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Mr & Mrs Challenger c/o J Sibley Architectural Services Brandon Gate Ellwood Coleford GL16 7LZ Our ref: DJW/3838

7 January 2015

Dear Mrs Sibley,

# RE: RED HOUSE, BROCKHOLLANDS, BREAM, LYDNEY GL15 4PP FoDDC PLANNING REF P1649/14/OUT

I refer to your email of 2 December 2014 concerning the proposed construction of a single dwelling at the above site. It is understood that on account of it lying within a Coal Mining Development Referral Area, the Coal Authority (CA) has objected to the application via Forest of Dean District Council (FoDDC). In line with your instructions we have therefore undertaken the necessary researches and provide below our desk-based **Coal Mining Risk Assessment**, intended for submission to FoDDC/CA to address any outstanding queries.

The objectives of this Coal Mining Risk Assessment are to:

- Present a desk-based review of all available information on coal mining issues which may affect the application site;
- Use that information to identify and assess any risks to the proposed development arising from the coal mining legacy, including any cumulative effects;
- Set out appropriate mitigation measures to address any identified coal mining legacy issues, including any necessary investigation and/or remedial measures, and/or demonstrate how coal mining legacy issues have influenced the proposed development;
- Demonstrate to the LPA that the application site either is, or can be made, safe and stable to meet the requirements of national planning policy with regards to development on unstable land.

## Sources of Information

• CA mining report Ref 51000615589001 (4 September 2014)









- Proposed site layout plan Ref 229.04 (September 2104)
- British Geological Survey map SO60 NW (1970)
- "Geology of the Forest of Dean Coal and Iron-Ore Field" Geological Survey of Great Britain (Trotter) 1964
- Mining report from the Deputy Gaveller's office, Forestry Commission, Coleford (7 January 2015)
- Liaison with FoDDC Building Control department
- Existing in-house archive records

#### **Geological & Mining Setting**

At approximate national grid reference SO 61550-05200 roughly 1.4km southeast of Bream, the site lies on the extreme southern limit of the 'Main Basin' of the Forest of Dean coalfield. The latter is effectively a synclinal 'basin' type structure in which strata generally dip towards the central north-south axis, and in the particular site area BGS Sheet SO60 NW indicates the productive upper coal measures Pennant Group (recent BGS mapping renames this as the Coleford Member) to be inclined at 1 in 2 (roughly 27°) to the northeast. There is no recorded covering of superficial deposits, and we have no records of previous ground investigation close enough to be of any assistance.

According to 'Geology of the Forest of Dean Coal & Iron-Ore Field' (Trotter, 1964) the Pennant Group in this area is dominated by thick massive (unbedded) sandstone with subordinate shale, and two main coal seams of workable thickness. The lower of these which marks the base of the Pennant Group is the Coleford High Delf seam, which at 1-1.5m thickness and of bright bituminous quality is the principal seam in the forest and has been widely exploited both along crop and at depth. Some 70-100m of massive unbedded sandstone separate this from the Yorkley seam (0.75m) which lies towards the top of the Pennant Group, with further massive but probably heavily-jointed sandstone above the Yorkley. A third seam called the Whittington locally occurs roughly halfway between the two, although rarely exceeds 0.9m thickness.

As shown on drawing 3838/1, large-scale geological mapping shows the proven outcrop of the Yorkley seam as a northwest-southeast trending solid line which passes some 30m southwest of the site; the parallel outcrop of the Whittington lies at 230m distance in the same direction, and the Coleford High Delf (faulted) 350m distant. Given the recorded strata dip of 1 in 2 and the proposed dwelling position, the coal seams should underlie the proposed building footprint at roughly 18m (Yorkley), 118m (Whittington) and 168m depth (Coleford High Delf). No abandoned mineshafts are shown in the near vicinity, however an adit (tunnel entrance) marking the position of a 'cross-measures level', effectively an inclined tunnel which runs down in the opposite direction to the strata dip (i.e. to the southwest) is plotted some 570m to the northwest. The tunnel intersects the above-named seams and shows separate levels or headings leading off into workings within each of them.

A site-specific CA mining report is attached, which records past underground workings within two coal seams at 150 to 180m depth beneath the site; allowing for possible dip



variations and the effect of small-scale faulting this would seem to correlate with the Whittington and Coleford High Delf seams. The workings are recorded to have been last worked in 1950, on which basis any associated ground movements should by now have ceased. The CA also notes that "reserves of coal exist in the local area which may have been worked at some time in the past". All other standard CON 29M enquiries have been answered in the negative, although it is noted that "coal reserves exist in the local area which could be worked at some time in the future"; that said the CA has no records of planned future workings.

