

Environmental Geotechnical Specialists



REPORT

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A REPORT ON A COAL MINING RISK ASSESSMENT

at

LOWER PARK FARM, PARK LANE, BERRY BROW, HUDDERSFIELD, HD4 6TR

for

Mr D HAYES

Report No J3441/16/EDS

March 2016

1. INTRODUCTION

It is understood that as part of the planning application for the erection of an agricultural building at the site, a Coal Mining Risk Assessment has been requested by the planning authority. Consequently, a desktop study was commissioned in order to assess the risk to the development from coal mining. This report presents the findings of the study.

2. GEOLOGICAL DESK STUDY

The geological desk study has been undertaken using the following sources of information.

- British Geological Survey map sheet¹.
- British Geological Survey *Geology of Britain Viewer*².
- Coal Authority Report³.
- British Geological Survey *Borehole Records*⁴.

¹ Sources: British Geological Survey (NERC) Map Sheet 77; Huddersfield; Solid and Drift Edition

² Sources: British Geological Survey (NERC) *Geology of Britain Viewer* [online resource from www.bgs.ac.uk]

³ Coal Authority Reference: 51000256240001 Dated 10th March 2016

⁴ Sources: British Geological Survey (NERC) *Borehole Records* [online resource from <http://www.bgs.ac.uk/>]

2.1 British Geological Survey Maps and Viewer

The appropriate map sheet for the site and the geology viewer has been examined and the following table presents the indicated geology:

Table 1: Geological Data for the Site

Strata Type	Strata Name	Previous Name ⁵	Description ⁵
Superficial Geology	None Present		
Solid Geology	Pennine Lower Coal Measures Formation	Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

It may further be appreciated that the site is situated on undifferentiated strata of the Pennine Lower Coal Measures.

Topographically, the site is situated close to the top of a hill. It has been determined that there is approximately 30m elevation difference between the railway line situated at the base of the hill (200m SW) and the site boundary⁵.

Due to the nature of the outcrop patterns and the topography of the local area it can be assumed that the solid geology may dip shallowly to the north east. Furthermore, the nearest geological dip indicator to the site suggests that the solid geology dips approximately 9° north east.

The site is in the vicinity of three notable coal seams as summarised below:

Table 2: Summary of coal seams within the vicinity of the site.

Seam Name	Seam thickness ^{6*}	Outcrop distance from site ⁶
Hard Bed Coal (HB)	0.10m – 0.80m	~25m SW
Middle Band Coal (MB)	0.00m – 0.60m	~150m SW
Soft Bed Coal (SB)	0.00m – 0.80m	~200m SW

*All distances are approximate only. It should be appreciated that coal seam thickness can vary over relatively short distances.

The Hard Bed Coal is observed to outcrop approximately 25m south west of the site boundary. Due to the generalised dip of the local strata and taking into account the topography of the area, it can be assumed that this seam will be observed at an approximate depths of 3m and 5m below the site surface, whilst getting progressively deeper towards the north east.

The Middle Band Coal is observed to outcrop approximately 150m south west of the site boundary. Assuming a similar dip of the local strata it can be assumed that this seam will be observed at depths of 38m and 44m below the site surface

⁵Source: Google Earth Pro. 15.03.2016. Google, Inc.

⁶ Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]

and shall again be observed at progressively deeper depths towards the north east.

The Soft Bed Coal is observed to outcrop approximately 200m south west of the site boundary. It has been determined that this seam will be present at depths between 60m and 66m below the site surface, getting progressively deeper towards the north east.

2.2 Coal Authority Mines Report

As part of this study a Non-residential Coal Authority Mining Report has been obtained. The report is presented as Appendix 2 and for the purposes of discussion it has been summarised below:

2.2.1 Underground Coal Mining

Past

The property is not within a surface area that could be affected by past underground mining. However 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.

Present

The property is not within a surface area that could be affected by present underground mining.

