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NATIONAL GRID ELECTRICITY TRANSMISSION PLC

THE YORKSHIRE GREEN ENERGY ENABLEMENT PROJECT

MINERAL RESOURCE ASSESSMENT

AUGUST 2022

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NATIONAL GRID ELECTRICITY TRANSMISSION PLC

THE YORKSHIRE GREEN ENERGY ENABLEMENT PROJECT

MINERAL RESOURCE ASSESSMENT

AUGUST 2022

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EXECUTIVE SUMMARY

This report has been prepared to support an application for a Development Consent Order by National Grid Electricity Transmission PLC to upgrade and reinforce the existing electricity transmission system in Yorkshire ('the Project'). The Project has been considered in relation to the mineral safeguarding policies of the Minerals and Waste Joint Plan for North Yorkshire[1].

The proposed Order Limits for the Project represent the anticipated maximum extent of land in which the Project may take place, so the permanent footprint of the Project would therefore be smaller than the Order Limits. The online British Geological Survey map[2] for the area indicates that there are eight superficial deposits within the proposed Order Limits, five of which are safeguarded mineral resources. The safeguarded minerals are alluvium, glaciofluvial sand and gravel deposits, the Alne Glaciolacustrine Formation, a river terrace sand and gravel deposit and the Sutton Sand Formation. The solid geology comprises six geological formations, two of which (the Cadeby Formation and the Brotherton Formation) are safeguarded limestone mineral resources.

The Project is in a Mineral Safeguarding Area for limestone, sand and gravel, brick clay, and building stone. The quantity of each safeguarded mineral within the Order Limits is too small to be considered commercially viable, so it is highly unlikely that the safeguarded minerals would ever be worked in the absence of the Project. Most of the mineral within the Order Limits has already been sterilised by existing infrastructure such as pylons and overhead power lines. New infrastructure including replacement infrastructure is proposed at Shipton to the northwest of York, at Tadcaster, at Osbaldwick to the east of York, and at Monk Fryston which is at the southern extent of the Order Limits. The proposed new infrastructure includes electricity substations, new pylons and overhead lines, but the mineral underneath the proposed infrastructure has already been sterilised in some cases by existing development and electricity infrastructure. Where the mineral has not already been sterilised, it would not be considered to be a commercially viable mineral.

The Project would not have any impact on the only active quarry within 250m of the Order Limits, as there are existing pylons and overhead lines already present along the Jackdaw Quarry's western boundary, so the modification of this infrastructure will not cause any

[1] North Yorkshire County Council, City of York Council and North York Moors National Park Authority. *Minerals and Waste Joint Plan 2015-2030*. Available at https://www.northyorks.gov.uk/minerals-and-waste-joint-plan

[2] British Geological Survey. *Geoindex Onshore*. Available at [redacted]

additional sterilisation. The safeguarded minerals have already been sterilised and it is highly unlikely that the minerals would ever be worked in the absence of the Project, so the minerals have no potential or economic value. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for the Project to be acceptable in a Mineral Safeguarding Area.

1 INTRODUCTION

1.1 This report has been prepared in accordance with instructions from National Grid Electricity Transmission Plc (National Grid) to prepare a mineral resource assessment in support of an application for a Development Consent Order (DCO) to upgrade and reinforce the electricity transmission system in Yorkshire. The Project is located in North Yorkshire with the most northerly extent located approximately 1.5km northeast of Shipton (and approximately 10km northwest of York City Centre), and the most southerly extent at the existing Monk Fryston Substation.

1.2 The Order Limits are located in Mineral Safeguarding Areas (MSA) for limestone, sand and gravel, brick clay, building stone and building stone sites, so an application for development must include a mineral resource assessment to determine whether the proposed development would be compatible with the relevant mineral safeguarding policies.

1.3 Mineral Safeguarding Areas were defined in the National Planning Policy Framework (February 2019) as "an area designated by Minerals Planning Authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development". The Mineral Planning Authority (MPA) is North Yorkshire County Council.

2 THE PROPOSED DEVELOPMENT

2.1 The Yorkshire Green Energy Enablement Project ('the Project') is a proposal by National Grid to upgrade and reinforce the electricity transmission system in Yorkshire. It will support the Government's commitment to quadruple the UK's offshore wind capacity by 2030. It will also support growth in this source of green energy in Scotland and the north-east of England by providing the capability to efficiently manage substantially increased power flows in Great Britain and increased energy demand, which the Climate Change Committee predicts will double by 2050.

2.2 The Project will be the subject of a DCO and it will be constructed within the Order Limits boundary set by the DCO. The current Order Limits boundary is shown edged red on drawings GM11455-001 and GM11455-002. The permanent footprint of the Project would be smaller than the Order Limits boundary because it includes all the land that is temporarily required for construction purposes.

2.3 The Project would comprise new infrastructure as well as works to existing transmission infrastructure and facilities. The new permanent infrastructure would be in three areas within the Order Limits from north to south:

- *Shipton an*: new overhead lines supported by pylons; a new substation at Overton, two cable sealing end compounds[3] and associated buried cables; and replacement of some sections of existing overhead lines.
- *Tadcaster*: two new cable sealing end compounds and associated underground cabling.
- *Monk Fryston*: A new substation to be built next to the existing electricity substation and realignment of overhead lines to connect to the new substation.

2.4 Upgrades to existing infrastructure are also proposed including the decommissioning, replacement and minor realignment of existing pylons and overhead lines, as well as temporary construction activities such as the establishment and use of construction compounds and working areas for pylon construction. The Project also involves modifications to existing pylons and overhead lines leading to Osbaldwick Substation.

3 GEOLOGY

3.1 Geologically, a distinction is made between "superficial deposits" and "solid geology". Superficial deposits such as sand and gravel are found at, or close to, the surface. The solid bedrock beneath the superficial deposits is called the "solid geology".

Superficial Deposits

3.2 The British Geological Survey (BGS) online map[4] indicates that the Order Limits are underlain by eight different superficial deposits, which are all shown on the attached drawings GM11455-001 and GM11455-002. The seven superficial deposits are alluvium, glaciofluvial sand and gravel deposits, the Vale of York Formation, the York Moraine Member, the Alne Glaciolacustrine Formation, a river terrace sand and gravel deposit and the Sutton Sand Formation. Only five of the superficial deposits are

[3] Cable sealing end compounds are concrete surfaced areas containing electricity infrastructure at the point where underground cables transition to overhead lines. They are around 40m x 40m in area and consist of permanent hard surfacing containing various electrical equipment.