Given that licensing of mining operations within the Forest of Dean coalfield has historically been (and indeed remains) the responsibility of the Deputy Gaveller at the Forestry Commission, we have supplemented the above with an enquiry to his office. His response in the form of a short letter and various plans (extracts of historic OS mapping and a seam plan (see attached) effectively corroborates the CA records, in that there is no record of workings within the Yorkley seam at shallow depth beneath the site, and no abandoned shafts or adits on or close to the site. Workings are known to be present within the lower coal seams, as shown on the abandonment plan for the former Pastors Hill opencast site 450m due west (worked in 1983), however those lie well below the depth of influence and pose no stability risk to the site. The site does lie within the Parkhill Gale which is 'in grant', meaning that any works such as drilling investigation that might disturb the mineral would require the prior consent of the galee (licensed owner).

In addition we have contacted FoDDC Building Control for any records of incidents involving mining subsidence, collapse features or recorded mine entries in this area, however at the time of writing their response has yet to be received; anything of relevance will be forwarded under separate cover.

#### Summary of Identified Site-Specific Coal Mining Risks

The potential site-specific risks associated with coal mining legacy at this site are summarised below.

Coal Mining Issue	Yes	No	Risk Rating
Coal present at shallow depth			low
Underground coal mining recorded at shallow depth			low
Underground coal mining probable at shallow depth			low - see below
Mine entries (shafts/adits)			low - moderate
Mining-related fissures			very low
Record of past mine gas emissions or potential			very low
Recorded surface hazards			very low
Opencast mining			very low



#### Ground Stability Risk Assessment

When assessing potential ground stability risk associated with shallow abandoned mine workings within a particular seam, it is normal practice to require a thickness of overlying rock cover equivalent to ten times the thickness of the mined horizon, excluding the thickness of any superficial deposits or made ground above rockhead. Given the foregoing information a minimum thickness of overlying rock cover of 7.5m is necessary at this site in order to demonstrate no surface stability risk associated with any workings within the Yorkley Coal (none are recorded). Given the estimated depth of 18m to the coal (or 35m at site centre as suggested by the Deputy Gaveller) and a recorded absence of superficial deposits, even allowing for a roadway of typical 1.2-1.5m height, that requirement would appear to be satisfied at this site.

#### Conclusions

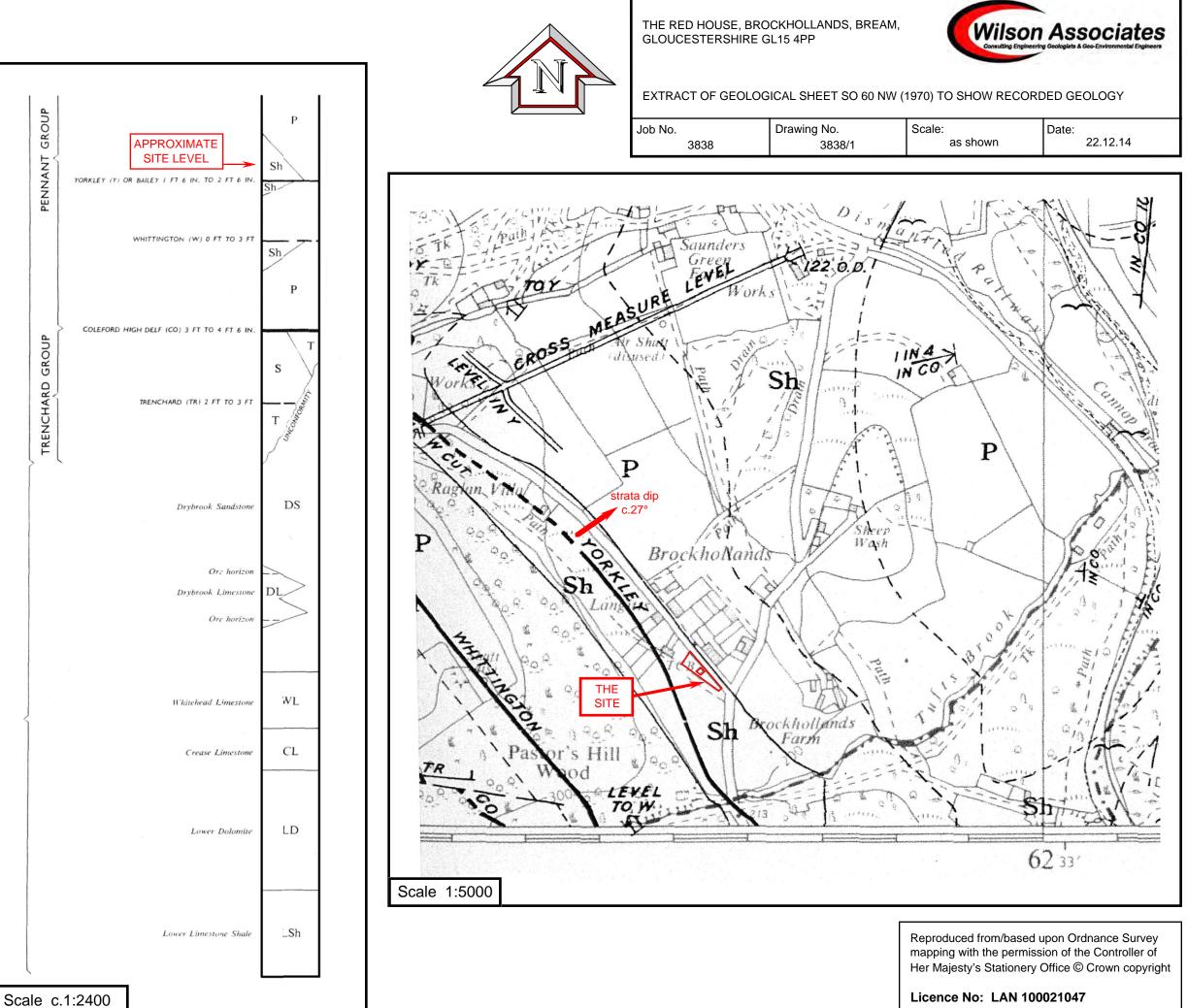
The site lies to the southeast of Bream, in such a location that the Yorkley coal seam could lie as shallow as approximately 18m depth beneath the proposed dwelling footprint. The seam is recorded to be 0.75m thick, on which basis and given the absence of superficial deposits it would appear that the thickness of overlying competent rock cover should exceed the nominal ' ten times the seam thickness' requirement. As such any unrecorded abandoned workings within that horizon are deemed to lie at sufficient depth such that they are <u>NOT</u> considered to pose a potential surface stability risk to the proposed building footprint. Unless the latter changes no further assessment or investigation is considered necessary, and the site should meet the national planning policy requirements with regard to development on unstable land.

