

SIMPSON MINING AND GEOTECHNICAL LTD

CONSULTING MINING & GEOTECHNICAL ENGINEERS

**Tel/Fax: 01786 833562
email: simpsongeotec@aol.com**

**55 Westerlea Drive
Bridge of Allan
FK9 4DQ**

MINING RISK ASSESSMENT REPORT

FOR SITE AT

BROWNIESIDE, PLAINS

Client : Aspire Joinery
2 Strathearn Drive
Airdrie
ML6 7NZe

Report No : 5037/IS

Engineer : W. Simpson

Issued : 07 May 2018

2. CONTENTS.

ITEM	DESCRIPTION	PAGE NO
1.	TITLE PAGE	1
2.	CONTENTS.	2
3.	SCOPE OF STUDY.	3
4.	DESK STUDY.	3
5.	GEOLOGY,	3
6.	FAULTS.	3
7.	SHAFTS AND ADITS.	3
8.	OPEN-CAST MINING	3
9.	REMEDIAL WORKS.	3
10.	PAST WORKINGS.	4
11.	GAS EMISSIONS.	4
12.	PRESENT,	4
13.	FUTURE.	4
14.	MINING STABILITY ASPECTS.	4.
15.	CONCLUSIONS.	5
	APPENDIX.	6
	APPENDIX 1 – PLAN SHOWING SOLID GEOLOGY OF SITE AREA.	7.
	APPENDIX 2 – COAL AUTHORITY INTERNAL REPORT.	8.
	APPENDIX 3 – METHODS OF MINING.	9.
	APPENDIX 4 – COAL AUTHORITY DATA SHEET.	10.
	APPENDIX 5 – COAL AUTHORITY INTERNAL REPORT.	11.
	APPENDIX 6 – PLAN SHOWING NO BUILD ZONE.	12.

3. SCOPE OF STUDY.

This report details the results of our investigations into the mining stability of the above site. Our report and conclusions has been based on a desk study.

It is intended to construct new dwelling houses within the site boundaries.

4. DESK STUDY.

The desk study comprised an examination and study of the following maps and publications.

1. The British Geological Survey, Lanarkshire, Sheet 8 NE, 1 : 10,560, 1911.
2. The British Geological Survey, Sheet NS 76 NE, 1 : 10,000, 1985.
3. The Economic Geology of the Central Coalfield of Scotland, Area 5, H.M.S.O., 1926.
4. Various mine abandonment plans held by the British Geological Survey, Edinburgh.
5. Coal Authority Interactive Maps.

5. GEOLOGY.

The desk study revealed the site to be underlain by approximately 5.00 metres of boulder clay which rests in turn on rock strata of the Lower Coal Measures.

The strata dip to the north-west at approximately 2.50 degrees.

6. FAULTS.

There are no known faults within the site boundaries or influencing distances from them.

7. SHAFTS AND ADITS.

The old Brownieside No1 shaft is situated 4 metres to the south-west of the south-west site boundary. The old shaft has already been treated and made secure by the Coal Authority. However we consider it prudent to establish a no-build zone 4 metres to the east of the south-west site boundary. Since the thickness of boulder clay is estimated to be 5 metres in this area, in the highly unlikely of a future collapse of the old shaft the no build zone should ensure that no structural damage will occur to the houses outwith this zone.

8. OPEN-CAST MINING.

No open-cast mining has taken place within 200 metres of the site boundaries.

9. REMEDIAL WORKS.

No known remedial works have been carried out by the Coal Authority within the site boundaries or influencing distances from them, with the exception of the treatment of the Brownieside No 1 pit.

10. PAST WORKING.

The desk study has revealed that two coals and an ironstone have been worked beneath the site circa 1884 to 1908. These worked minerals were the Upper Drumgray, 0.46 metres thick at an approximate depth of 80 metres, the Lower Drumgray 0.60 metres thick at an approximate depth of 98 metres and the Upper Slatyband Ironstone at an approximate depth of 162 metres.

