



# PRELIMINARY COAL MINING RISK ASSESSMENT

PROPOSED REDVELOPMENT OF LAND EAST OF TANGLIN, EARL STREET

CLEATOR MOOR

CUMBRIA

FOR:

LINDA TAYLOR

**GEO** Environmental Engineering

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## **DOCUMENT CONTROL SHEET**

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Consultant:	Green Swallow Ltd

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### 1.0 Introduction

#### 1.1 Instruction

GEO Environmental Engineering Ltd (GEO) was commissioned Linda Taylor, herein referred to as the "Client", to carry out a desk-based Coal Mining Risk Assessment for a proposed residential development at Land to the East of Tanglin on Earl Street, Cleator Moor, Cumbria.

#### **1.2 Development Proposal**

It is understood that the client plans to construct residential properties.

#### **1.3 Aims and Objectives**

The main objective of this Coal Mining Risk Assessment (CMRA) is to assess the geological setting of the site to determine the risk to the proposed development from coal mining related geohazards, such as mine entries, shallow underground mine workings and mine gas emissions.

#### **1.4 Third-Party Information**

During the completion of this appraisal, information was obtained and reviewed from the following sources:

- British Geological Survey Geological Maps (1:10,000 and 1:50,000 scale)
- British Geological Survey Historical Borehole Records (Non-available)
- The Coal Authority (CA) Online Database Records
- The Coal Authority (CA) Consultants Coal Mining Report (Ref: 51002546591001, Appendix II)

#### **1.5 Limitations of Use**

The information, assessments, conclusions and recommendations presented within this Coal Mining Risk Assessment (CMRA) are solely based on, and are limited to the boundary of the site as marked on the Proposed Site Layout Plan in Appendix I.

This CMRA has been completed utilising information relating to the physical setting of the development area, highlighting, where possible, any potential mining or geological hazards that might impact the proposed development.

Any comments, opinions, diagrams, cross sections and/or sketches contained within the CMRA, and/or any configuration of the findings is purely conjectural and given for guidance only as no intrusive investigation works have been completed by Geo Environmental Engineering Ltd to date and it is recommended that confirmation of the anticipated ground conditions and feasibility of construction be considered by the developer before commencing acquisition or redevelopment.

Reliance on the report is for the named Client only. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Geo Environmental Engineering Ltd. The use and reliance on the report is strictly in accordance with the Geo Environmental Engineering Ltd standard terms and conditions, copies of which are available on request.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders,

including warranty providers in order to seek their approval of the findings prior to undertaking any works on site. Geo Environmental Engineering Ltd cannot accept responsibility for the accuracy or completeness of third-party information.

All depths included within this report are in metres below ground level (m bgl) unless stated otherwise.

## 2.0 Site Location and Description

#### 2.1 Site Description and Location

The site comprises a piece of disused land to the east of the Tanglin building within Cleator Moor. The site is accessed from Earl Street to the east.

Topographical survey data was not available; however, the site is thought to fall from the north to the south. The site lies within a residential urbanised area, with surrounding land uses being predominantly residential.

- Postcode: CA25 5AY
- National Grid Reference: 301842, 514891.

## 3.0 Historical and Geological Setting

This section is based principally upon a search of information available online from the BGS (geological maps) and from the Coal Authority (coal mining reports and online databases).

#### 3.1 Site History

A brief review of historical map extracts dating back to c.1863 indicate that the site was part of a small holding (possibly a farm) surrounded by agricultural fields within a rural setting. Todholes Quarries and limekilns were noted to the east, with iron ore mines noted to the north and west (Gin Pit, James's Pit and Crossfield Pit). By c.1899 a large amount of residential development has taken place to the north, north-east and north-west and by c.1962, Tanglin is noted to the immediate west (later recorded as a depot). The iron ore mining is no longer recorded, and the quarries have been infilled and housing constructed.

There is no evidence of coal mining activities on or immediately adjacent to the site. However, as previously noted, iron ore mining is recorded in the general area.

#### 3.2 Site Geology

A geological review of the site has been undertaken using information provided by the British Geological Survey (BGS).

The following geological maps were reviewed as part of this assessment:

Sheet NY01SW, 1:10,000 scale (See Figure1 and 2).