It would however be advisable to follow 'best practice' for new development within a former coalfield, with the incorporation of top and bottom layers of steel mesh reinforcement within conventional strip/trenchfill foundations in order to mitigate any possible minor residual ground movements. Similarly a careful watch should be maintained during site strip or other excavations for any anomalous areas of made or disturbed ground which could indicate the presence of unrecorded abandoned mine entries (shaft or adit). Any such occurrence should be reported to this Practice so that appropriate assessment can be instigated.

I trust that the above will suitably address any concerns, however should there be any queries please do not hesitate to contact this office.

Yours sincerely,

DAVID J WILSON BSc (Hons) CGeol FGS MIQ for WILSON ASSOCIATES (CONSULTING) LIMITED



Licence No: LAN 100021047



Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

J SIBLEY ARCHITECTECTURAL SERVICES **BRENDON GATE** ELLWOOD COLEFORD GLOUCESTERSHIRE **GL16 7LZ** 

Our reference: Your reference: Date of your enquiry: Date we received your enquiry: Date of issue:

51000615589001 229 04 September 2014 04 September 2014 04 September 2014

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

## Non-Residential Coal Authority Mining Report

#### RED HOUSE, BROCKHOLLANDS, BREAM, LYDNEY, GLOUCESTERSHIRE, GL15 4PP

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.

Coal mining	See comments below
Brine Compensation District	No

## 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 150m to 180m depth, and last worked in 1950.

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

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.

## 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.

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

## Working facilities orders

The property is not in an area for which 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.

## Payments to owners of former copyhold land

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

## **Comments on Coal Authority information**

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.

## Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

# Additional Remarks

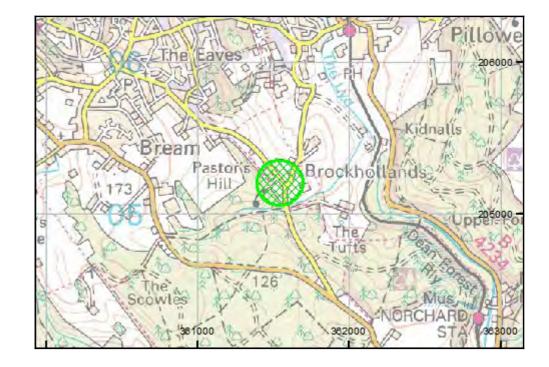
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Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	04 September 2014
Issued to:	J SIBLEY ARCHITECTECTURAL SERVICES BRENDON GATE ELLWOOD COLEFORD GLOUCESTERSHIRE GL16 7LZ
Property Search for: Reference Number:	RED HOUSE, BROCKHOLLANDS, BREAM, LYDNEY, GLOUCESTERSHIRE, GL15 4PP 51000615589001
Date of Issue:	04 September 2014
Cost:	£59.00
VAT @ 20%:	£11.80
Total Received:	£70.80
VAT Registration	598 5850 68

## Location map

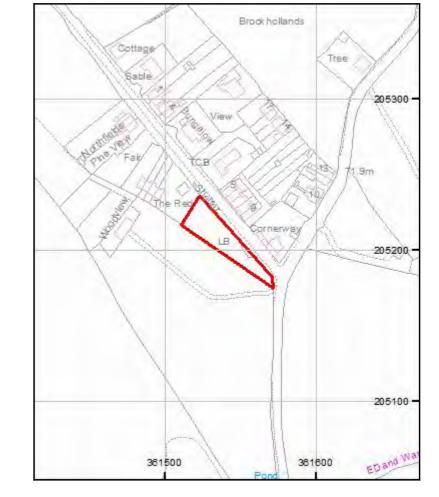


Approximate position of property



# Enquiry boundary

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## Key

Approximate position of enquiry boundary shown





Forest of Dean Bank House Bank Street Coleford Glos. GL16 8BA

Daniel.Howell@forestry.gsi.gov.u Tel: 01594 833057 Fax: 01594 833908

> Deputy Gaveller Daniel Howell

Wilson Associates 36 Brunswick Rd Gloucester GL1 1JJ

7<sup>th</sup> January 2015

Your Ref: Email of instruction dated 12th December 2014

Dear Sirs

# Re: Site at Red House, Brockhollands

With reference to your instruction of the 12<sup>th</sup> December regarding the above site area, it is confirmed that it lies within the Hundred of St Briavels and is therefore subject to the rights of Freeminers, their heirs and assigns as per the Dean Forest Mines Acts.