All these minerals were worked by the long wall method. The depth to the workings, method of working, and time that has elapsed since working ceased will have ensured that all subsidence will have long since taken place.

11. GAS EMISSIONS.

The site is underlain by approximately 5 metres of boulder clay which will prevent migration of mine gases on to the site. It is concluded that migration of mine gases will be a very low to negligible risk.

12. PRESENT.

No workings are at present taking place beneath the site.

13. FUTURE.

No coals of workable thickness now lie beneath the site and hence future deep mining is considered highly unlikely.

14. MINING STABILITY ASPECTS AND FOUNDATION DESIGN.

The general sequence of strata beneath point A where the coals are at their shallowest is approximately as given below :-

BOULDER CLAY	5.00
STRATA	8.00
VIRTUEWELL COAL (0.60)	8.60

(All measurements in metres)

The Virtuewell is the lowest mineral horizon beneath the site.

14. MINING STABILITY ASPECTS AND FOUNDATION DESIGN (cont).

There are no records of the Virtuewell Coal having been worked beneath the site. A quartz-dolorite sill is shown on the relevant Geological Survey map 200 metres to the south of the site, the thickness of the sill being in the order of 22 metres. This sill will be at shallow depth beneath the Virtuewell, and it is highly likely that the sill will have burnt the coal thus making it unworkable. No thicknesses in the Virtuewell are given on Plate 8, Page 69 in the Mining Memoir. This would suggest that the Virtuewell has not been worked beneath the site. However it is possible that old unrecorded workings could exist in the Virtuewell Coal, and hence we have classified as being potentially unstable due to possible workings in the Virtuewell.

It is recommended that rotary core bores be sunk to establish the depth to the coal, and it's condition. After the bores have been sunk a report can be prepared giving recommendations as to the foundation type to be adopted for the site.

Other coals and ironstones lie beneath the horizon of the Virtuewell but are deep enough, or thin enough, to require no further consideration.

15. CONCLUSIONS AND RECOMMENDATIONS.

- (1) The site has been classified as potentially unstable due to possible workings in the Virtuewell Coal.
- (2) There are no known shafts or adits within the site boundaries. Brownieside No 1 shaft is located approximately 5 metres to the west of the south-west site boundary.
- (3) There are no known faults within the site boundaries or influencing distances from them.
- (4) The engineering properties of the superficial deposits are outwith the terms of reference of this report.
- (5) Due to the near presence of the Brownieside No 1 Pit, a no-build exclusion zone of 4 metres in from the south-western site boundary is recommended.
- (6) It is recommended that 3 to 4 rotary bores be sunk to confirm the depth to the Virtuewell Coal and to ascertain if it has been worked. Thereafter recommendations can be made regarding the foundation type to be adopted.



W SIMPSON B.Sc.(Mining), M.Sc., C. Eng., MICE, MIHT, F.G.S.