[4] British Geological Survey. *Geoindex Onshore*. Available at [redacted]

safeguarded by the MPA, namely alluvium, glaciofluvial sand and gravel deposits, the Alne Glaciolacustrine Formation, a river terrace sand and gravel deposit and the Sutton Sand Formation. The Order Limits are also in Mineral Safeguarding Areas for sand and gravel, and brick clay, which includes a 250m buffer zone around the resources.

3.3 The northern part of the Order Limits from Shipton southwards to Long Marston is covered by the Alne Glaciolacustrine Formation (AGL), which is safeguarded for its potential to contain a commercially viable quantity of brick clay. The Alne Glaciolacustrine Formation is coloured orange on drawing GM11455-001 and labelled AG1 at the northern end of the deposit, AG2 at Monkton and AG3 at Long Marston.

3.4 At the northern tip of the Order Limits there is a deposit of the Sutton Sand Formation, which is a safeguarded mineral resource. The Sutton Sand Formation is coloured light brown on drawing GM11455-001 and labelled SS1 to SS2 at the northern end of the Order Limits around Shipton.

3.5 The central part of the Order Limits is covered by the Vale of York Formation and comprises till, which is a mixture of clay, silt, sand and gravel. It is not a safeguarded mineral resource. The Vale of York Formation is coloured light blue on drawing GM11455-001.

3.6 Superficial deposits are largely absent from the southern part of the Order Limits, apart from smaller deposits of the York Moraine Member and the Harrogate Till Formation. Both of these formations comprise till, which is not a safeguarded mineral resource. The York Moraine Member is shaded dark green on the attached drawing GM11455-002 and the Harrogate Till Formation is shaded light green.

3.7 The remainder of the superficial deposits are present in very small areas along the Order Limits. There are two small glaciofluvial sand and gravel deposits within or adjoining the Order Limits, which are safeguarded for its potential to contain a commercially viable quantity of sand and gravel. The two small sand and gravel deposits are shaded pink on the attached drawings GM11455-001 and GM11455-002.

3.8 Alluvium is present in four places within the Order Limits and is composed of clay, silt, sand and gravel. Alluvium is safeguarded for its potential to contain a commercially viable quantity of sand and gravel, but due to the presence of clay (which is a contaminant) within the deposit, it is considered highly unlikely that it would ever be

worked. The four deposits of alluvium are shaded yellow and labelled AL1, AL2 and AL3 on the attached drawings GM11455-001 and GM11455-002.

3.9 There is one small safeguarded mineral resource of river terrace sand and gravel deposit present within the Order Limits, at Saxton. The river terrace sand and gravel deposit is shaded light orange and labelled RT1 on the attached drawing GM11455-002.

Solid Geology

3.10 The BGS online geological map indicates that the Order Limits are underlain by six solid geology formations, namely the Mercia Mudstone Group, the Cadeby Formation, the Brotherton Formation, the Roxby Formation, the Sherwood Sandstone Group and the Edlington Formation, of which only two are safeguarded mineral resources. The solid geology and Order Limits boundary are shown on the attached drawings GM11455-003 and GM11455-004. The two safeguarded solid geology mineral resources within the Order Limits are the Cadeby Formation and the Brotherton Formation. The Order Limits also intersect a mineral safeguarding area for building stone sites including a 250m buffer, which is designed to protect the future working of a building stone quarry.

3.11 The northern part of the Order Limits is underlain by the Sherwood Sandstone Group, which comprises sandstone and is not a safeguarded mineral resource. The Sherwood Sandstone Group is shaded brown on the attached drawings GM11455-003 and it stretches from the northern extremity of the Order Limits southwards to Tadcaster.

3.12 There is a narrow outcrop of the Roxby Formation immediately to the south of the Sherwood Sandstone Group. It is a calcareous mudstone and is not a safeguarded mineral resource. The Roxby Formation is shaded pink on the attached drawing GM11455-004.

3.13 The southern part of the Order Limits is underlain by the Cadeby Formation, the Brotherton Formation and the Edlington Formation. The Cadeby Formation comprises dolostone which is a type of limestone. This formation is safeguarded for both limestone and building stone and it is coloured light blue on the attached drawing GM11455-004. The Brotherton Formation comprises dolomitic limestone and is safeguarded for limestone. It is shaded dark blue on the attached drawing GM11455-004. These colours are difficult to distinguish on the attached drawing GM11455-004, so the formation name has been added on this drawing. The Edlington Formation is

present as small, scattered outcrops of mudstone within the Brotherton Formation and is not a safeguarded mineral resource. It is shaded dark orange on the attached drawing GM11455-004.

4 MINERAL PLANNING POLICY

4.1 The planning policies of relevance to the Project are contained in the Minerals and Waste Joint Plan (MWJP) for North Yorkshire. It was adopted in February 2022 and is due for review by 2030. The MWJP was jointly prepared by North Yorkshire County Council, City of York Council and the North York Moors National Park Authority. The MWJP provides guidance to developers, local communities and other interested parties on where and when minerals and waste development may be expected over the Plan period, as well as how it will be managed to reduce any adverse impacts and maximise any benefits.

4.2 "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas", which is attached in full at **Appendix 1**, states that permission for development other than mineral extraction will be granted where:

i. It would not sterilise the mineral or prejudice future extraction; or
ii. The mineral will be extracted prior to the development (where this can be achieved without unacceptable impact on the environment or local communities); or
iii. The need for the non-mineral development can be demonstrated to outweigh the need to safeguard the mineral; or
iv. It can be demonstrated that the mineral in the location concerned is no longer of any potential value as it does not represent an economically viable and therefore exploitable resource; or
v. The non-mineral development is of a temporary nature that does not inhibit extraction within the timescale that the mineral is likely to be needed; or
vi. It constitutes exempt development.

5 COMPLIANCE WITH ADOPTED SAFEGUARDING POLICY

Superficial Geology

5.1 This section identifies each superficial deposit that is a safeguarded mineral resource and discusses how the Project complies with the adopted safeguarding policy.

Glaciofluvial sand and gravel deposit

5.2 One of the safeguarded minerals within the Order Limits is the glaciofluvial sand and gravel deposit at the northern end of the Project. There are two deposits within or adjoining the Order Limits. They are shaded pink and labelled as GF1 and GF2 on the attached drawing GM11455-001. All of the deposits are less than 1 ha in size and the quantity of sand and gravel present in each of these deposits is considered too small to be commercially viable as a standalone mineral extraction site. Consequently, even if the Project was not taking place, it is highly unlikely that the mineral would ever be worked.

