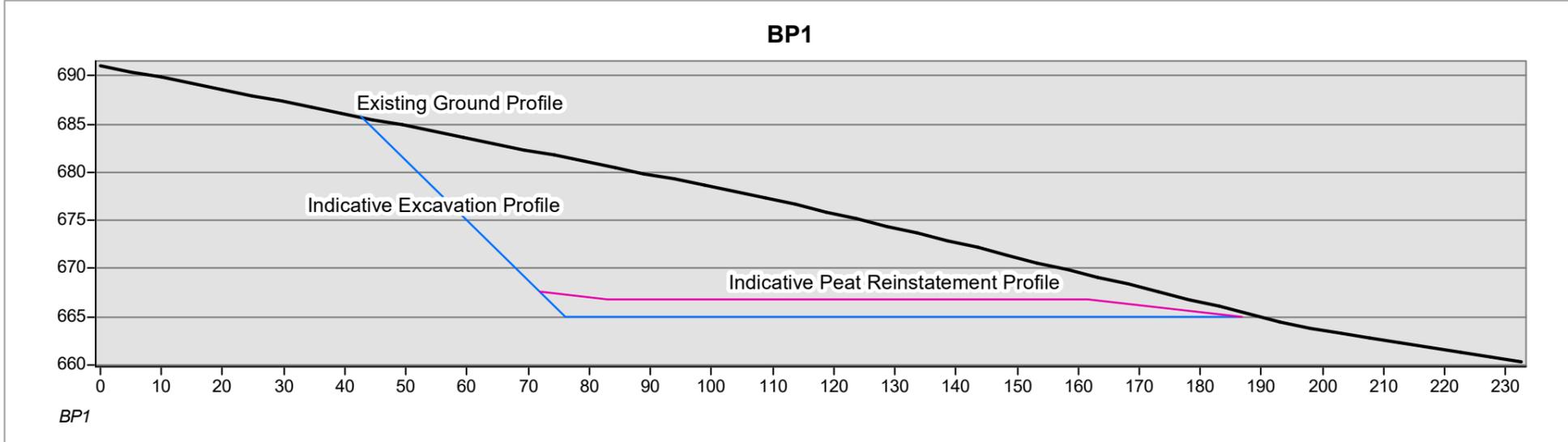
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Figure A.2
Borrow Pit Appraisal
Borrow Pit 1

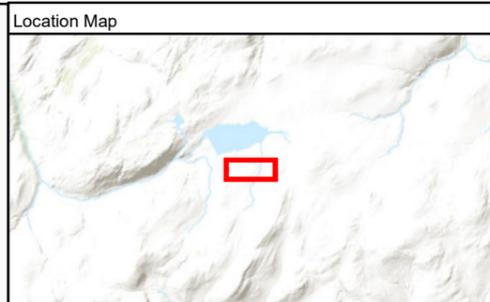
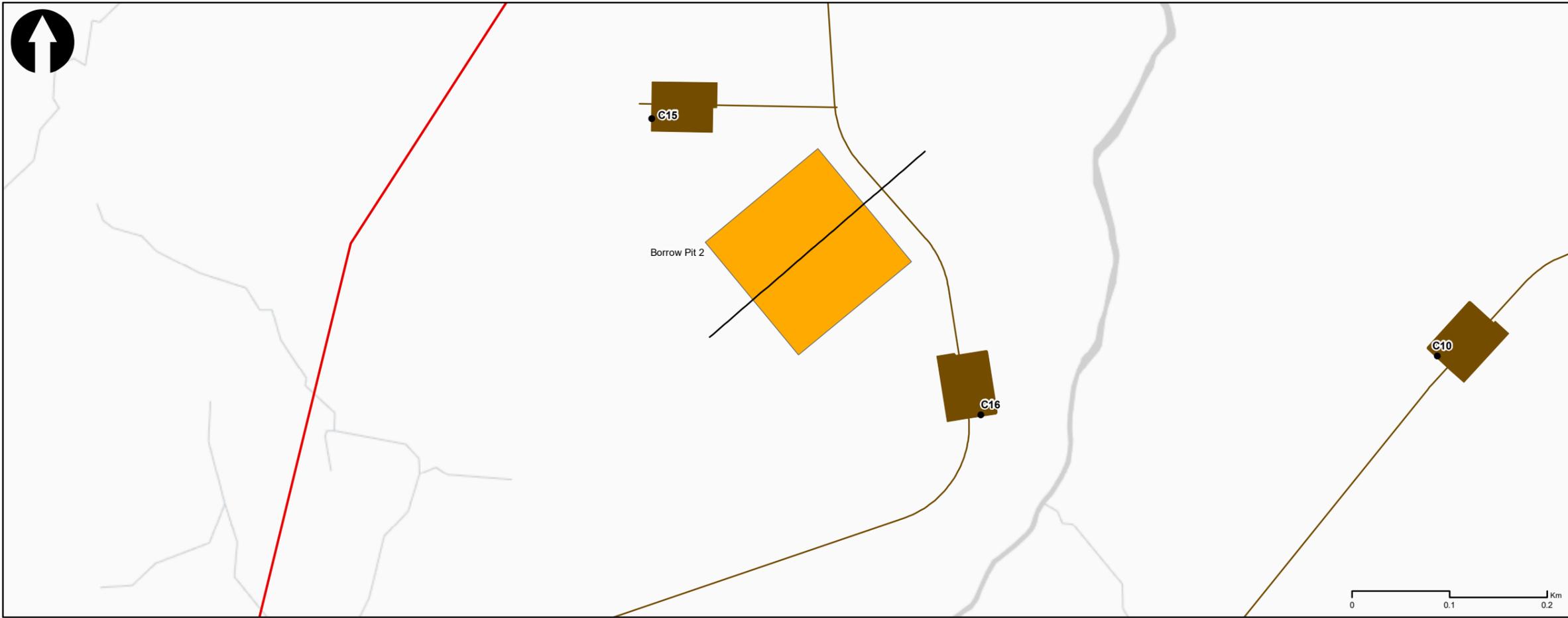
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GIS Check	A Tourish	Approved	N Lovett

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Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP1	24811	80310	22,500	150	150	20	19,500	136,000	141,440	Psammite



Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- ▨ Batching Plant
- Hardstanding
- Substation

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 2. The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation

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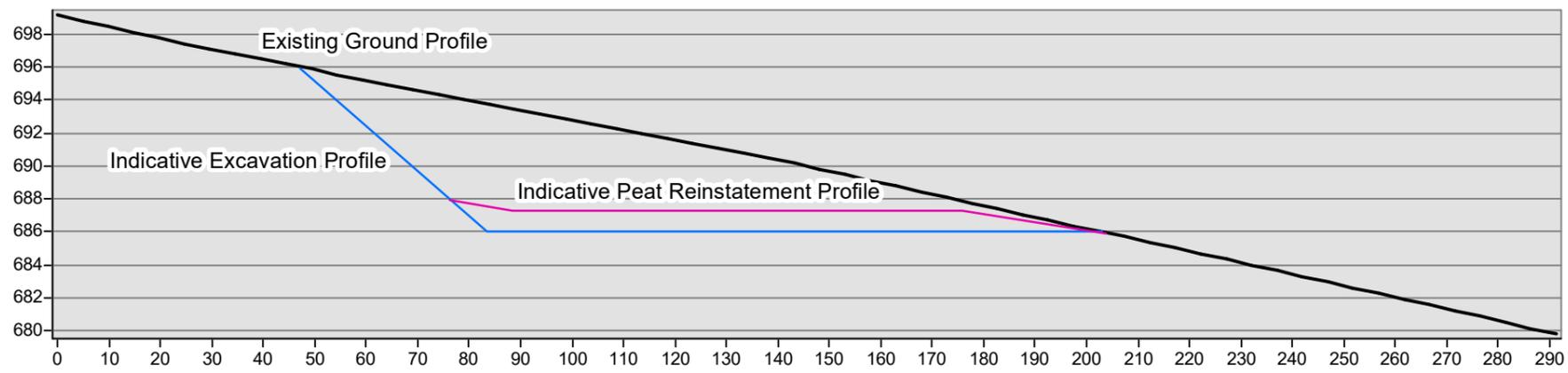
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 Figure A.3
 Borrow Pit Appraisal
 Borrow Pit 2

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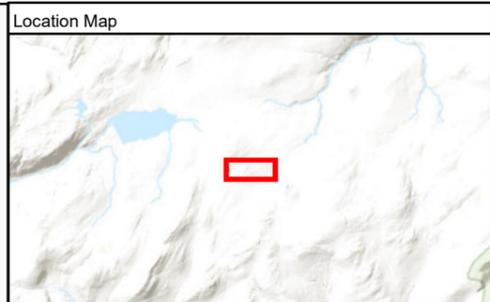
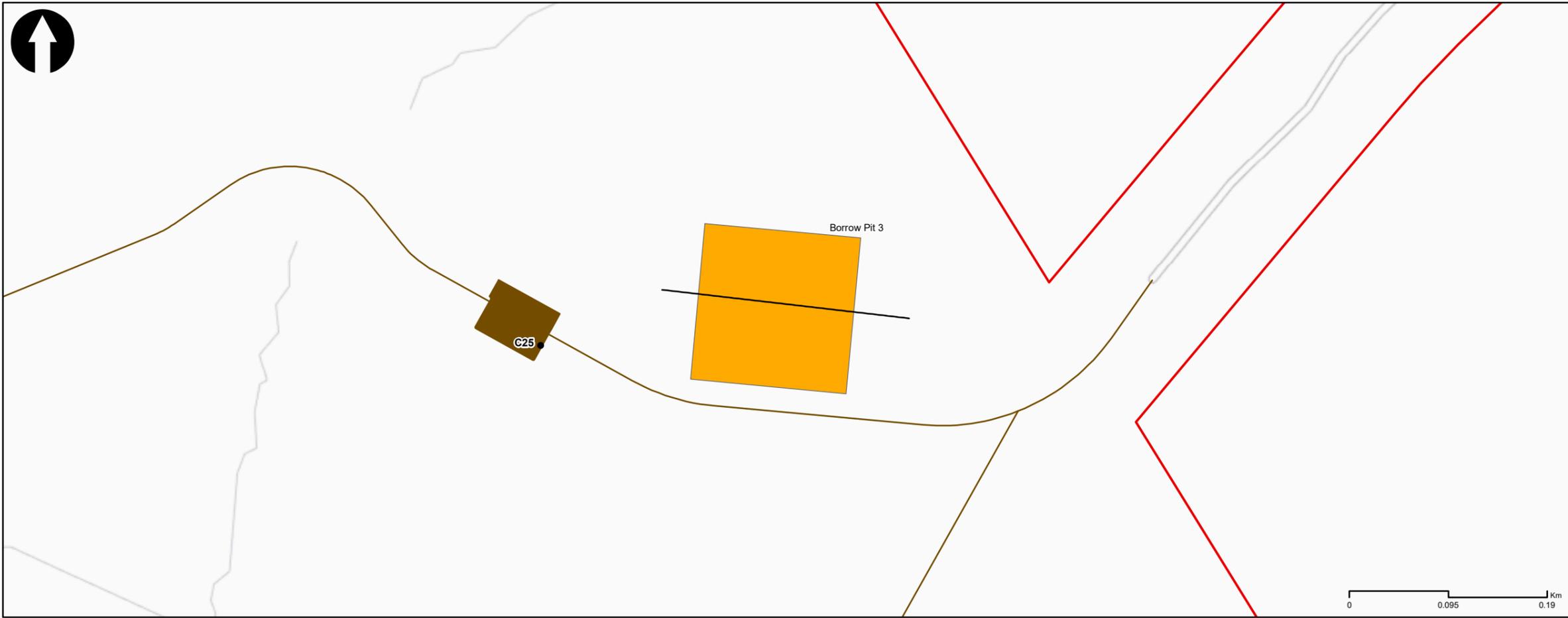
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BP2



Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP2	24649	80243	22,500	150	150	8	21,300	75,000	78,000	Psammite