#### 3.2.1 Made Ground

A review of the BGS geological maps does not indicate any made ground on the site. However, some made ground is likely associated with historical on-site structures.

#### 3.2.2 Drift Geological Deposits

A review of the BGS geological map extract indicates that the site is underlain by Glacial Till deposits. These typically comprise firm and stiff gravelly clays with layers of sand and gravel. Frequent to abundant cobbles and boulders may be present. The geological maps do not indicate the thickness of the drift deposits; however, it is anticipated that they will be at least 5m deep.

#### 3.2.3 Solid Geological Deposits (Bedrock) and Coal Seams

The geological map indicates that the site is underlain by solid strata of the Frizington Limestone Formation. This stratum comprises buff to dark grey, bioclastic, sandy grainstone to packstone and fenestral lime mudstone, displaying tabular or cross bedding, containing stromatolites and coral colonies. This stratum is recorded as being between 50m and 100m in thickness.

The Frizington Limestone Formation is free from productive coal seams, with none recorded on geological plans as sub-cropping in close proximity to the site.

However, iron ore mining is recorded in the general area. The 1:10,000 scale geological plan (NY01SW) indicates that iron ore mining was present to the north-west of the site, denoted on the below extract as a dashed line with the reference "Fe".



Figure 2: 1:10,000 Solid Edition Geological Map - "Fe" denoting "area of subsurface haematite mining".

#### 3.2.4 Historical Borehole Review

Two historical borehole records are available within 100m of the site.

NY01SW392 is recorded as being immediately west. The borehole dates from c.1940 and was completed to prospect for iron ore deposits. The borehole uses old terminology, recording variable drift geological deposits to c.8m (c.27ft). The borehole then notes limestone and shale to its terminal depth at c.26m (c.86ft). The borehole log does not make any obvious reference to iron ore, haematite or other

terminologies thought to relate to ore bodies. The borehole does not record any evidence of mine workings.

NY01SW266 is recorded to the south of the site. The borehole dates from c.1940's and is thought to have been completed to prospect for iron ore deposits. The borehole uses old terminology, recording variable drift geological deposits to c.2.7m (c.9ft). The borehole then notes limestone and shale to its terminal depth at c.35m (c.117ft). The borehole log does not make any obvious reference to iron ore, haematite or other terminologies thought to relate to ore bodies. The borehole does not record any evidence of mine workings.

#### 3.2.5 Coal Authority On-Line Database

A review of the Coal Authority on-line database has been completed, with the following noted:

- The site lies within a CA referral area.
- The site lies within a CA Define High Risk Development Area.
- The CA identifies the site are being within an area where there is "Probable Shallow Coal Mine Workings".
- The CA notes mine entries to the north, west and south of the site.

As shallow coal is not recorded on geological plans and the CA does not record underground coal mine workings at this location, the referce to *"Probable Shallow Coal Mine Workings"* is thought to relate to the CA's knowledge of historical iron ore mining in this area. However, the published geological plans indicate that the iron ore mining that the CA is likely referring to was to the west and not directly beneath the site.

#### **3.2.6 Coal Authority Report**

A Coal Authority Consultants Coal Mining Report (ref: 51002546591001) was acquired for the site. A copy of the CA Mining report is included in Appendix II. Salient points from the Coal Authority (CA) Report include:

- No past (coal) mining recorded.
- Probable unrecorded shallow workings Yes.
- No spine roadway recorded at shallow depth.
- No mine entries are recorded within 100m of the site.
- No outcrops are recorded on site.
- The CA are not aware of any site investigations or remediated sites within 50m of the site.
- The CA has not received a damage notice or claim within 50m of the site.
- The CA indicate that they have no recorded mine gas within 500m of the site.

As shallow coal is not recorded on geological plans and the CA does not record underground coal mine workings at this location, the referce to *"probable unrecorded shallow workings"* is thought to relate to the CA's knowledge of historical iron ore mining in this area. However, the published geological plans indicate that the iron ore mining that the CA is likely referring to was to the west and not directly beneath the site.

### 4.0 Conclusions

The desk-based information indicates that the site is underlain by Glacial Till deposits over solid geology of the Frizington Limestone Formation. These deposits are devoid of productive coal seams and therefore the development site is not considered to be at risk of coal mining related geohazards.