5.3 The proposed new infrastructure would be located to the northwest of York, at Tadcaster and at Monk Fryston, and would not be built on any glaciofluvial sand and gravel deposits, so mineral sterilisation would not occur. Modifications to existing pylons and overhead lines are proposed within the centre of the proposed Order Limits where the glaciofluvial sand and gravel deposits are located. The sand and gravel here has already been sterilised by the existing infrastructure and the proposed infrastructure would not sterilise any additional sand and gravel deposits. As mentioned above, it is clear that the glaciofluvial sand and gravel within the Order Limits is not of a commercially viable quantity, and the mineral is of no potential value as it is highly unlikely that it would ever be worked, so the Project is compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area for glaciofluvial sand and gravel.

Alluvium

5.4 Another safeguarded mineral within the Order Limits is two small deposits of alluvium, which are coloured yellow and labelled AL1 and AL2 on the attached drawings GM11455-001 and GM11455-002. Alluvium is composed of clay, silt, sand and gravel. The deposits trend in an east west direction across the Order Limits. Alluvium is a safeguarded mineral for its potential to contain a commercially viable quantity of sand and gravel, although in the minerals industry it is not normally regarded as a mineral

resource because the proportions of silt and clay, which are contaminants, are too high for it to be used as an aggregate. Consequently, it is highly unlikely that the alluvium would ever be worked as a commercial mineral, so it has no potential or economic value. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area for alluvium.

River terrace sand and gravel deposit

5.5 There is a small river terrace sand and gravel deposit present within the Order Limits near Saxton, which is shaded light orange and labelled RT1 on the attached drawing GM11455-002. The sand and gravel deposit is approximately 1 ha in area with a width of approximately 100m. A deposit of this size is too small to contain a commercially viable quantity of mineral and so it is highly unlikely that it would ever be worked. Consequently, the mineral has no potential or economic value, and the proposed development is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area for river terrace sand and gravel.

Sutton Sand Formation

5.6 The Sutton Sand Formation is a safeguarded mineral resource for its potential to contain a commercially viable quantity of sand and gravel. The Sutton Sand Formation covers a small part of the northern extent of the Order Limits and is shaded light brown and labelled SS1 and SS2 on the attached drawing GM11455-001. The Sutton Sand Formation covers approximately 7 ha of the Order Limits which includes agricultural land and a main road. Extraction of the mineral would not be practicably feasible as it would need to be extracted in two or three separate areas to allow for the location of the pre-existing roads. However, those three areas amount to only 2.3 ha in total, which is not large enough to contain a commercially viable quantity of mineral.

5.7 Borehole log SE55NE/21, which is attached at **Appendix 2**, shows that the Sutton Sand Formation comprises fine sand, brown clay and gravel. The presence of fine sand and clay indicates that the sand and gravel is not of a commercially viable quality. Consequently, due to the small quantity and poor quality of the sand and gravel, it is highly unlikely that the mineral would ever be worked commercially, so it is of no potential or economic value. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource

areas" for built development to be acceptable in a Mineral Safeguarding Area for the Sutton Sand Formation.

Brick clay

5.8 The Order Limits is in a MSA for brick clay, which is extracted from the Alne Glaciolacustrine Formation. It is safeguarded for its potential to contain a commercially viable quantity of brick clay. In addition to the MSA, the MPA has identified a 250m buffer zone around the brick clay resource, which is designed to protect the future working of the mineral.

Development at Shipton/Overton

5.9 The northern part of the Order Limits is covered by the Alne Glaciolacustrine Formation which is shown coloured orange on the attached drawing GM11455-001 and covers the area between the labels AG1 to AG3 on the drawing. New infrastructure is proposed near the settlement of Shipton, which is approximately 8 km northwest of York city centre. The new infrastructure would primarily consist of pylons, two cable sealing end compounds, a substation, and overhead lines, which would be constructed between points AG1 and AG2 on drawing GM11455-001. The proposed new infrastructure is denoted by the thin green line within the red Order Limits boundary on drawing GM11455-001. The part of the land within the Order Limits between AG2 southwards to AG3 is on the AGL but the works in this section would comprise modifications to existing pylons and overhead lines so there would not be any additional mineral sterilisation. In the absence of the Project, it is highly unlikely that the mineral would ever be worked due to the constraints affecting the Order Limits. There are several roads that would act as a constraint for mineral extraction including Corban Lane, East Lane, Mucky Lane and Hurns Lane. There are also approximately six separate farms which are located to the east of Shipton. If mineral extraction were to take place, then each of these properties would require a 100m buffer zone to protect the amenity of the residents. This would reduce the quantity of mineral available for mineral extraction. The surrounding properties and roads would make it difficult for the deposit to be worked as a single extensive clay pit, so commercial extraction of the brick clay would probably not be practicable.

5.10 Brick clay is used in the manufacture of bricks and each brickworks has its own reserve of brick clay to ensure that a consistent quality of brick is produced. There is one brickworks in North Yorkshire, namely the York Handmade Brick Co Ltd, which will

already have its own reserves of brick clay. The quality of the AGL in this area is unknown, and the MWJP states that the work undertaken by the BGS did not propose to safeguard the AGL on the grounds that the quality is relatively low. Consequently, it is likely that the AGL covering the Order Limits is of a low quality.

Development at Osbaldwick

5.11 New infrastructure in the form of a single new pylon is proposed in the suburb of Osbaldwick, which is approximately 4 km east of York city centre, as is denoted by the green line within the area edged red on drawing GM11455-005. However, the new infrastructure would not sterilise the mineral as there is already existing industrial development within the Order Limits, namely the Osbaldwick Industrial Estate including the pre-existing National Grid substation. The existing industrial development and substation have already sterilised the brick clay and therefore the additional infrastructure would not cause further sterilisation of the mineral.

5.12 In summary, due to the poor quality and small quantity of available brick clay within the Order Limits, it is considered highly unlikely that the mineral would ever be worked. In addition to this, most of the brick clay within the Order Limits has already been sterilised and extraction of the remainder is unlikely to be commercially practicable. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a MSA relating to brick clay.

Solid Geology

5.13 This section identifies each geological formation that is a safeguarded mineral resource and discusses how the Project complies with the adopted safeguarding policy.

Sherwood Sandstone

5.14 The solid geology in the northern part of the Order Limits is Sherwood sandstone as shown on drawing no. GM11455-003. It is not a safeguarded mineral.