Key to Symbols

- Indicative Section Line
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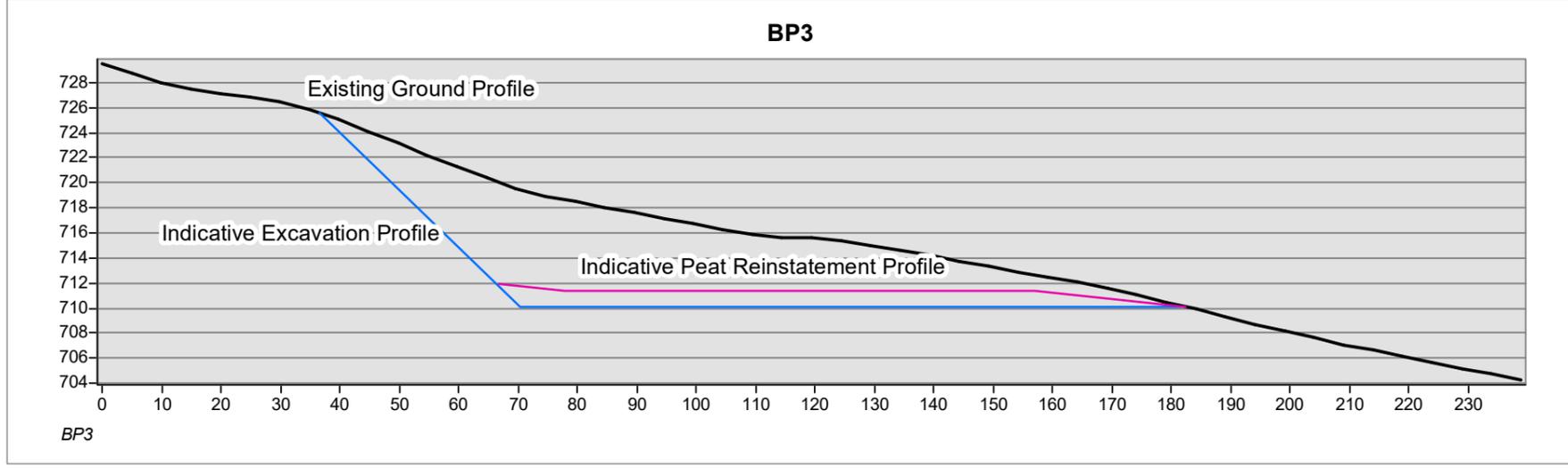
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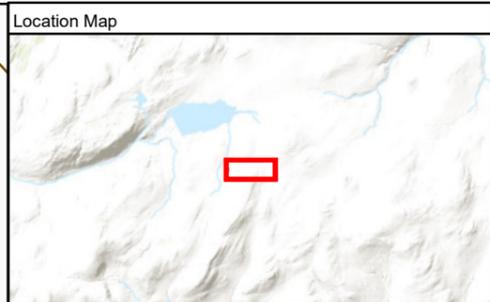
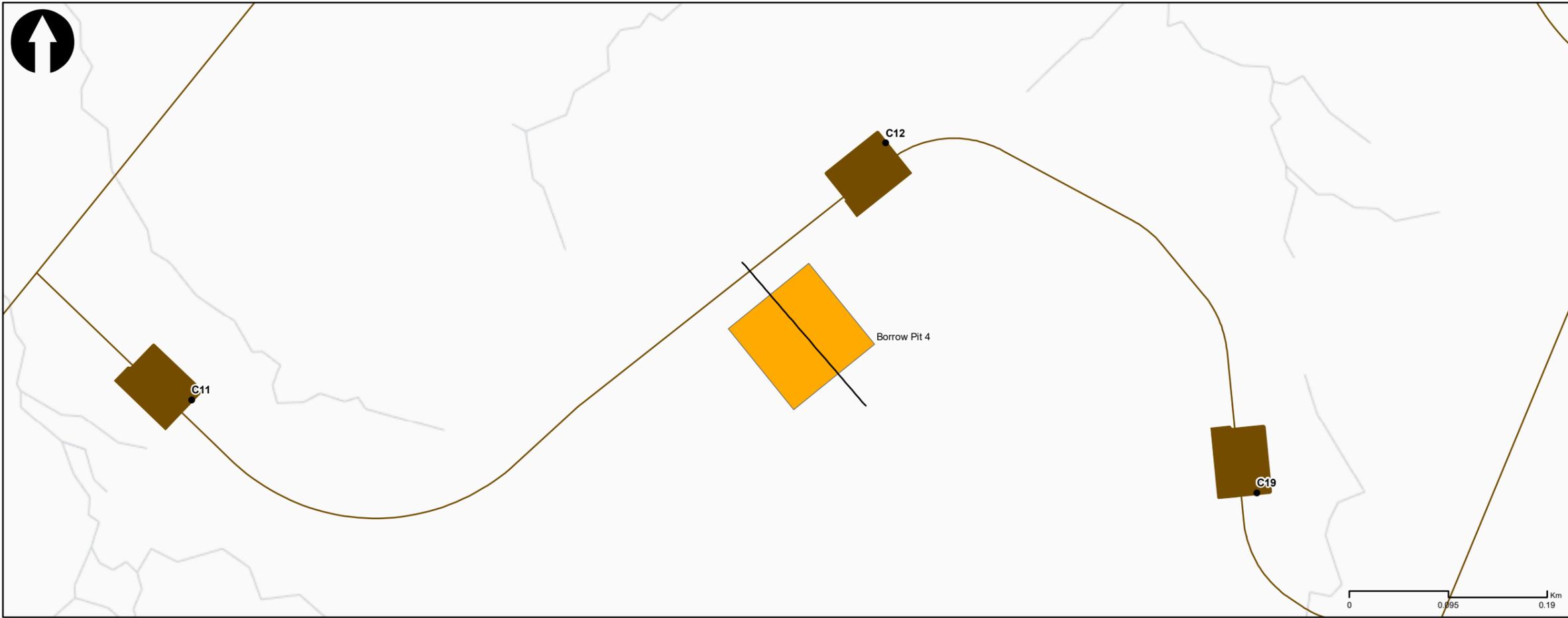
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Figure A.4
 Borrow Pit Appraisal
 Borrow Pit 3

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GIS Check	A Tourish	Approved	N Lovett
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Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP3	24930	80204	22,500	150	150	16	20,100	147,000	152,880	Granodiorite