Whilst there is a history of iron ore mining in the general area, the published geological plan (NY01SW) indicates that subsurface iron ore (haematite) mining has occurred close to, but not beneath the site. Therefore, when taking into consideration the desk-based information, the site is not considered to be at significant risk of subsurface iron ore mining and no intrusive ground investigations or remedial measures relating to historical iron ore mining are considered necessary at this time.

Any items not specifically mentioned cannot be assumed to be covered. GEO is not responsible for the accuracy or completeness of third-party information contained within this report. It is recommended that care and consideration of potential mining features be made during any planning, design and construction works on site.

A watching brief is recommended during any development works to ensure that if evidence of mine workings or mine entrances are encountered then works should be stopped and advice should be sought from an appropriately qualified and experienced Geo-Environmental Engineer.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory Authorities and/or other key stakeholders, including warranty providers in order to seek their approval of the findings prior to finalising any land values as part of a site acquisition or prior to undertaking any construction or redevelopment works on site.

## End of Report

## Appendix I

- Site Location Plan
- Aerial Photograph Extract





#### GEO2021-4724: Site Location Plan



Website: www.geoenvironmentalengineering.com Email: info@geoenvironmentalengineering.com Telephone: 08456 768 895 / 07883 440 186



#### **GEO2021-4724: Aerial Photograph Extract**



Website: www.geoenvironmentalengineering.com Email: info@geoenvironmentalengineering.com Telephone: 08456 768 895 / 07883 440 186





#### Land to South Tanglin, Jacktrees Road, Cleator Moor, Cumbria, CA25 5AY



Site Plan shows area bounded by: 301755.88, 514795.69 301897.3, 514937.11 (at a scale of 1:1250), OSGridRef: NY 1821486. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

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## **Appendix II**

The Coal Authority Consultants Coal Mining Report





# Consultants Coal Mining Report

Land South Of Tanglin Jacktrees Road Cleator Moor Cumbria CA25 5AY

Date of enquiry:26 May 2021Date enquiry received:26 May 2021Issue date:26 May 2021

Our reference: Your reference: 51002546591001 GEO2021-4724



# Consultants Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

#### **Client name**

Curtis Evans

#### **Enquiry address**

Land South Of Tanglin Jacktrees Road Cleator Moor Cumbria CA25 5AY

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#### Approximate position of property



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# Section 1 – Mining activity and geology

#### Past underground mining

No past mining recorded.

#### Probable unrecorded shallow workings

Yes.

#### Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

#### **Mine entries**

None recorded within 100 metres of the enquiry boundary.

#### Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

OM6981	OM3324	17413
OM0	OM15072	0
om8476	OM14375	OM15142

Our records show we have more plans than those shown above which could affect the enquiry boundary.

**Please contact us on 0345 762 6848** to determine the exact abandoned mine plans you require based on your needs.

#### Outcrops

No outcrops recorded.

#### Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

#### **Opencast mines**

None recorded within 500 metres of the enquiry boundary.

#### **Coal Authority managed tips**

None recorded within 500 metres of the enquiry boundary.

# **Section 2 – Investigative or remedial activity**

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

#### Site investigations

None recorded within 50 metres of the enquiry boundary.

#### **Remediated sites**

None recorded within 50 metres of the enquiry boundary.

#### **Coal mining subsidence**

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

#### Mine gas

None recorded within 500 metres of the enquiry boundary.

#### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

# Section 3 – Licensing and future mining activity

#### Future underground mining

None recorded.

#### **Coal mining licensing**

None recorded within 200 metres of the enquiry boundary.

#### **Court orders**

None recorded.

#### **Section 46 notices**

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

#### Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

#### Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

# **Section 4 – Further information**

Based on the responses in this report, no further information has been highlighted.

# Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.** 

#### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

#### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

#### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

#### **Mine entries**

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

#### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

#### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

#### **Geological faults, fissures and breaklines**

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

#### **Opencast mines**

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

#### **Coal Authority managed tips**

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

#### Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

#### **Remediated sites**

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

#### **Coal mining subsidence**

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

#### **Mine gas**

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

#### Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

#### Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

#### **Coal mining licensing**

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

#### **Court orders**

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

#### Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

#### Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

#### Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.



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