Cadeby Formation

5.15 One of the safeguarded minerals within the Order Limits is the dolostone of the Cadeby Formation, which is safeguarded for its potential to contain a commercially viable quantity of limestone and for use as building stone. The southern part of the Order Limits is covered by the Cadeby Formation, and it is shaded light blue on the

attached drawing GM11455-004. The Cadeby Formation is used for building stone, aggregate and for agricultural lime. However, the Project is a linear project which runs north-south parallel to the strike of the Cadeby Formation, so it does not cut across the outcrop. Existing overhead power lines pass close to Jackdaw Crag limestone quarry south of Tadcaster but the Project would not cause any additional sterilisation at the quarry, as there is a power line present along the western boundary of the quarry.

5.16 The new infrastructure including the substations would be located near Shipton, north west of York, and Monk Fryston, south of Sherburn in Elmet. The Overton substation would be built on the Sherwood Sandstone Group which is not a safeguarded mineral resource. The Monk Fryston substation would be built on the Brotherton Formation rather than the Cadeby Formation and is surrounded by existing industrial development and the pre-existing Monk Fryston substation, so the proposed development of the electricity substation would not cause any additional sterilisation of the mineral resource. The area surrounding the new infrastructure could not be worked, as the mineral has already been sterilised by residential properties and roads including the A64, A659, Garnet Lane and Toulston Lane. The new infrastructure at Tadcaster will also predominantly be built on the Brotherton Formation rather than the Cadeby Formation.

5.17 The remainder of the Order Limits covered by the Cadeby Formation would not contain any new infrastructure and the works would instead comprise the modification of existing pylons and overhead lines. Consequently, the Project would not cause any additional sterilisation as there is no new development proposed for this part of the Order Limits. Since the mineral within the Order Limits has already been sterilised, it is highly unlikely that it would ever be worked, so it is of no potential value or economic value. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area for the Cadeby Formation.

Brotherton Formation

5.18 Another safeguarded mineral within the Order Limits is the Brotherton Formation which is safeguarded for its potential to contain a commercially viable quantity of limestone. The Brotherton Formation is shaded dark blue on the attached drawing

GM11455-004. The limestone is used for aggregate and for agricultural lime, but not for building stone.

5.19 Most of the southern extent of the Order Limits is covered by the Cadeby Formation which is discussed above. There are a few parts of the Order Limits that are covered by the Brotherton Formation, although these are few and far between. As is the case with the Cadeby Formation, the Brotherton Formation outcrops in a north-south direction and does pass close to any quarries.

5.20 Even if there were a commercially viable quantity of mineral present within the Order Limits, the proposed infrastructure would not cause any additional mineral sterilisation. The new infrastructure including an electricity substation would be located at Monk Fryston on the Brotherton Formation. Pre-existing industrial development including the pre-existing substation has already sterilised the mineral directly beneath the substation but also the area surrounding the substation, so the proposed development would not cause any additional sterilisation of the mineral resource. There is also new infrastructure proposed at Tadcaster, which is located on the Brotherton Formation, in the form of new Cable Sealing End Compounds, but this new infrastructure covers a very small quantity of mineral and so would not sterilise a commercially viable quantity of mineral. Since the mineral cannot be worked due to existing sterilisation, it has no potential value or economic value. The Project is therefore compatible with criterion (iv) of "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area for the Brotherton Formation.

Building stone sites

5.21 The southern part of the Order Limits is in a Mineral Safeguarding Area for building stone sites. Building stone sites are safeguarded and are designated with a 250m buffer zone to protect the site and the surrounding minerals from sterilisation. There are eight quarries located within 500m of the Order Limits, but only one of them (Jackdaw Crag quarry) is active, and is an aggregates, not building stone quarry. The remainder are either closed or inactive, so the proposed Order Limits would not impact upon or sterilise them. Consequently, the modification of these pylons as part of the Project would not cause further sterilisation of the mineral. The Project is therefore compatible with the adopted safeguarding policy.

6 CONCLUSION

6.1 The Project is in a Mineral Safeguarding Area for sand and gravel, limestone, brick clay, building stone, building stone sites and the 250m buffer zone for sand and gravel and brick clay. Each safeguarded mineral has been described and its compatibility with the Mineral Safeguarding Policy discussed. For the reasons set out in this report, it is highly unlikely that the safeguarded minerals within the Order Limits would ever be worked. Most of the mineral within the Order Limits has already been sterilised by existing infrastructure such as pylons and overhead lines.

6.2 New infrastructure is proposed at Shipton to the northwest of York, to the south west of Tadcaster, at Osbaldwick to the east of York, and Monk Fryston at the southern extent of the Order Limits. The proposed infrastructure includes electricity substations, cable sealing end compounds, new pylons and overhead lines, but the mineral underneath the proposed infrastructure has already been sterilised in some cases by existing development and electricity infrastructure. Where the mineral has not already been sterilised, it would not be considered to be a commercially viable mineral. The Project would not impact on Jackdaw Crag quarry (the only active quarry within 250m of the Order Limits) as there are existing pylons and overhead lines already present along the western boundary of the quarry, so the modification of this infrastructure would not impact on future mineral extraction.

6.3 This report shows that the safeguarded minerals have already been sterilised and so it is highly unlikely that the minerals would ever be worked, and consequently the minerals have no potential value or economic value. The Project therefore meets the requirements of criterion (iv) of the mineral safeguarding "Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas" for built development to be acceptable in a Mineral Safeguarding Area.

APPENDICES

Appendix 1

Policy M11: Safeguarding of Mineral Resources

Minerals and Waste Joint Plan 2015 – 2030

Adopted February 2022

8.11 The BGS reports identified the resources of clay that should be the subject of safeguarding, with a recommended 250m buffer zone, taking into account that clay is typically worked without the need for techniques such as blasting.

8.12 Although there is no recent history of shallow coal working in North Yorkshire, the Coal Authority recommends safeguarding the resource. The BGS reports for NYCC and the NYMNPA also recommend safeguarding all of the shallow coal resource together with a 250m buffer zone.

Policy justification for safeguarding of Building Stone

8.13 Information on the distribution of building stone resources of commercial interest is less detailed than for other forms of surface mineral in the Plan area. Geological deposits with potential to contain building stone resources are potentially very extensive across the area, although in practice it is likely that only relatively small parts of these will contain stone with the right technical and aesthetic properties to constitute viable sources of supply of building stone. BGS have developed an approach for safeguarding within the Plan area, in consultation with building stone specialists, which has led to a number of scarcer mineral resources being identified, within which active working for building stone is taking place and which could be subject of safeguarding. However, some active building stone quarries lie outside the areas identified in this way. In order to address this issue, BGS have suggested that active quarries lying outside the proposed safeguarding areas are also safeguarded, by defining a 250m buffer zone around them also.