Key to Symbols

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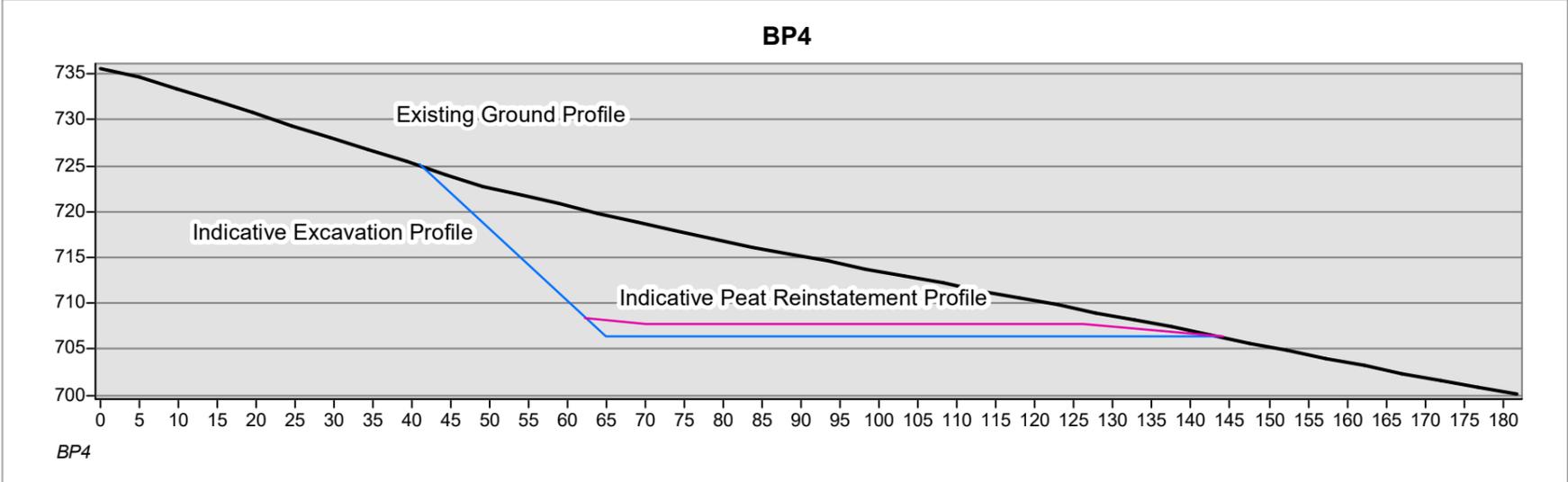


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 Figure A.5
 Borrow Pit Appraisal
 Borrow Pit 4

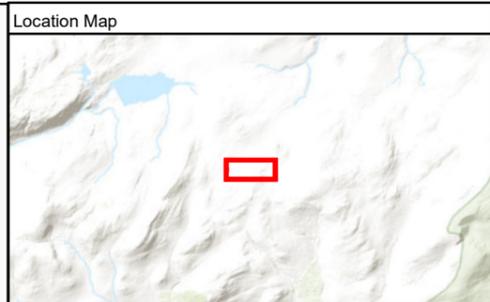
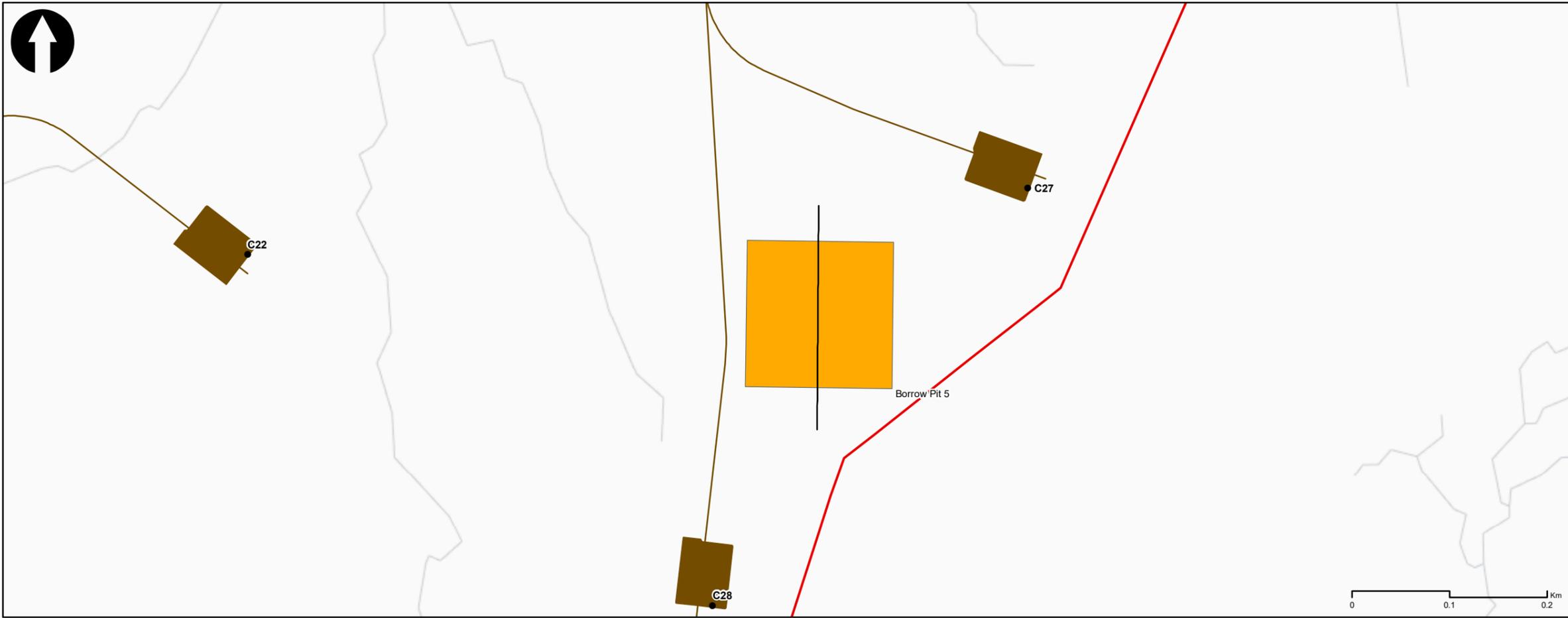
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Drawing Number
MMD-408095-DR-BP-GIS-005



Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP4	24750	80177	10,000	100	100	18	8,200	68,000	70,720	Semi-pelite



Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- Batching Plant
- Hardstanding
- Substation

Notes

1. All dimensions are approximate.
 2. The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	02/04/20	KY	For Information	AT	AM