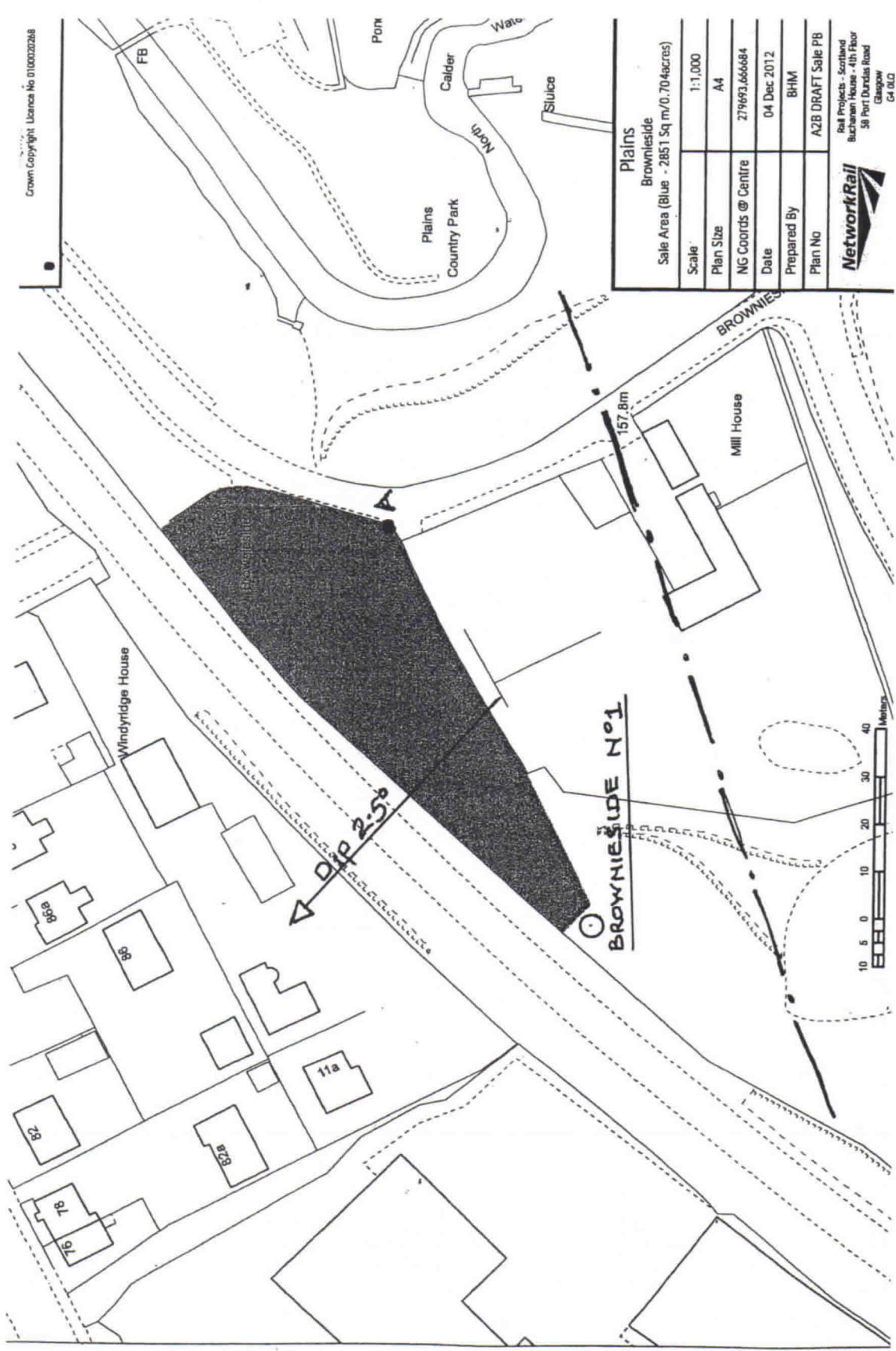
APPENDIX

APPENDIX 1

PLAN SHOWING SOLID GEOLOGY OF SITE AREA

SCALE 1:12.50

Conjectural outcrop of
Virtuewell Coal



APPENDIX 2

THE ECONOMIC GEOLOGY OF THE CENTRAL COALFIELD OF SCOTLAND
AREA 5, PLATE 8

ft. 4 in.; the journals do not record any part of the seam. The coal in the New Monkland and Stanrigg district. In the Monkland Collieries' field a bed of soft black blaes usually occurs 3 or 4 fms. above the coal, this is very useful as an index to the coal below; in chisel as it churns up into an ink-like mud. The coal is exposed on the east side of the North Calder, 300 yds. above the bridge, where the section is:—

“ECONOMIC GEOLOGY OF THE CENTRAL COALFIELD OF SCOTLAND” (AREA V, 2ND EDITION).