8.14 Whilst the work by BGS has also revealed difficulties in clearly identifying important historic quarries across the Plan area, it does nevertheless identify a number of former sites in the North York Moors National Park which may be important future sources of building stone for specific parts of the Park and for the repair of specific groups of buildings in and around the Park, based on the Strategic Stone Study. It is considered that these also should be subject of safeguarding, with a 250m buffer zone.

Development in Minerals Resource Safeguarding Areas

8.15 This section sets out how applications for development proposed in Minerals Resource Safeguarding Areas will be assessed.

8.16 As a two-tier planning system exists in the NYCC planning authority area, the District and Borough councils in that area will be responsible for ensuring that development proposals that they determine in Safeguarding Areas are assessed appropriately. This can be done by using defined Minerals Consultation Areas, within which the District/Borough Councils would consult with NYCC, as minerals planning authority, before decisions are taken on certain forms of development which could sterilise minerals resources. Policy S07 deals with Minerals Consultation Areas. Forms of development which, when proposed within Safeguarding Areas, are considered to be exempt from requirements for consultation are set out later in this Chapter.

Policy S02: Developments proposed within Safeguarded Surface Mineral Resource areas

Within the Safeguarded Surface Minerals Resource areas shown on the Policies Map, permission for development other than minerals extraction will be granted where:

i) It would not sterilise the mineral or prejudice future extraction; or

ii) The mineral will be extracted prior to the development (where this can be achieved without unacceptable impact on the environment or local communities), or **iii) The need for the non-mineral development can be demonstrated to outweigh the need to safeguard the mineral; or** **iv) It can be demonstrated that the mineral in the location concerned is no longer of any potential value as it does not represent an economically viable and therefore exploitable resource; or** **v) The non-mineral development is of a temporary nature that does not inhibit extraction within the timescale that the mineral is likely to be needed; or** **vi) It constitutes 'exempt' development (as defined in the Safeguarding Exemption Criteria list), as set out in paragraph 8.55).** **Applications for development other than mineral extraction in Safeguarded Surface Minerals Resource areas should include an assessment of the effect of the proposed development on the mineral resource beneath or adjacent to the site of the proposed development.**
Main responsibility for implementation of policy: NYCC, NYMNPA, CYC, Minerals and Waste industry and District and Borough Councils
Key links to other relevant policies and objectives
S01, S04, S05, S06 | *Objective 3*
Monitoring: Monitoring indicator 40 (see Appendix 3)

Policy Justification

8.17 The purpose of safeguarding is not to protect the minerals resource in all circumstances, but to ensure that the presence and potential significance of the resource is taken into account when other proposals in a safeguarded area are under consideration, and that sterilisation of the resource only takes place where there is appropriate justification. In some cases, it may be practicable for prior extraction of the resource to take place, where this can be done without unacceptable impacts on local communities or the environment, in line with the development management policies in the Joint Plan. In other cases, the need for the sterilising development may outweigh the need to protect the resource, or it may be possible to demonstrate that the safeguarded resource is no longer justified for safeguarding. Where non-exempt development (see Safeguarding Exemptions Criteria list in para. 8.55) is proposed in a safeguarded area for surface mineral resources applicants should consider at an early stage any implications that the presence of the safeguarded resource may have for their proposals and include information in any application, via a mineral resource assessment, about measures that would be implemented to avoid unnecessary sterilisation, or to demonstrate that the need for the sterilising development outweighs the need to protect the resource.

8.23 Certain forms of surface development are unlikely to lead to significant sterilisation of minerals resources, even when proposed in a safeguarded area. These are identified in the Safeguarding Exemptions Criteria list later in this Chapter. Where development falls within the scope of the exemptions list then applicants do not need to address safeguarding issues in their proposals, and there is no requirement for planning authorities to consider minerals safeguarding issues when taking decisions on such proposals.

8.24 To implement an approach to safeguarding in the two-tier part of the Plan area, it will be necessary for consultation to take place between District/Borough Councils and the mineral planning authority. Further information on the approach to this is set out in the section on Minerals Consultation Areas later in this Chapter.

Appendix 2

Borehole Log SE55NE/21

FORM P 70
SERIES 680

6-INCH MAP	B/H REGD. No.
Yorks. 157 NW (County, Sheet and Qtr.)	C
SE 55 NE /21 (Nat. Grid, Sheet & Qtr.)	

Attach tracing from a map or sketch map if possible

Section of HALL MOOR Borehole

Purpose Exploration for coal

Exact Site O.S. N.G.R. SE/57457/59240

Level at which bore commenced relative to O.D. 16.34 m above O.D.

Date of sinking or boring 1981

Borers: Foraky Ltd.

Cores, other than coal, examined by N. J. Padget and E. M. Humble. No cores taken from surface to 600.43 m.

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS m	THICKNESS cm	DEPTH m	DEPTH cm
	Soil		30		30
Drift	Fine orange sand	1	20	1	50
	Brown clay	2	50	4	00
	Gravel	4	00	8	00
Bunter Sandstone	Light grey sandstone with a little red sandstone and grey marl	115	00	123	00
	Light grey and red sandstone with a little red marl	52	00	175	00
	Red sandstone with some light grey sandstone and a little red marl	29	00	204	00
	Red sandstone with a little red marl	10	50	214	50
	Deep red sandstone with red marl bands	26	70	241	20
Upper Permian Marl	Red marl, silty below 253.30 m	20	20	261	40
	White and pink anhydrite	3	20	264	60
	Red marl	6	40	271	00
	Grey anhydrite	3	80	274	80
	Grey marl and anhydrite	3	10	277	90
	Grey anhydrite	2	60	280	50
Upper Magnesian Limestone	Pale buff limestone	23	50	304	00
Middle Permian Marl	Anhydrite	1	00	305	00
	Red and grey marl with anhydrite bands	5	40	310	40
	Grey and off-white anhydrite	9	60	320	00
	Light grey and buff limestone	3	00	323	00
	Grey anhydrite	4	00	327	00
	Salt and grey anhydrite	6	00	333	00
	Light grey anhydrite	2	50	335	50
	Light grey anhydrite and salt	5	00	340	50
	Light grey anhydrite	16	50	357	00
Lower Magnesian Limestone	Light buff limestone	23	00	380	00
	Light grey limestone	45	00	425	00
	Grey limestone	50	50	475	50
Lower Permian Marl	Silty mudstone		70	476	20
Basal Permian Sands	Sandstone	24	00	500	20
	Sandstone	1	50	501	70
	Mudstone, silty in parts	17	70	519	40
	Siltstone and sandstone	3	60	523	00
	Sandstone	5	80	528	80
SHAFTON MARINE BAND	Mudstone with high gamma level	1	10	529	90
	Siltstone	3	10	533	00
	Sandstone	5	10	538	10
	COAL		30	538	40
	Mudstone with rather high gamma level		60	539	00
	Siltstone and silty mudstone	5	10	544	10
	Mainly mudstone	11	20	555	30
	Sandstone and siltstone	3	90	559	20
	Mudstone	1	50	560	70