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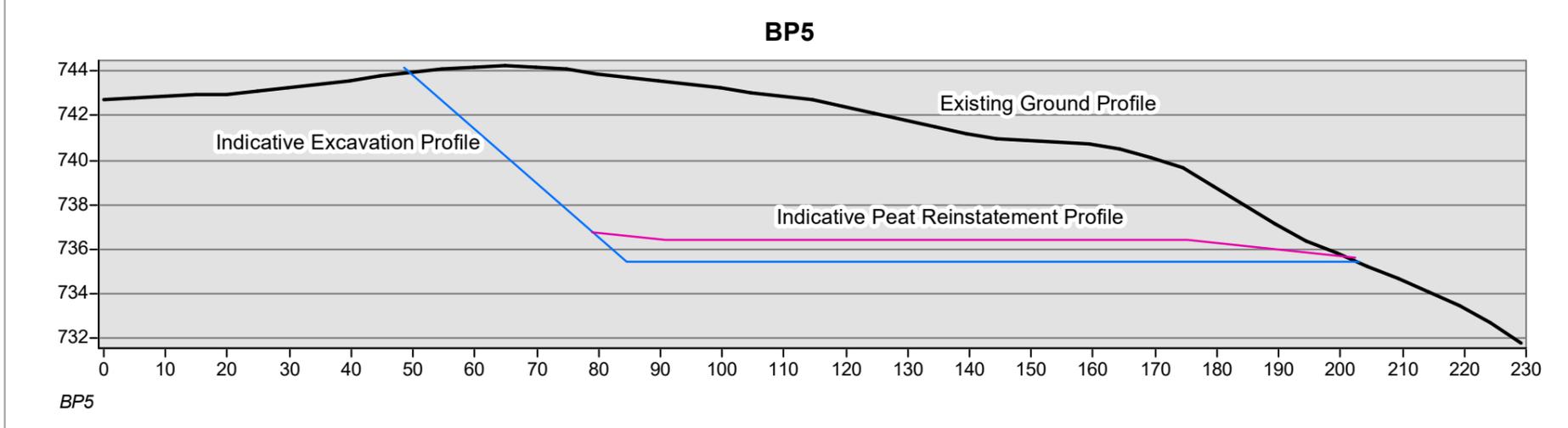
Title

Figure A.6
 Borrow Pit Appraisal
 Borrow Pit 5

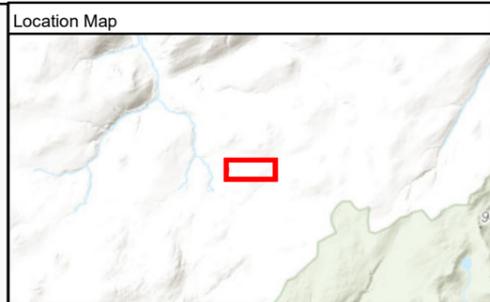
Designed	K Young	Eng Check	A Tourish
Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	N Lovett

Scale at A3: 1:4,800 Status: FI Rev: 01 Security: STD

Drawing Number: **MMD-408095-DR-BP-GIS-006**



Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP5	24958	80074	22,500	150	150	16	20,100	147,000	152,880	Granodiorite

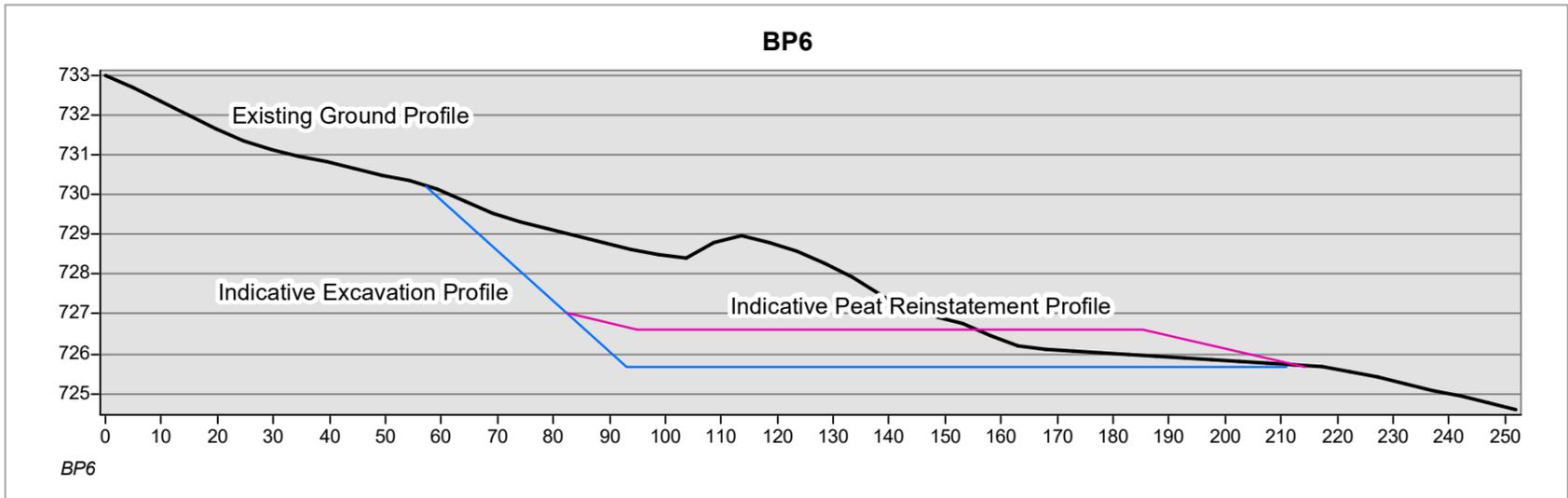


Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- ▨ Batching Plant
- Hardstanding
- Substation

Notes

- All dimensions are approximate.
- The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation.



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Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP6	25645	80415	22,500	150	150	5	21,750	38,000	39,520	Granodiorite