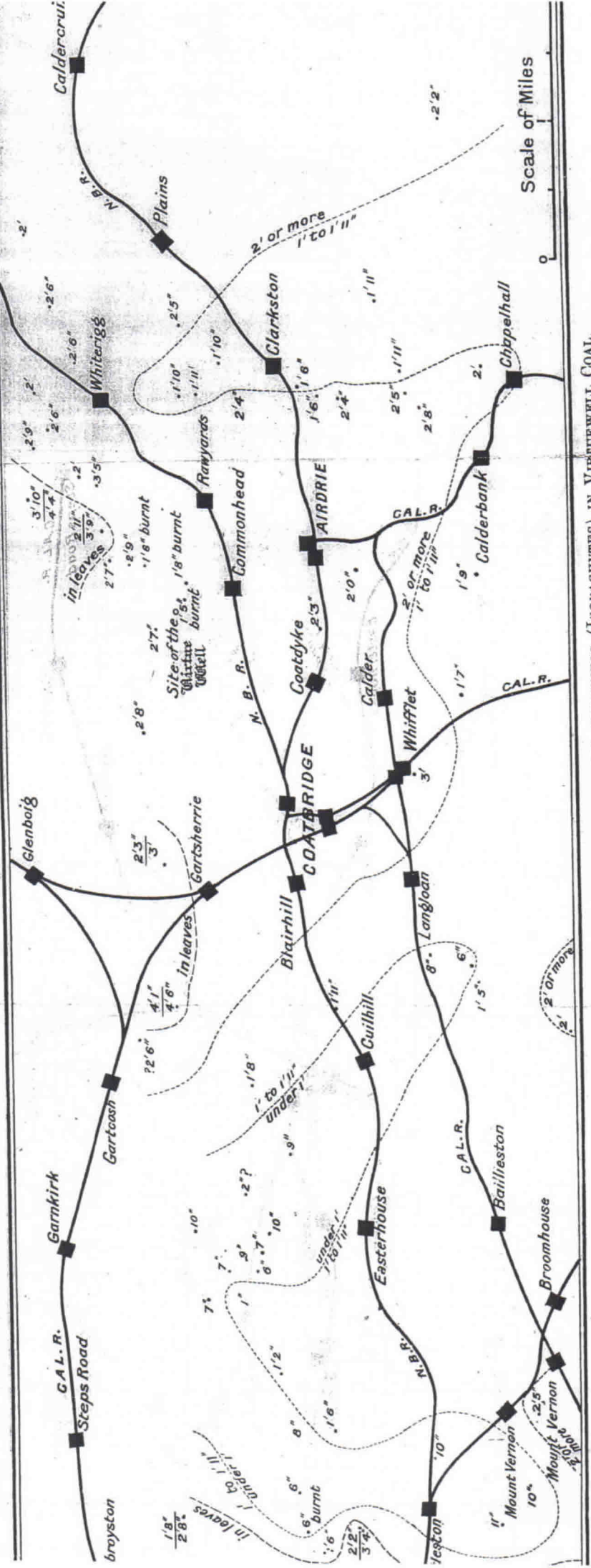


PLATE VIII.—SKETCH MAP SHOWING LINES OF APPROXIMATELY EQUAL THICKNESS (ISOPACHYTES) IN VIRGIEWELL COAL.

Where the figure for the seam is given in the form of a fraction, the numerator shows the thickness of coal, and the denominator the total thickness, including partings.

a 1857, to be 20 in. thick and at a depth of 108 fms. in a bore on the south side of Main Street: in the report it was called the Sourmilk or Virgin.

¹ Communicated by Messrs. J. & G. H. Geddes.

APPENDIX 3

METHODS OF MINING

METHODS OF MINING

Two methods of mining have been used in the past to extract minerals from stratified deposits, namely the stoop and room system, and the longwall system.

STOOP AND ROOM.

In this method, passage ways or rooms are driven, more or less at right angles to each other through the seam which is thus formed into square or rectangular blocks or stoops.

These stoops are formed in the "first" working, the workings being extended to the limit of the royalty. At the limit of the royalty, the stoops or part of the stoops are removed on retreating back to the shaft, this was some times referred to as the "second" working.

Depending on the depth to the mineral being extracted, thickness of mineral, and condition of the roof and floor, extraction rates of up to 80% could be achieved by this method.