DRAWINGS

GM11455-001 Superficial Geology North

GM11455-002 Superficial Geology South

GM11455-003 Solid Geology North

GM11455-004 Solid Geology South

GM11455-005 Superficial Geology Osbaldwick

GM11455-006 Solid Geology Osbaldwick

AG1
SS1
SS2
SE55NE/21
GF1
AL1
AG2
GF2
AG3

Route below this line is shown on drawing GM11455-002 South

KEY

- Order Limits
- Indicative new pylons
- Indicative new OHL and limited UGC
- Cable Sealing End Compounds
- Indicative substation area
- Borehole
- Alluvium
- Glaciofluvial Sand and Gravel Deposit
- Vale of York Formation
- Sutton Sand Formation
- York Moraine Member
- Alne Glaciolacustrine Formation
- Harrogate Till Formation
- River Terrace Deposit

SS Sutton Sand Formation
GF Glaciofluvial sand and gravel
AL Alluvium
AG Alne Glaciolacustrine Formation

Engineering design layout information is indicative and is intended to show the approximate locations rather than all specific components/design details.

Notes:
Coordinates to British National Grid.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
-	-	-	-	-	-

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NATIONAL GRID ELECTRICITY TRANSMISSION

PROJECT
THE YORKSHIRE GREEN ENERGY ENABLEMENT PROJECT

DRAWING TITLE
SUPERFICIAL GEOLOGY (NORTHERN AREA)

DRG No.	REV
GM11455-001	NORTH

DRG SIZE	SCALE	DATE
A3	1:50,000	15/06/2022

DRAWN BY	CHECKED BY	APPROVED BY
BVC	SDB	SDB

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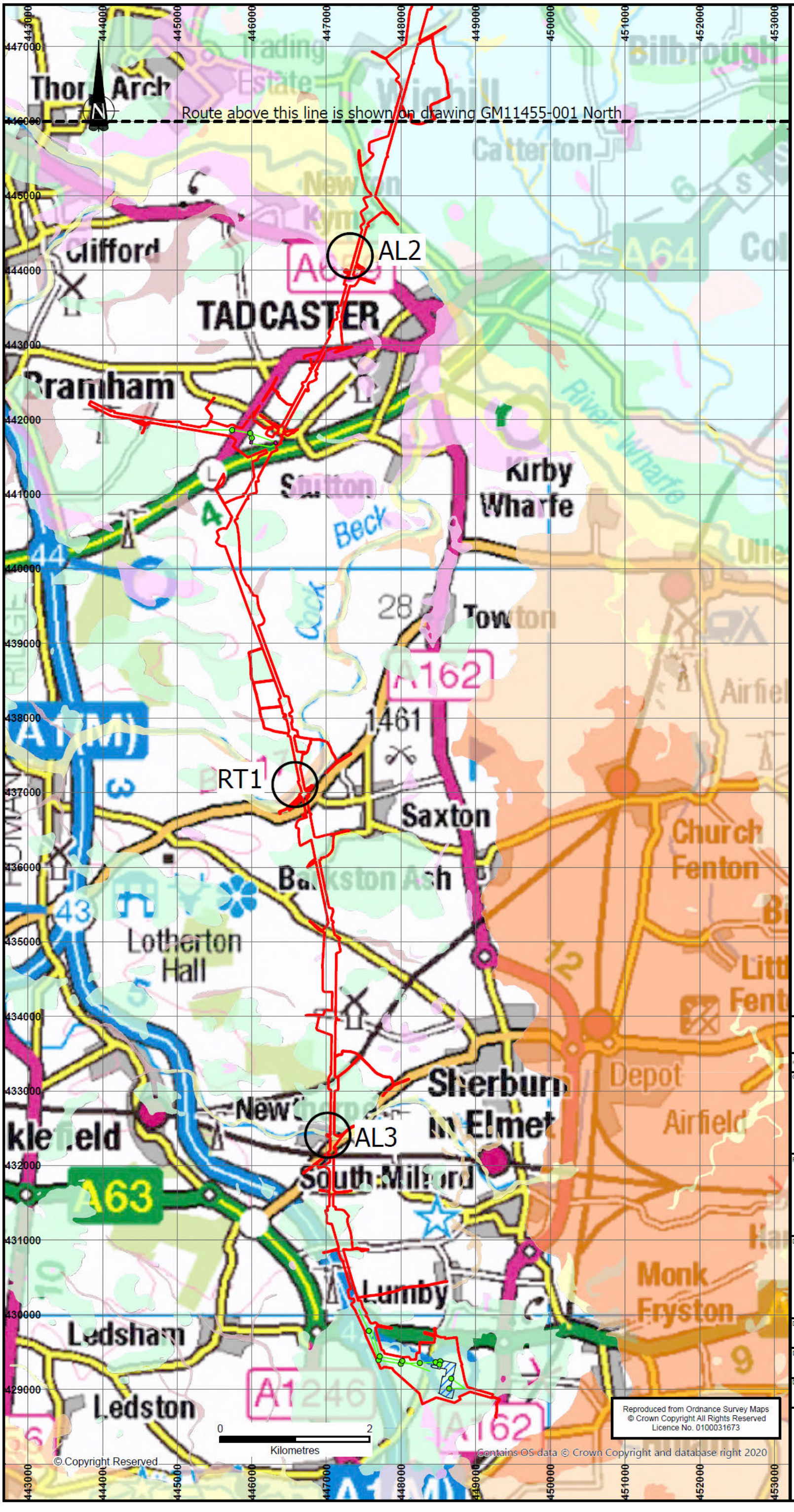
Kilometres



KEY

- Order Limits
- Indicative new pylons
- Indicative new OHL and limited UGC
- Cable Sealing End Compounds
- Indicative substation area
- Alluvium
- Glaciofluvial Sand and Gravel Deposit
- Vale of York Formation
- York Moraine Member
- Harrogate Till Formation
- River Terrace Deposit

SS Sutton Sand Formation
GF Glaciofluvial sand and gravel
AL Alluvium
AG Alne Glaciolacustrine Formation
RT River Terrace Sand and Gravel

Engineering design layout information is indicative and is intended to show the approximate locations rather than all specific components/design details.