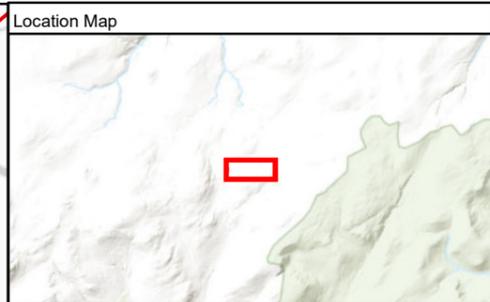
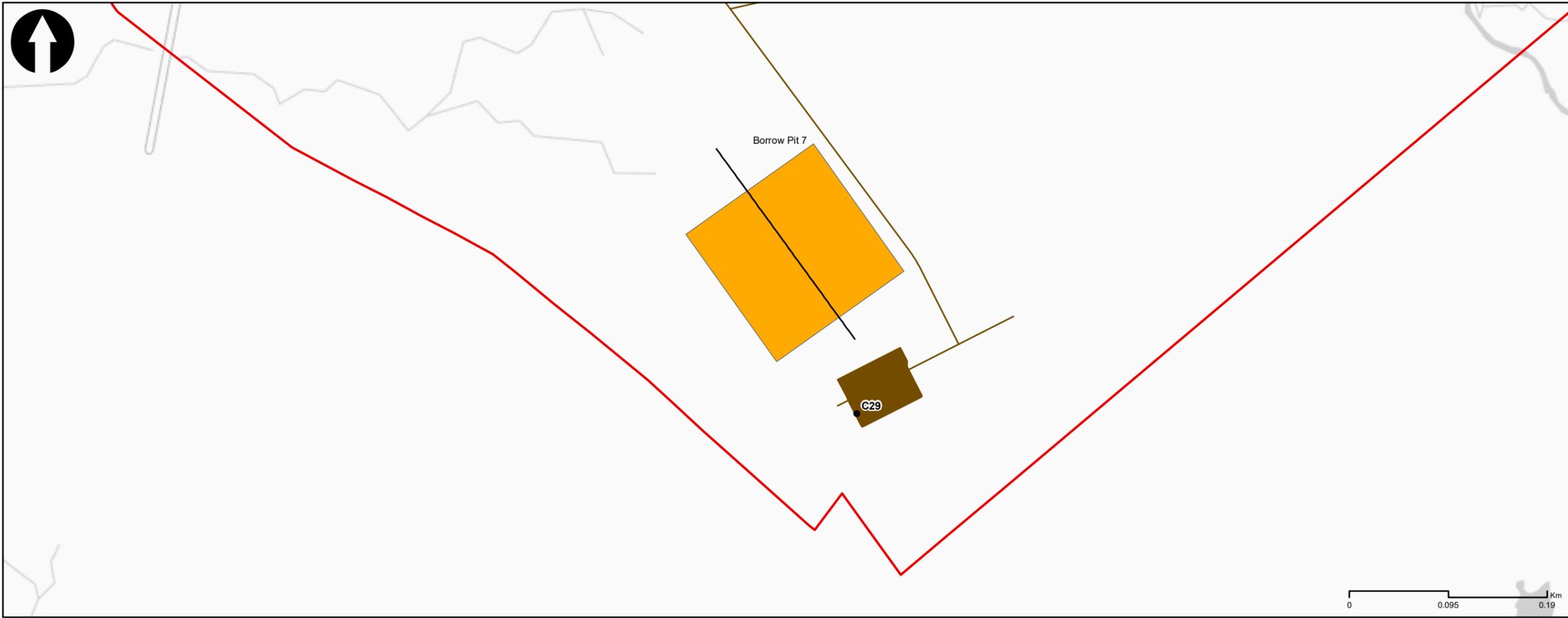
Client

Title

Figure A.7
Borrow Pit Appraisal
Borrow Pit 6

Designed	K Young	Eng Check	A Tourish
Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	N Lovett

Scale at A3: 1:4,500 | Status: FI | Rev: 01 | Security: STD

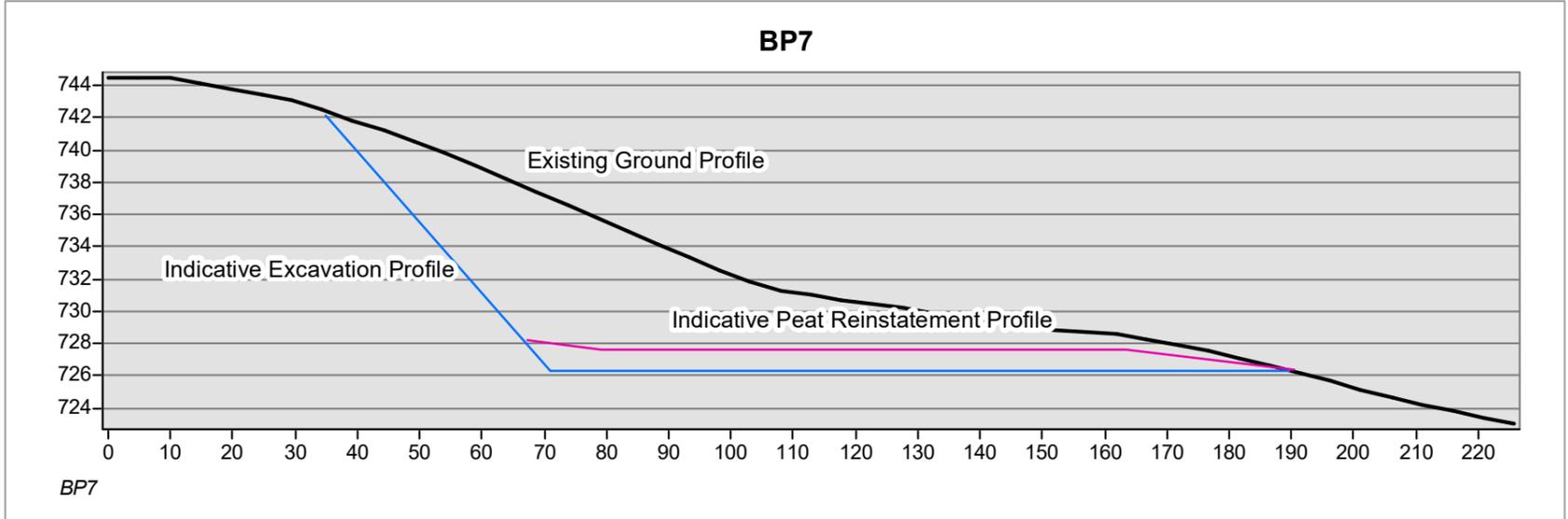


Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- ▨ Batching Plant
- Hardstanding
- Substation