The width of the rooms and pillars depended on depth to the mineral, thickness of mineral and condition of the roof and floor.

These stoops may continue to perform their function of supporting superincumbent strata for many years. However, depending on circumstances, the stoops can eventually fail causing subsidence and movement of the ground, and in the case of very shallow workings plump holes may be formed at the surface.

LONGWALL SYSTEM.

In this method the seam is completely extracted by means of dividing the seam into panels. The strata overlying the mined area is allowed to subside, and as a result all subsidence is normally completed shortly after the extraction of the seam.

However in the case where little or no rock cover exists over the workings instability could result due to the presence of old roadways remaining open.

APPENDIX 4

COAL AUTHORITY DATA SHEET

COAL AUTHORITY DATA SHEET
REPORT No 5037 , PLAINS

Mine Entry	Y
Abandoned Mines Catalogue	Y
Development High Risk Area	Y
Surface Coal Resource Area	Y
Mine Entry Zone of Influence	POSSIBLE
Fissures and Breaklines	N
Surface Mining (Past and Current)	N
Past Shallow Coal Mine Workings	N
Probable Shallow Mine Workings	Y
Coal Outcrops	Y
Coal Mine Reporting Area	Y

APPENDIX 5

COAL AUTHORITY INTERNAL REPORT

**THE COAL AUTHORITY
200 LICHFIELD LANE
MANSFIELD
NOTTINGHAMSHIRE
NG18 4RG**

Our reference: **71001070869003**
Your reference:
Date of your enquiry: **29 September 2015**
Date we received your enquiry: **29 September 2015**
Date of issue: **29 September 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

BROWNIESIDE , PLAINS,

This report is based on and limited to the records held by the Coal Authority, at the time we answer the search.

Coal mining

See comments below

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 2 seams of coal at 70m to 100m depth, and last worked in 1902.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

Within, or within 20 metres of, the boundary of the property there is 1 mine entry, the approximate position of which is shown on the attached plan.

Our records disclose the following information:

279666-001. Following a ground collapse the shaft was investigated and found to be loosely filled. The existing voids were filled with hardcore and the shaft covered with a reinforced concrete cap 6 metres square and 0.55 metres thick. The cap was sited 3.5 metres below ground level. These works were completed in May 2003 by International Mining Consultants acting on behalf of the Coal Authority..

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

For an additional fee, the Coal Authority will provide a supplementary Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry (entries) referred to in this report. It will give details based on information in the Coal Authority's possession, together with an opinion on the likelihood of mining subsidence damage arising from ground movement as a consequence of the existence of the mine entry/entries. It will also give details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie. for development sites and new build).

For further advice on how to order this additional information visit www.groundstability.com or telephone 0345 7626 848.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