The property (shown edged RED on the attached plans) lies on the **Parkhill** Gale and is currently **IN GRANT**. Disturbance of these minerals will require permission directly from the Galee whose details can be provided if required.

Records indicate no known mine entries within 200m of the site and the historical plans SUGGEST that the minerals directly under the site remain largely intact.

Underground mining operations took place within the limits of the gale as late as 1950, but a portion of the Gale plus adjacent Gale was worked by opencast in 1983. This site lies approximate 450m due West of the site (see plan).

Geological plans indicate the strata dipping in a North-Easterly direction of gradients between 1 in 1 and 1 in 2 placing the Yorkley seam approximately







35m below the centre of the proposed site. This should be overlaid with massive sandstones but given the proximately to surface, may be heavily jointed.

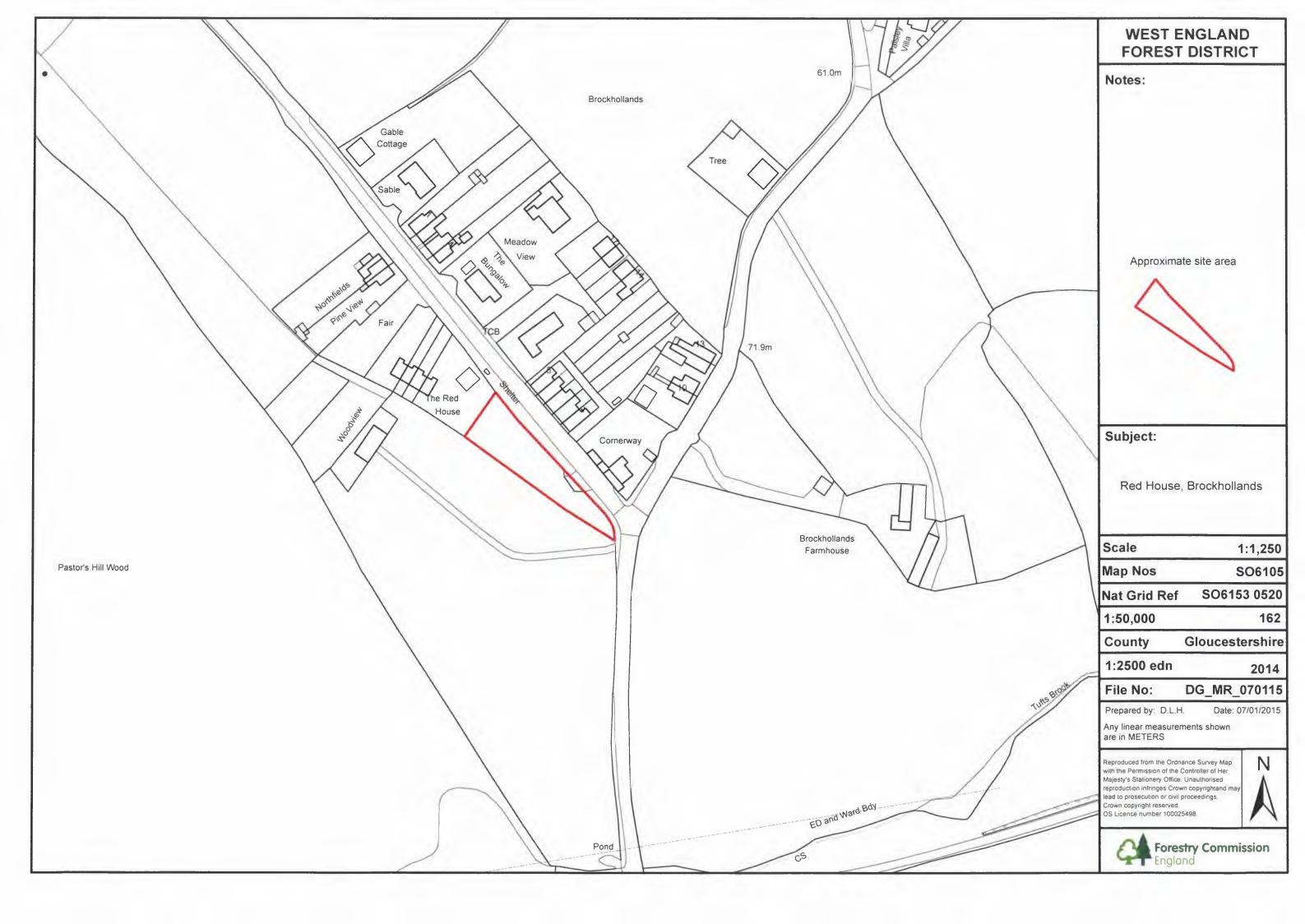
For completeness, I have included copies of historic plans relating to the area including mine plans, OS1881 extract, opencast abandonment and geological section, and a copy of the LiDAR survey conducted in 1996.