Notes

1. All dimensions are approximate.
 2. The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation



Rev	Date	Drawn	Description	Ch'k'd	App'd
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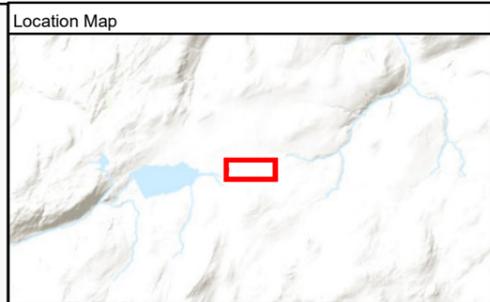
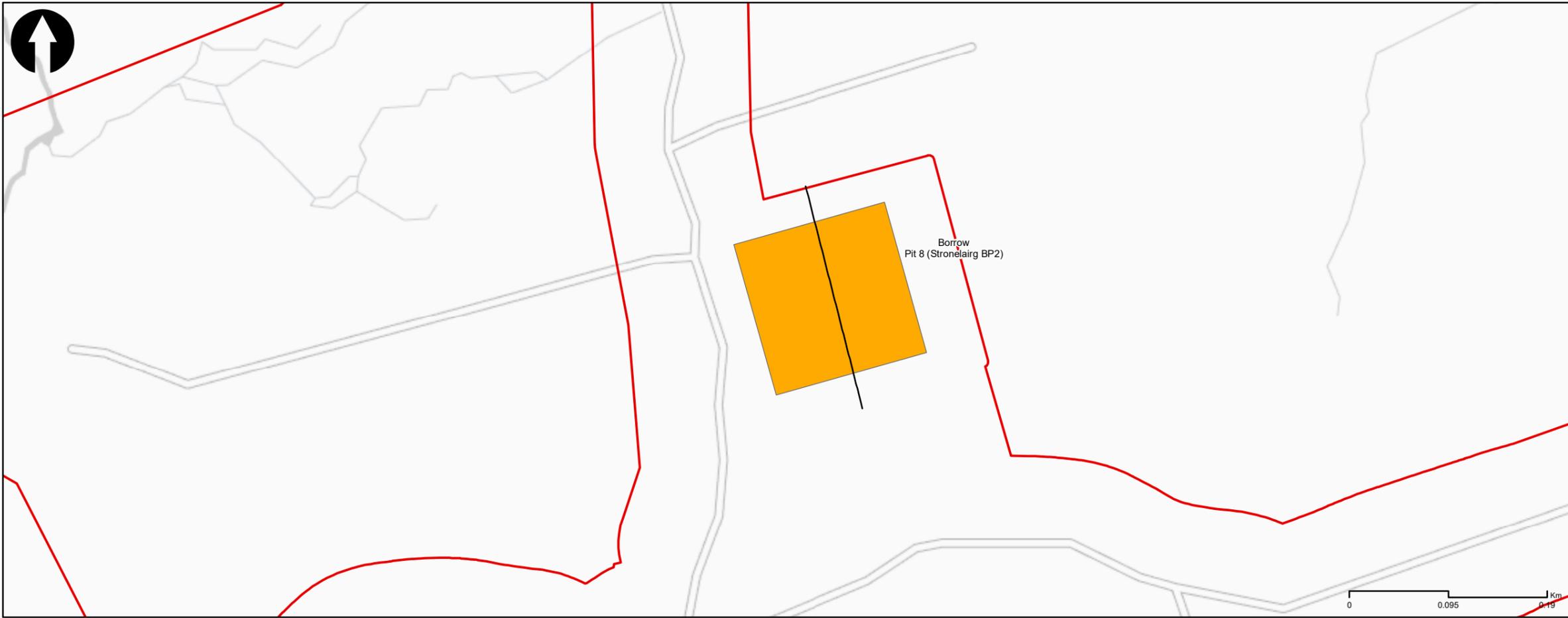


Title
 Figure A.8
 Borrow Pit Appraisal
 Borrow Pit 7

Designed	K Young	Eng Check	A Tourish
Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	N Lovett

Scale at A3: 1:4,500 | Status: FI | Rev: 01 | Security: STD

Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP7	25554	80161	22,500	150	150	13	20,550	119,000	123,760	Granodiorite



Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- ▨ Batching Plant
- Hardstanding
- Substation

Notes

- All dimensions are approximate.
- The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation

01	02/04/20	KY	For Information	AT	AM
Rev	Date	Drawn	Description	Ch'k'd	App'd

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Title

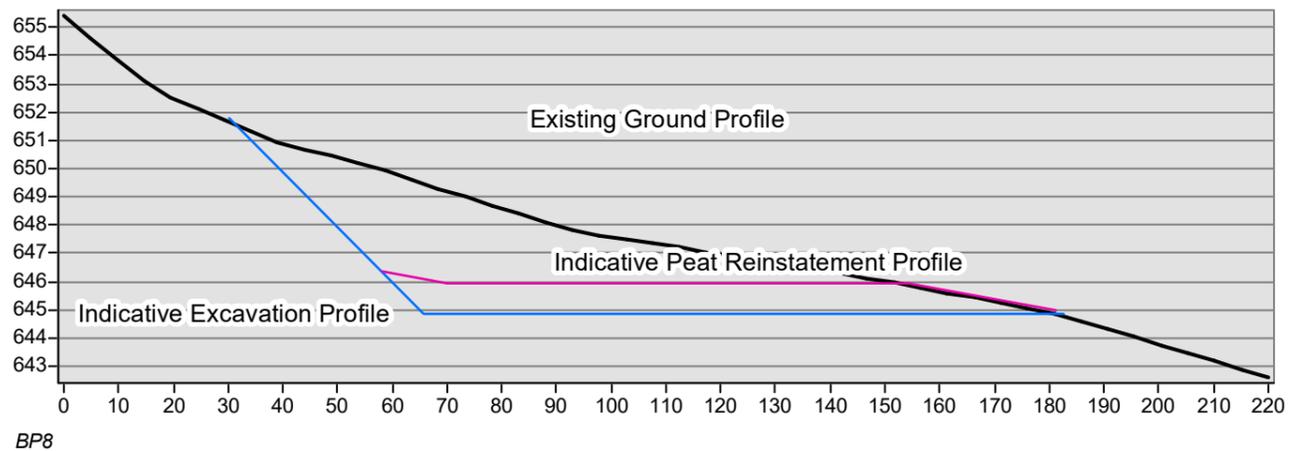
Figure A.9
Borrow Pit Appraisal
Borrow Pit 8

Designed	K Young	Eng Check	A Tourish
Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	N Lovett