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

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

The 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

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

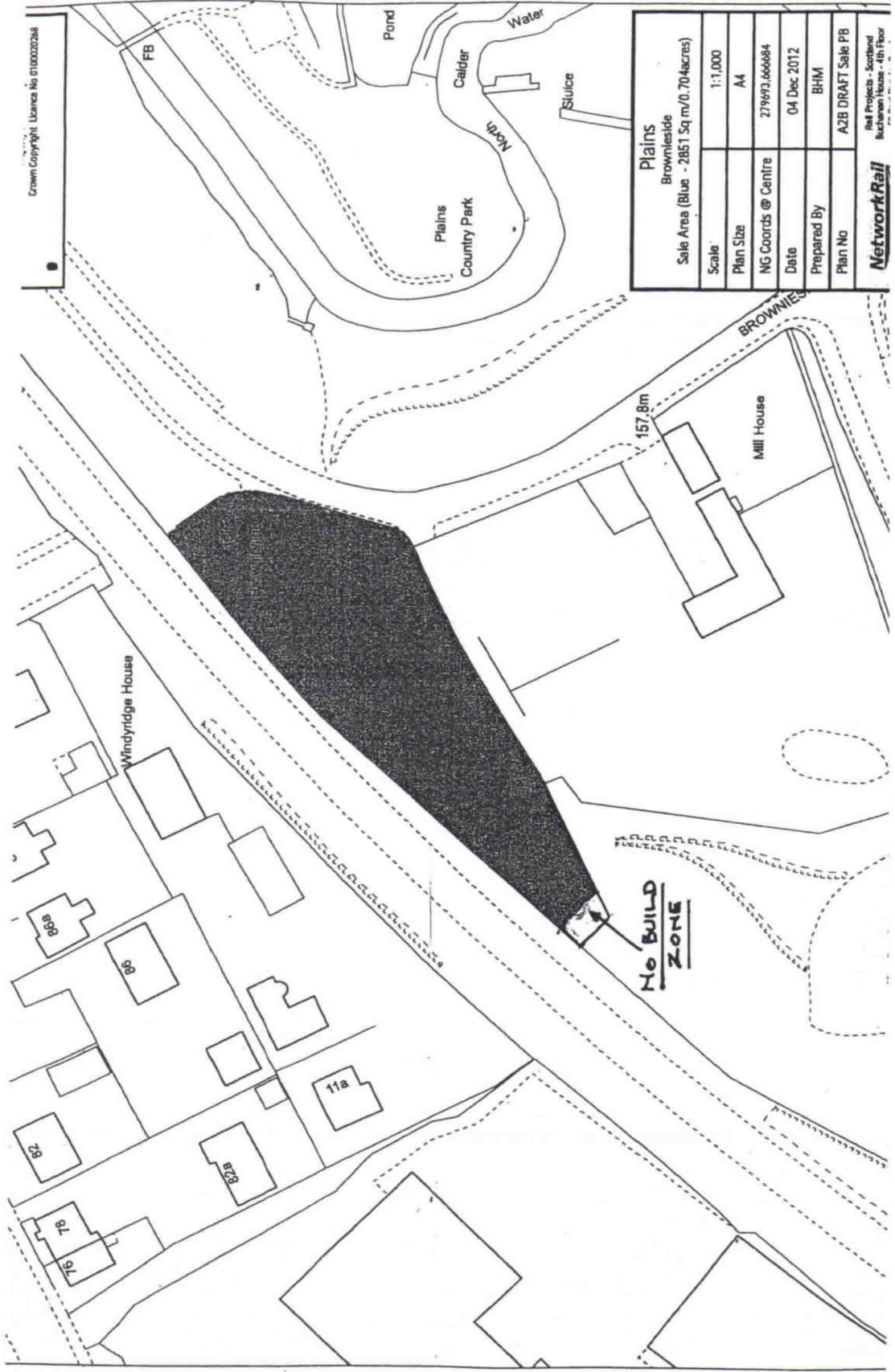
The property is not in an area for which a notice of entitlement to withdraw support has been published.

APPENDIX 6

PLAN SHOWING NO-BUILD ZONE

SCALE 1:1250.