Future

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods. The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods. The property is not in an area likely to be affected from any planned future underground coal mining. However, reserves of coal exist in the local area which could be worked at some time in the future. No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

2.2.2 Mine Entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property. Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

2.2.3 Coal Mining Geology

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

2.2.4 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

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary. 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.

2.2.5 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 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.

2.2.6 Mine Gas

The Coal Authority has no record of a mine gas emission requiring action.

2.2.7 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.

2.2.8 Withdrawal of Support

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.

2.3 Geological Survey Borehole Records

The British Geological Survey (NERC) keeps borehole records from across Britain which are available for public viewing through their website⁶. As part of this study, the records in the area around the site have been reviewed in order to assist in establishing the geological conditions.

It should be appreciated that there were no borehole records within 600m or situated in a position that would assist in the interpretation of any coal seams

⁶ <http://www.bgs.ac.uk/data/boreholescans/>

within the local area. The records beyond 600m away from the site were felt to be of limited value to this study due to their shallow depths.

3. **RISK ASSESSMENT**

The risk to the stability of the proposed residential development has been evaluated from the data obtained and with reference to the following ratings and definitions:

- Low - The possibility of instability is unlikely therefore no further action is necessary.
- Moderate - The possibility of instability is likely and further investigation or remedial action may be required.
- High - The possibility of instability is highly likely and further investigation or remedial action will be necessary.

Table 2: Development specific risk assessment

Item	Risk of Instability	Coal Seam(s) Considered	Risk Rating
1	Shallow coal workings	Hard Bed Coal (HB)	Moderate
2		Middle Band Coal (MB)	Low
3		Soft Bed Coal (SB)	Low
4	Coal workings at depth	None indicated to be worked by the Coal Authority	Low

On the basis of all of the information provided above it is concluded that there are shallow coal seams in the vicinity of the site. Whilst these seams may be of limited thickness the possibility of these seams being worked below the site cannot be ruled out.

It may be noted that guidance available from both the NHBC and the CIRIA publication, SP32 - *construction over abandoned mine workings*, suggests that competent overburden thickness above a coal seam should be greater than 10 times the thickness of a seam plus seam thickness in order that the collapse of workings would pose a low risk to surface structures.

On this basis, assuming a maximum thickness of the Hard Bed Coal to be 0.80m, 8.80m of competent overburden is required to prevent instability to future surface structures. As this seam is anticipated to be found at depths between approximately 3m and 5m below ground level, it is considered that there will not be a sufficient thickness of competent overburden above this seam in order to prevent instability caused by the presence of any illicit voids. Therefore, a moderate risk rating has been placed on this seam, and further investigation is recommended to prove/disprove the presence of illicit mining activity.

However, due to the seam depth, seam thickness and the topography of the local area, it is suggested that there will be a sufficient thickness of competent overburden above the Middle Band Coal and the Soft Bed Coal to prevent instability to surface structures. Therefore, a low risk rating has been placed on these seams and no further action is required.

In regard to deeper mining which could affect the site, the Coal Authority holds no records that the property is in the likely zone of influence from past deep underground workings. Therefore, there is considered to be a low risk of instability at the site due workings at depth.

4. CONCLUSIONS

In light of the potential risks of instability at the site from the working of shallow coal at the site, it cannot be recommended that development takes place without further investigation to conclusively determine the presence of such workings. This work should include physical drilling methods to explore the ground conditions.

General practice is to undertake rotary openhole boreholes at three locations across the site to mitigate against the potential for drilling through pillars associated with pillar and stall workings. Furthermore, it is normal to investigate the ground to 30m below ground level; any workings below this depth are unlikely to result in significant instability. However, in this case, the risk of instability is due to shallow workings, therefore, drilling to these depths may not be necessary and the objective should be to ensure that the shallow seams are un-worked. It may therefore be possible to undertake one borehole to 30m in the first instance with the remaining boreholes proving the depth and continuity of the coal seam. In any event, it is considered that approval should be sought with the Local Authority as to the efficacy of this approach.

It is of note that Rogers Geotechnical Services would be happy to assist in any further intrusive investigation that may be required.