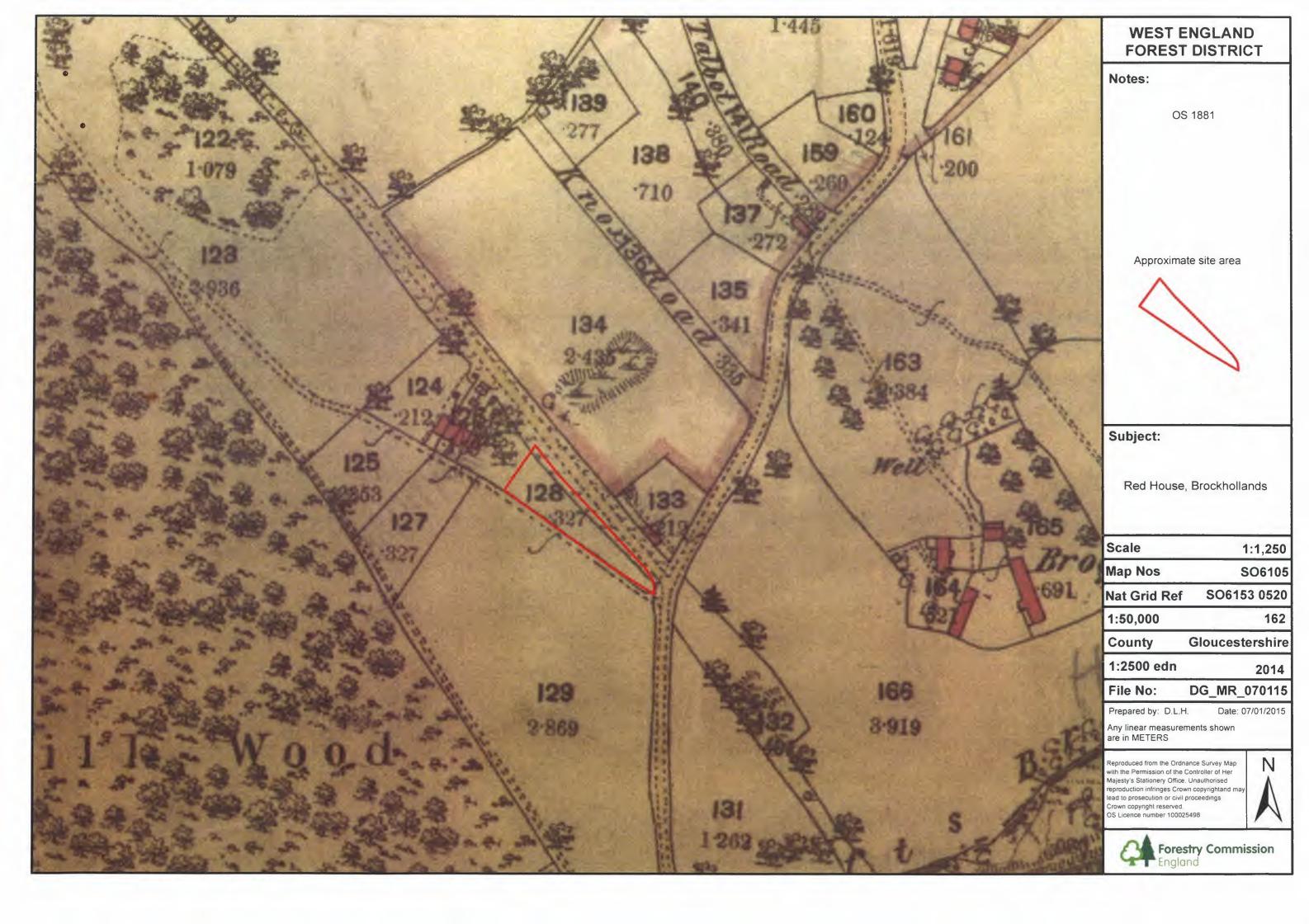
I hope this information is of interest and should you have any other queries, please contact me.