Crown Copyright Licence No 1000020248



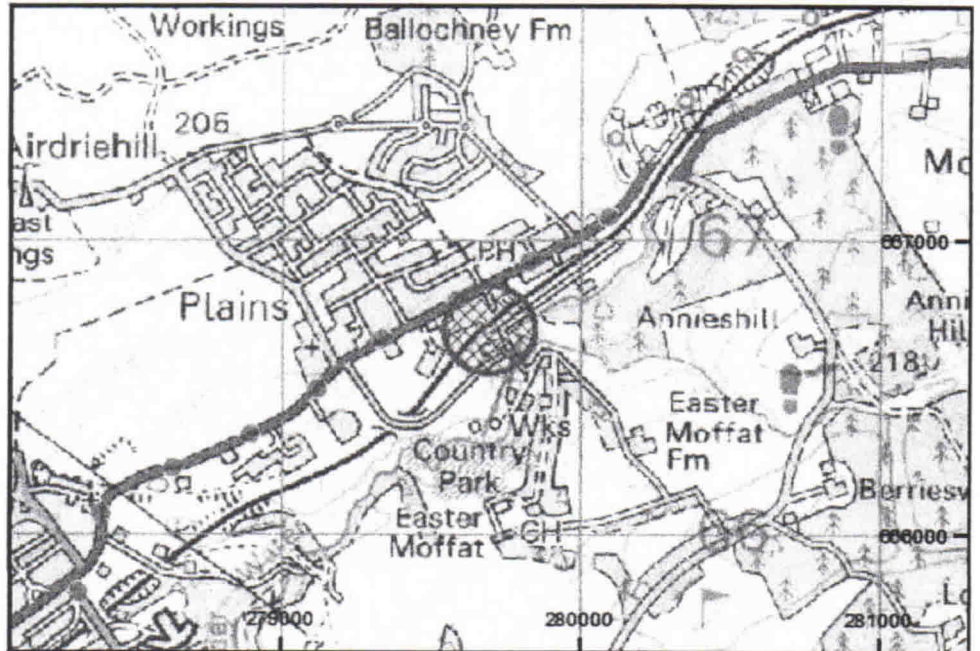
Plains Brownieside	
Sale Area (Blue) - 2851 Sq m/0.70 Acres	
Scale	1:1,000
Plan Size	A4
NG Coords @ Centre	279493.666684
Date	04 Dec 2012
Prepared By	BHM
Plan No	A2B DRAFT Sale PB
Network Rail	
Rail Projects - Scotland Buckingham House - 4th Floor	

PLAINS

Location map

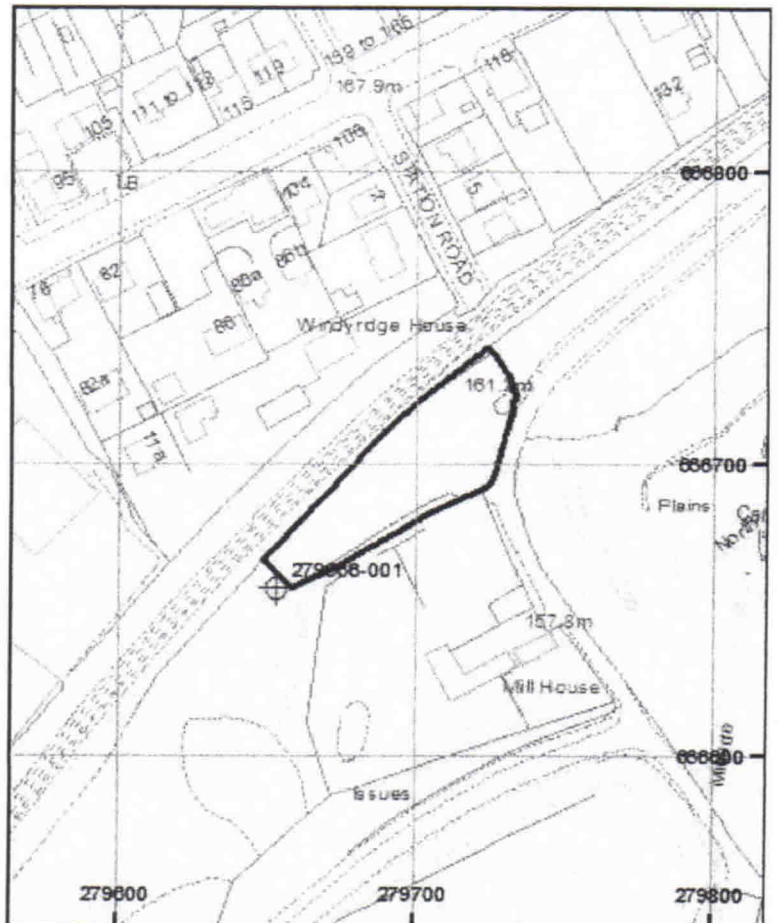


Approximate position of property



Enquiry boundary

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Key

Approximate position of enquiry boundary shown



Used Adit or Mineshaft