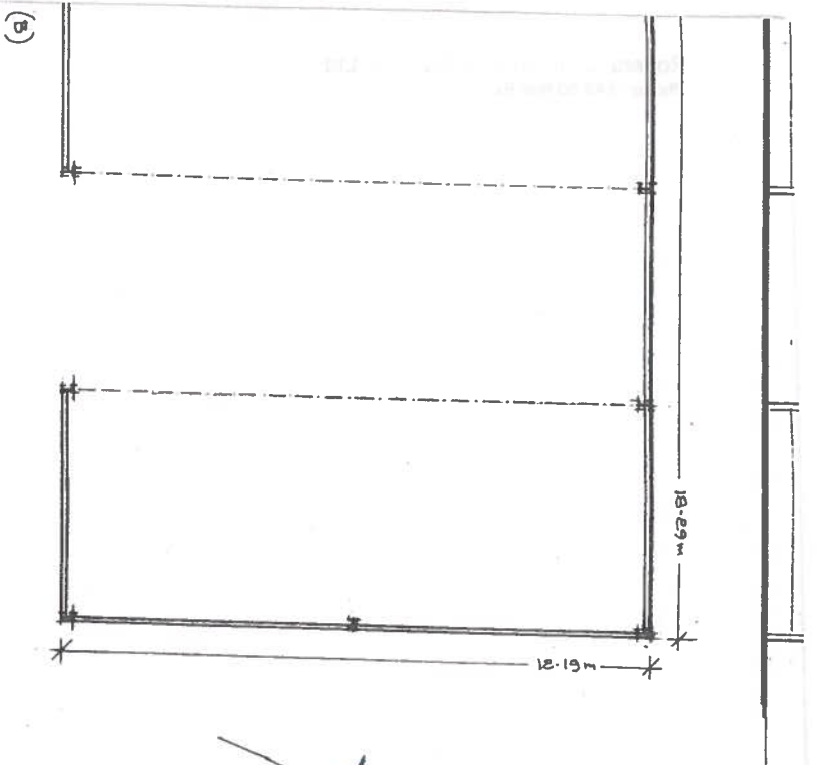
For and on behalf of
Rogers Geotechnical Services Ltd,