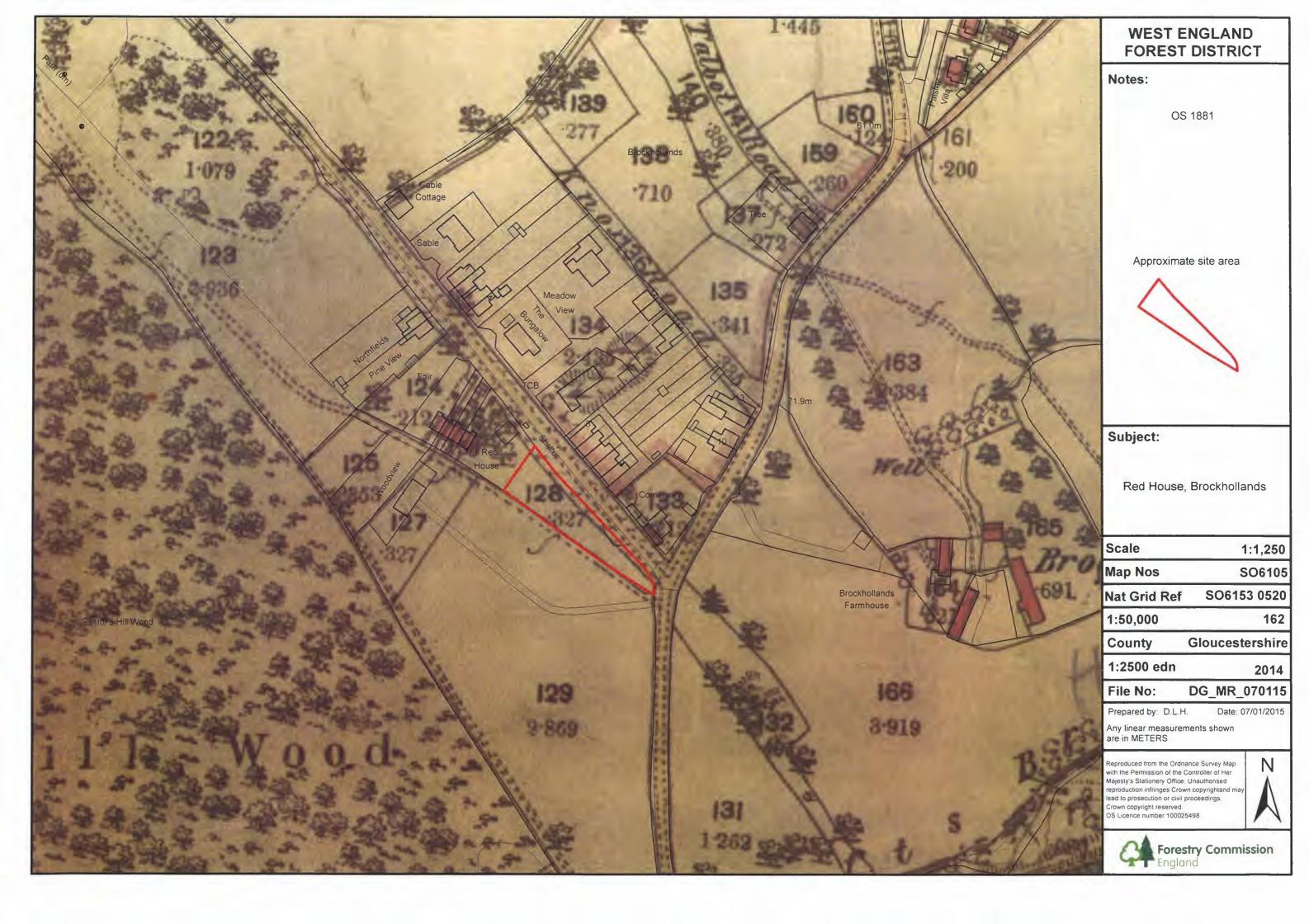
Yours faithfully