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Coordinates to British National Grid.

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GM11455-002	SOUTH

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KEY

- Order Limits
- Indicative new pylons
- Indicative new OHL and limited UGC
- Cable Sealing End Compounds
- Indicative substation area
- Mercia Mudstone Group
- Sherwood Sandstone Group

Engineering design layout information is indicative and is intended to show approximate locations rather than all specific components/design details.

Notes:
Coordinates to British National Grid.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
-	-	-	-	-	-

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DRAWING TITLE

SOLID GEOLOGY (NORTHERN AREA)

DRG No.	REV
GM11455-003	NORTH

DRG SIZE	SCALE	DATE
A3	1:50,000	15/06/2022

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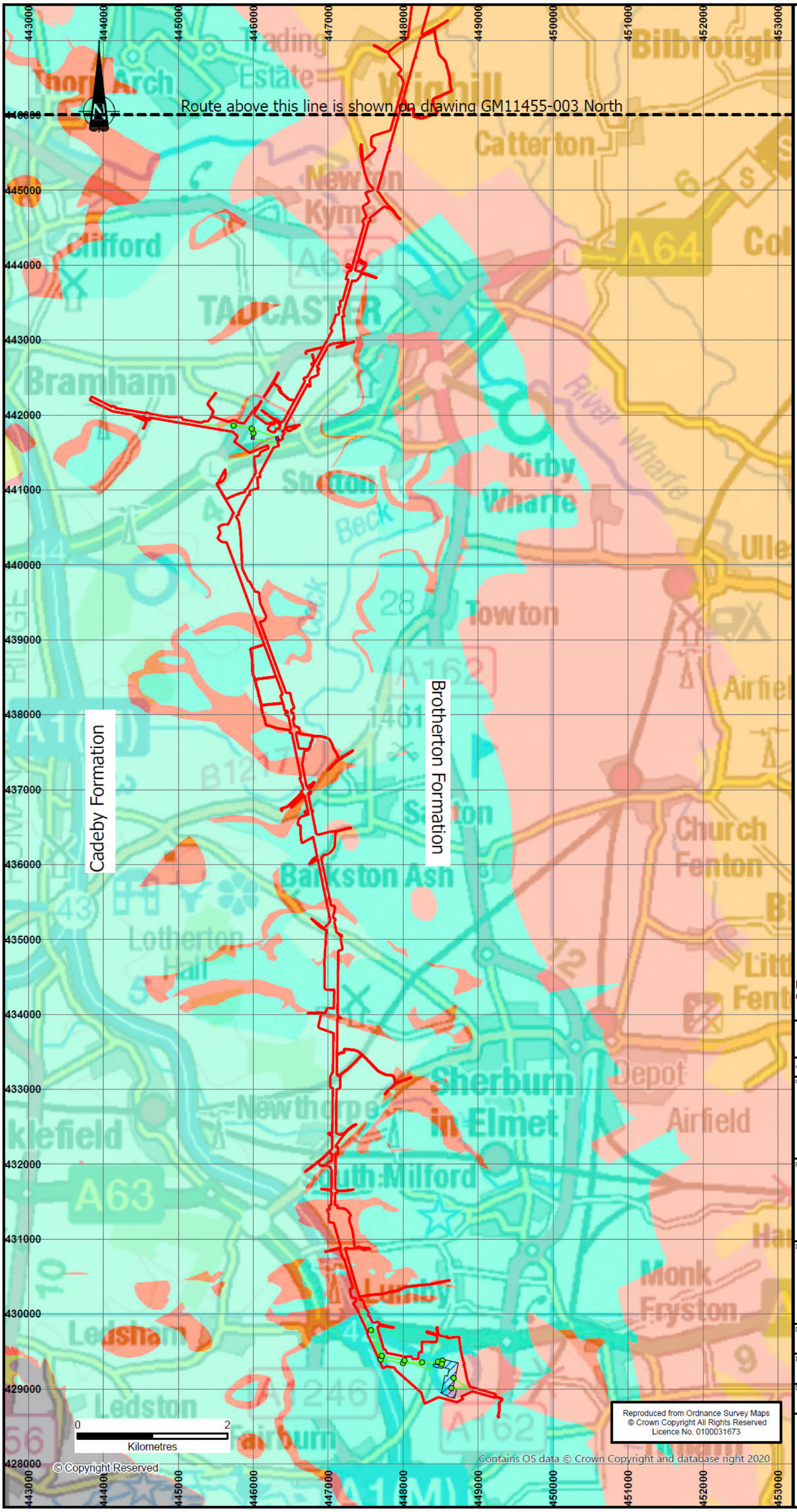

KEY

- Order Limits
- Indicative new pylons
- Indicative new OHL and limited UGC
- Cable Sealing End Compounds
- Indicative substation area
- Cadeby Formation
- Brotherton Formation
- Roxby Formation
- Sherwood Sandstone Group
- Edlington Formation

Engineering design layout information is indicative and is intended to show approximate locations rather than all specific components/design details.

Notes:
Coordinates to British National Grid.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
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PROJECT

THE YORKSHIRE GREEN ENERGY ENABLEMENT PROJECT

DRAWING TITLE

SOLID GEOLOGY (SOUTHERN)