C. E. Mason BSc
Graduate Engineer

S.P. Rogers CEng, CGeol, MICE, MCIHT, FGS
Technical Director

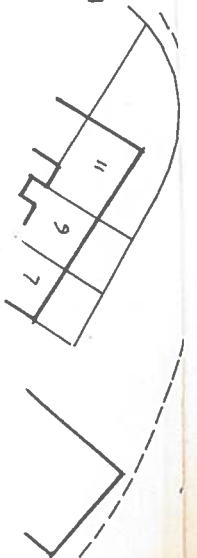
APPENDIX 1

SITE PLAN

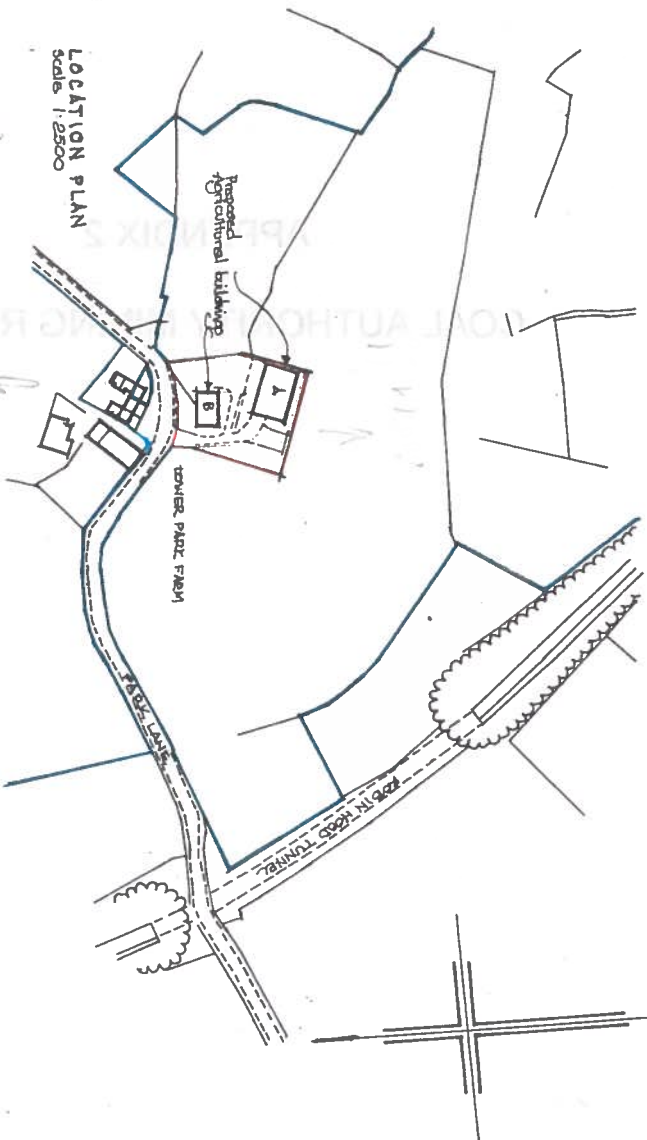


1 private
from Brown & Brown SN

BLOCK PLAN
Scale 1:500



LOCATION PLAN
Scale 1:2500



MR DAVID HAYES
LOWER PARK FARM, PARK LANE,
BERRY BROW, HUDDERSFIELD HD4 6TR
PROPOSED AGRICULTURAL BUILDINGS

SCALE 1:100

FEBRUARY 2016

APPENDIX 2

COAL AUTHORITY MINING REPORT



The Coal
Authority

Resolving the **impacts** of mining

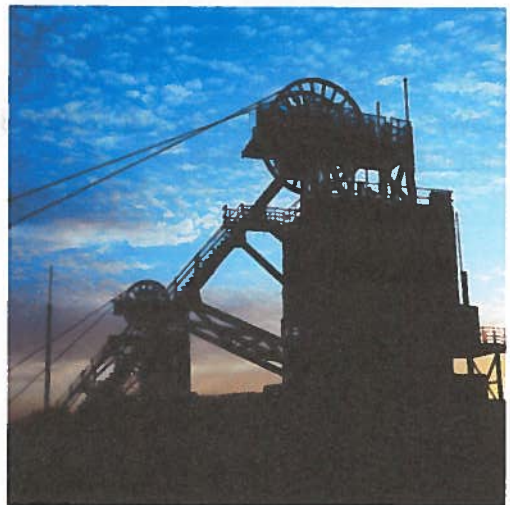
CON29M Non-Residential Mining Report

LOWER PARK FARM
PARK LANE
BERRY BROW
HUDDERSFIELD
HD4 6TR



Date of enquiry: 10 March 2016
Date enquiry received: 10 March 2016
Issue date: 10 March 2016

Our reference: 51001112703001
Your reference: J3441/16/EDS



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

Emma Suzanne Lewis

Enquiry address

LOWER PARK FARM, PARK LANE, BERRY BROW,
HUDDERSFIELD, HD4 6TR

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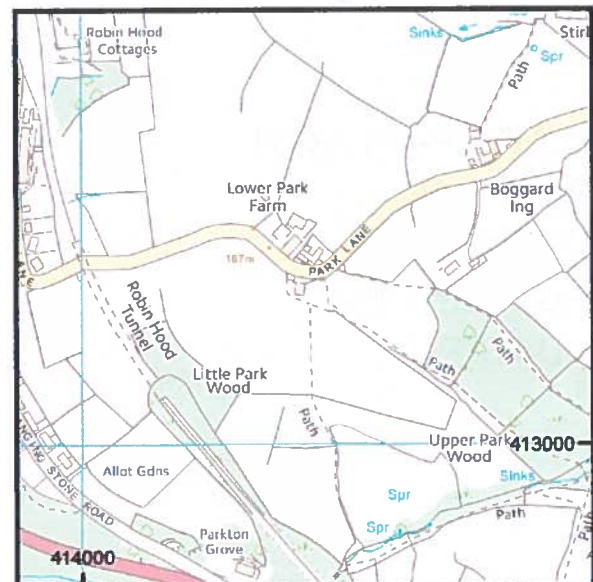
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Mansfield
Nottinghamshire
NG18 4RG

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Approximate position of property



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Summary

Has the enquiry boundary identified evidence of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is not within a surface area that could be affected by past underground mining.