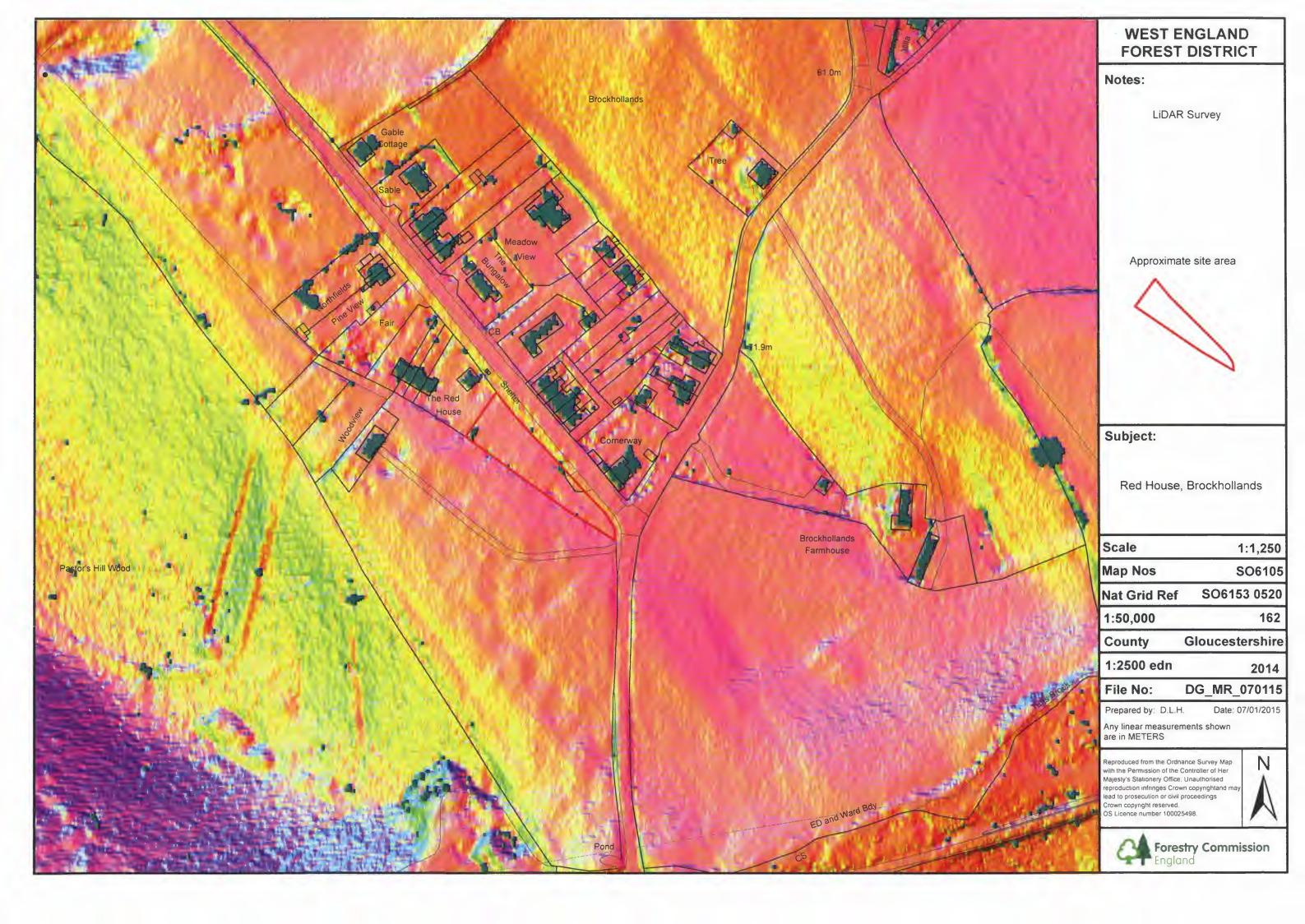
Daniel Howell Deputy Gaveller Dean Forest