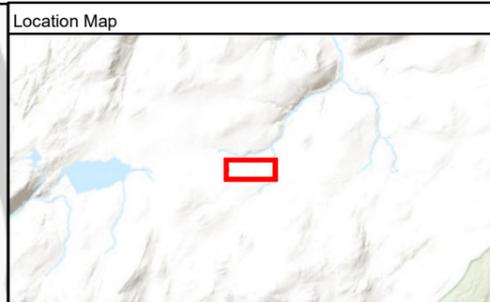
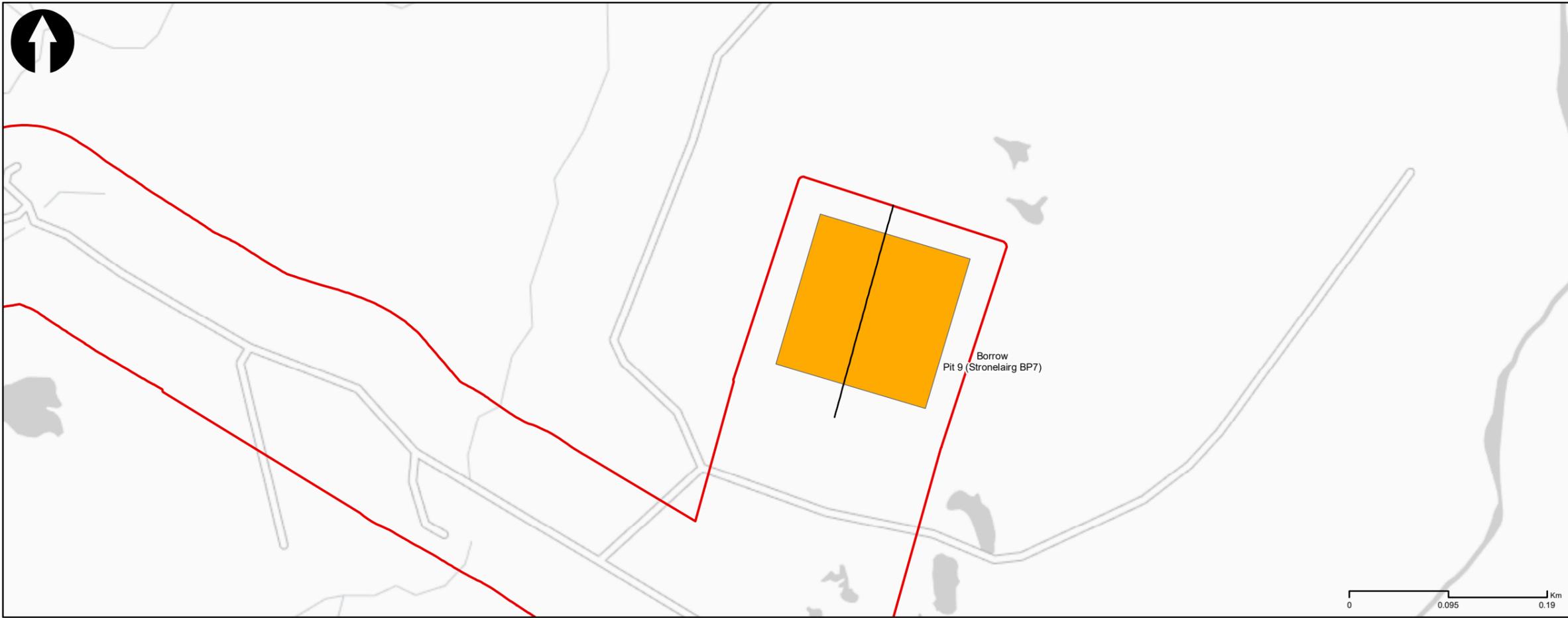
Scale at A3	Status	Rev	Security
1:4,500	FI	01	STD

Drawing Number
MMD-408095-DR-BP-GIS-009

BP8



Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)			
BP8	24869	80375	22,500	150	150	6	21,600	49,000	50,960 Psammite



Key to Symbols

- Indicative Section Line
- Turbine
- LiDAR
- Track
- Borrow Pit
- Site Boundary
- Compound
- ▨ Batching Plant
- Hardstanding
- Substation

Notes

- All dimensions are approximate.
- The borrow pit area shown is a search area. Actual dimensions will depend on confirmation of material requirements and ground investigation.

01	02/04/20	KY	For Information	AT	AM
Rev	Date	Drawn	Description	Ch'k'd	App'd

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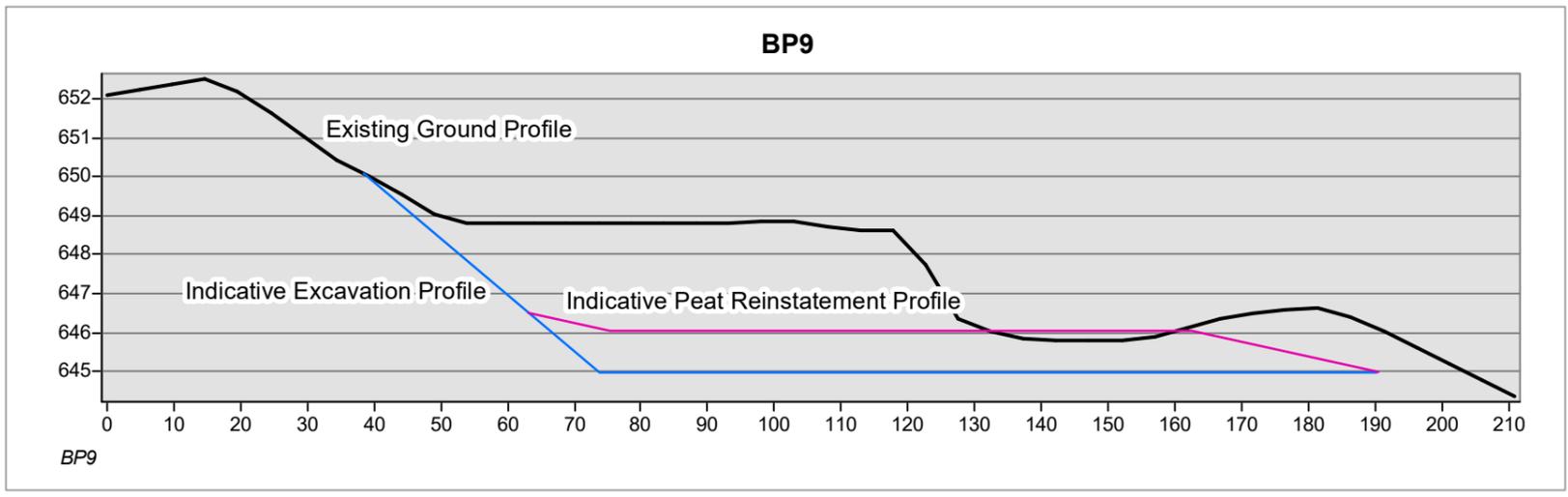
Title

Figure A.10
Borrow Pit Appraisal
Borrow Pit 9

Designed	K Young	Eng Check	A Tourish
Drawn	K Young	Coordination	K Young
GIS Check	A Tourish	Approved	N Lovett

Scale at A3: 1:4,500 | Status: FI | Rev: 01 | Security: STD

Drawing Number: **MMD-408095-DR-BP-GIS-010**



Borrow Pit	Coordinates		Approx. Dimensions				Potential Volume Extracted (m3)	Potential Useful Aggregate	Geology	
	Easting	Northing	Search Area (m2)	Width (m)	Length (m)	Max. Depth (m)				Footprint Area (m2)
BP9	25083	80359	22,500	150	150	5	21,750	21,000	21,840	Granodiorite