However 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 the Coal Authority information section of the report.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

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

The property is not in an area likely to be affected from any planned future underground coal mining.

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

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

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

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

5. Coal mining geology

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

6. Past opencast coal mining

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

7. Present opencast coal mining

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

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

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.

9. 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 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.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. 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.

12. Withdrawal of support

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.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. 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.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

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In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

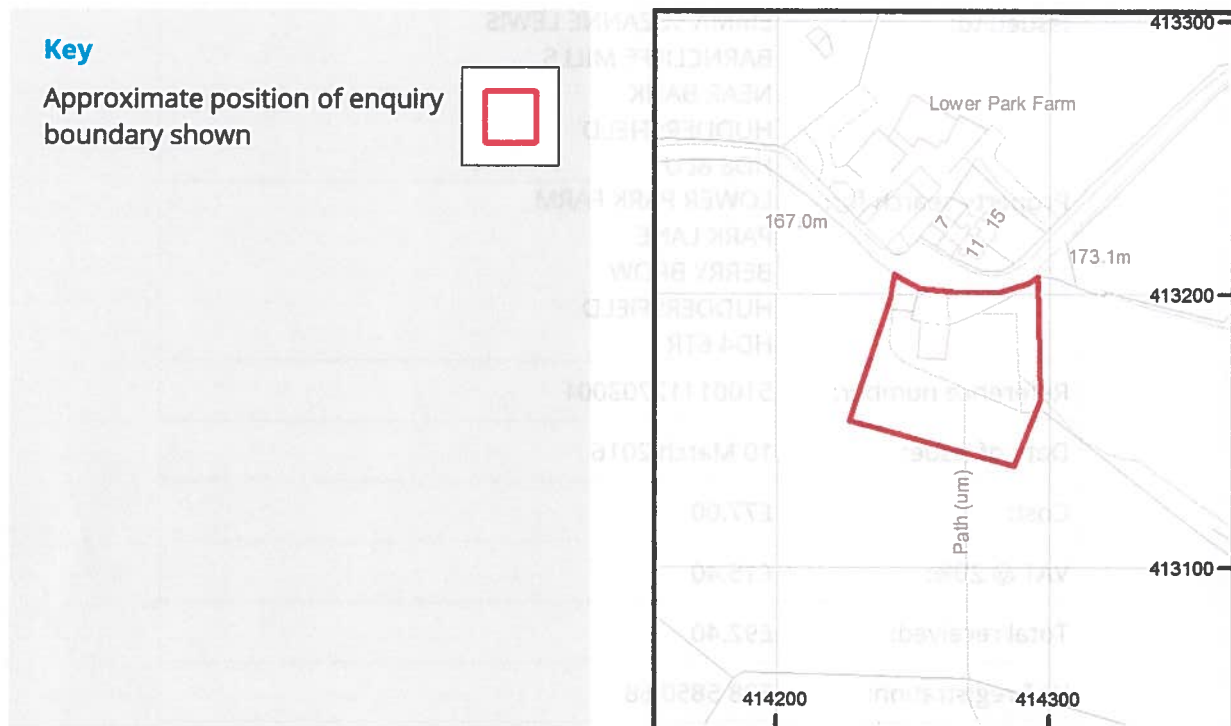
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Reference number:	51001112703001
Date of issue:	10 March 2016
Cost:	£77.00
VAT @ 20%:	£15.40
Total received:	£92.40
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