DRG No.	REV
GM11455-004	SOUTH

DRG SIZE	SCALE	DATE
A3	1:50,000	15/06/2022

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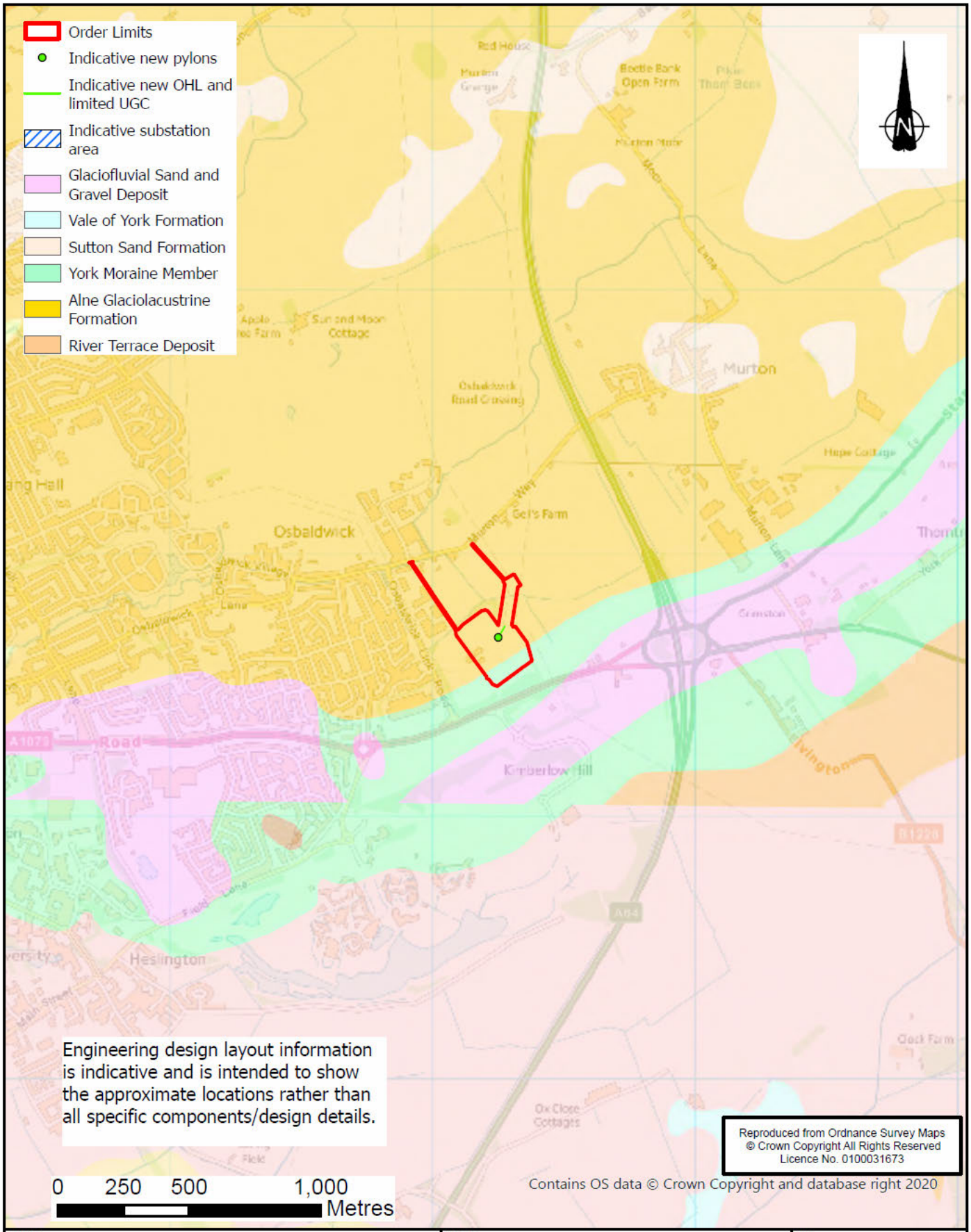

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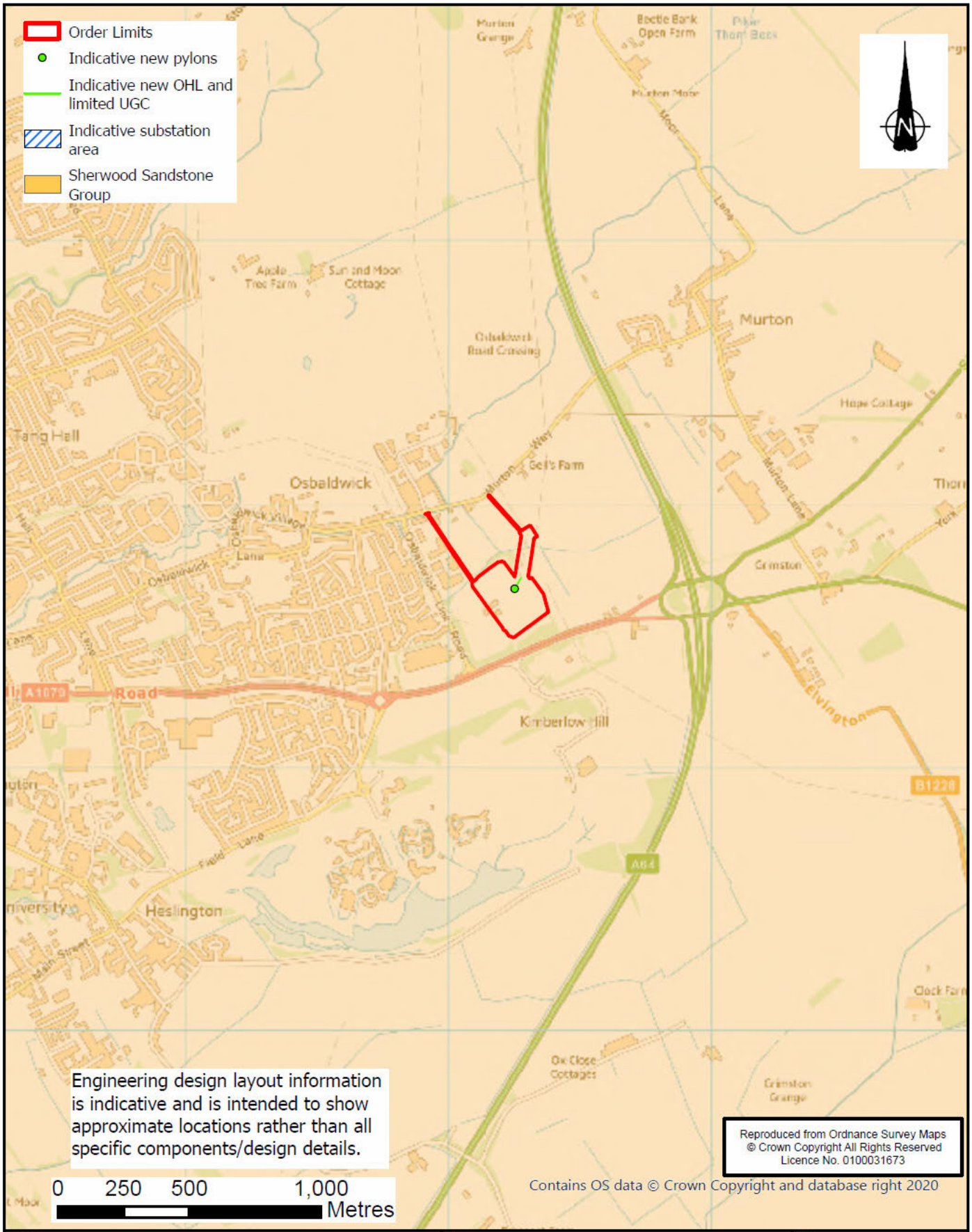

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