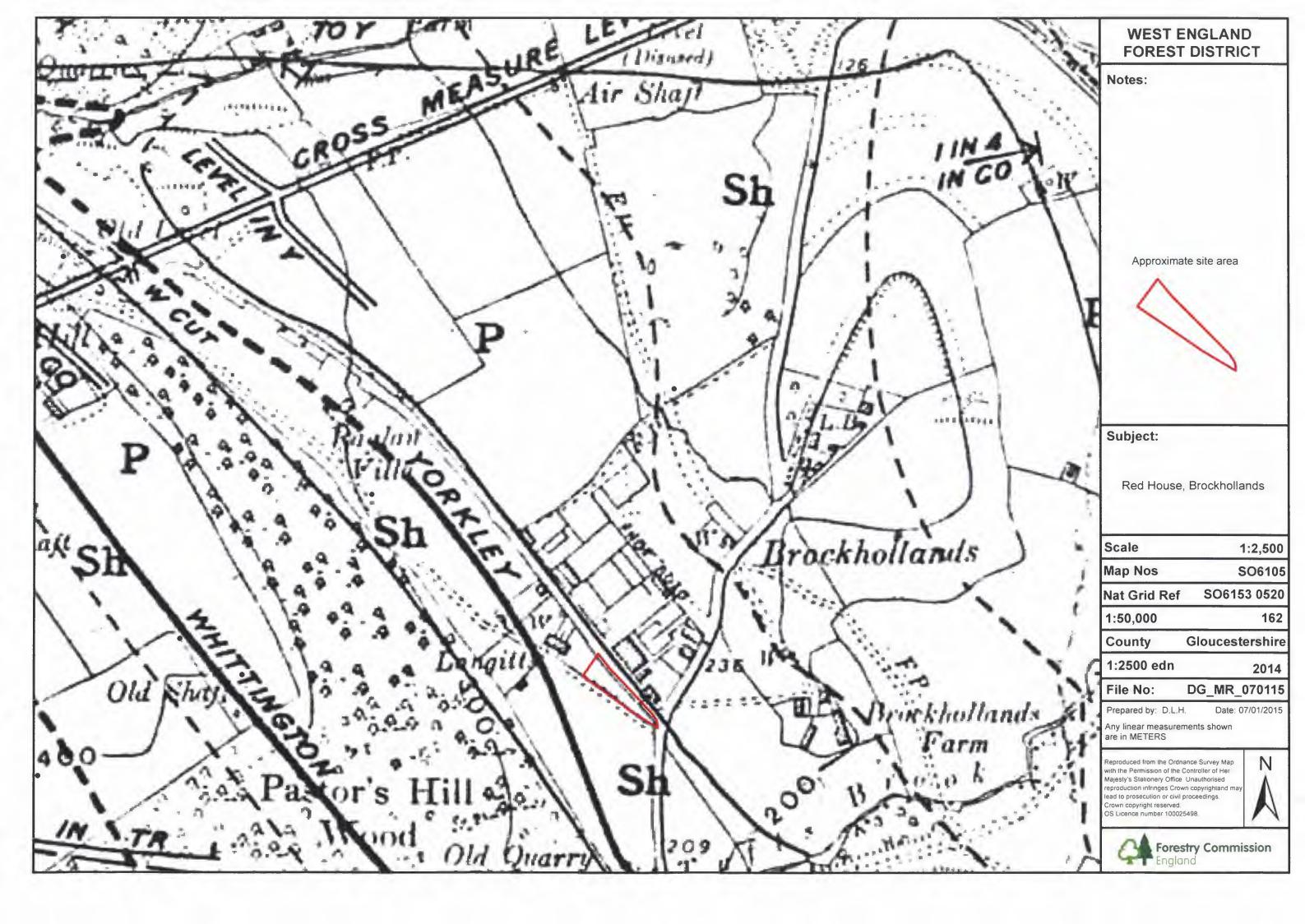
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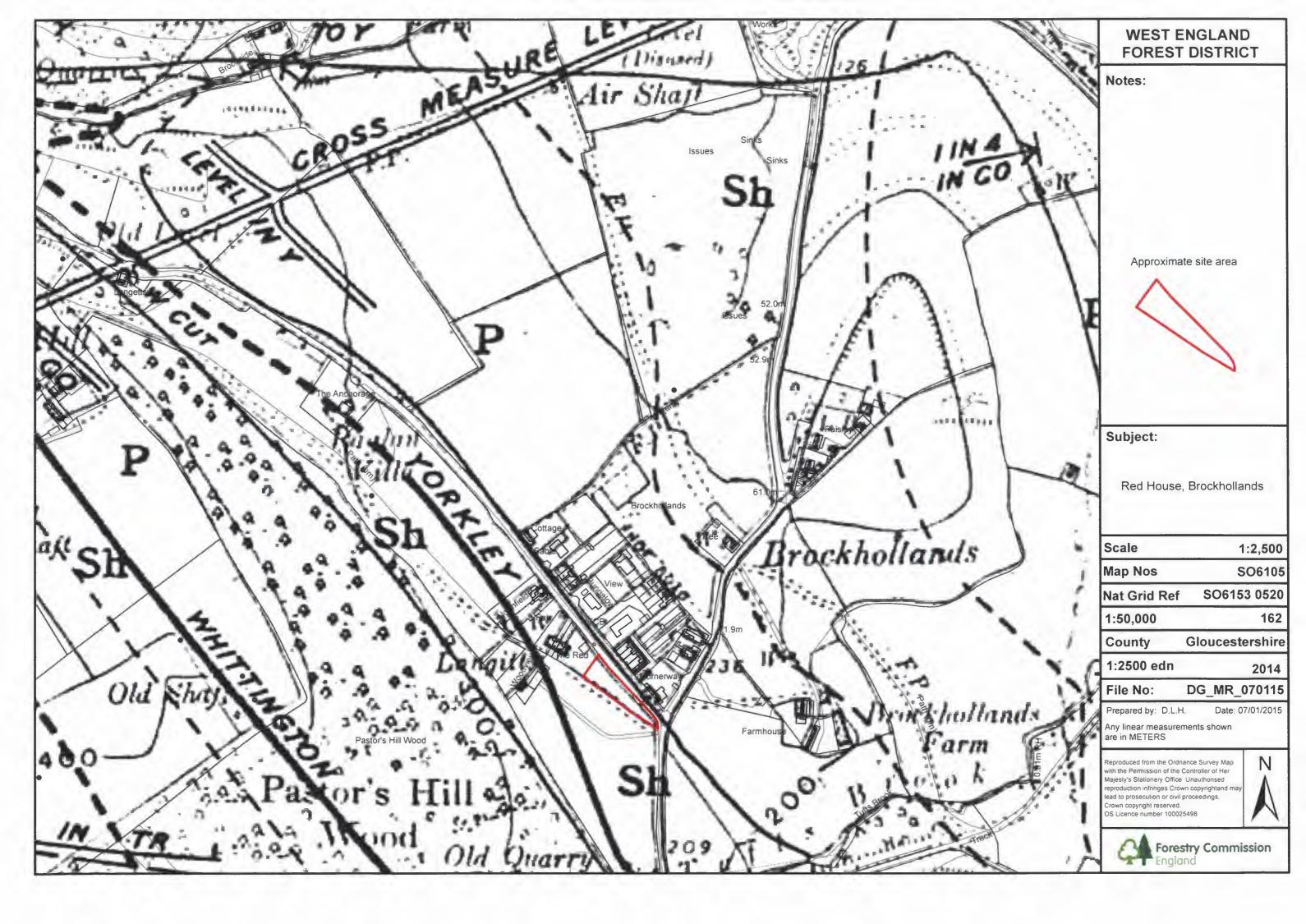




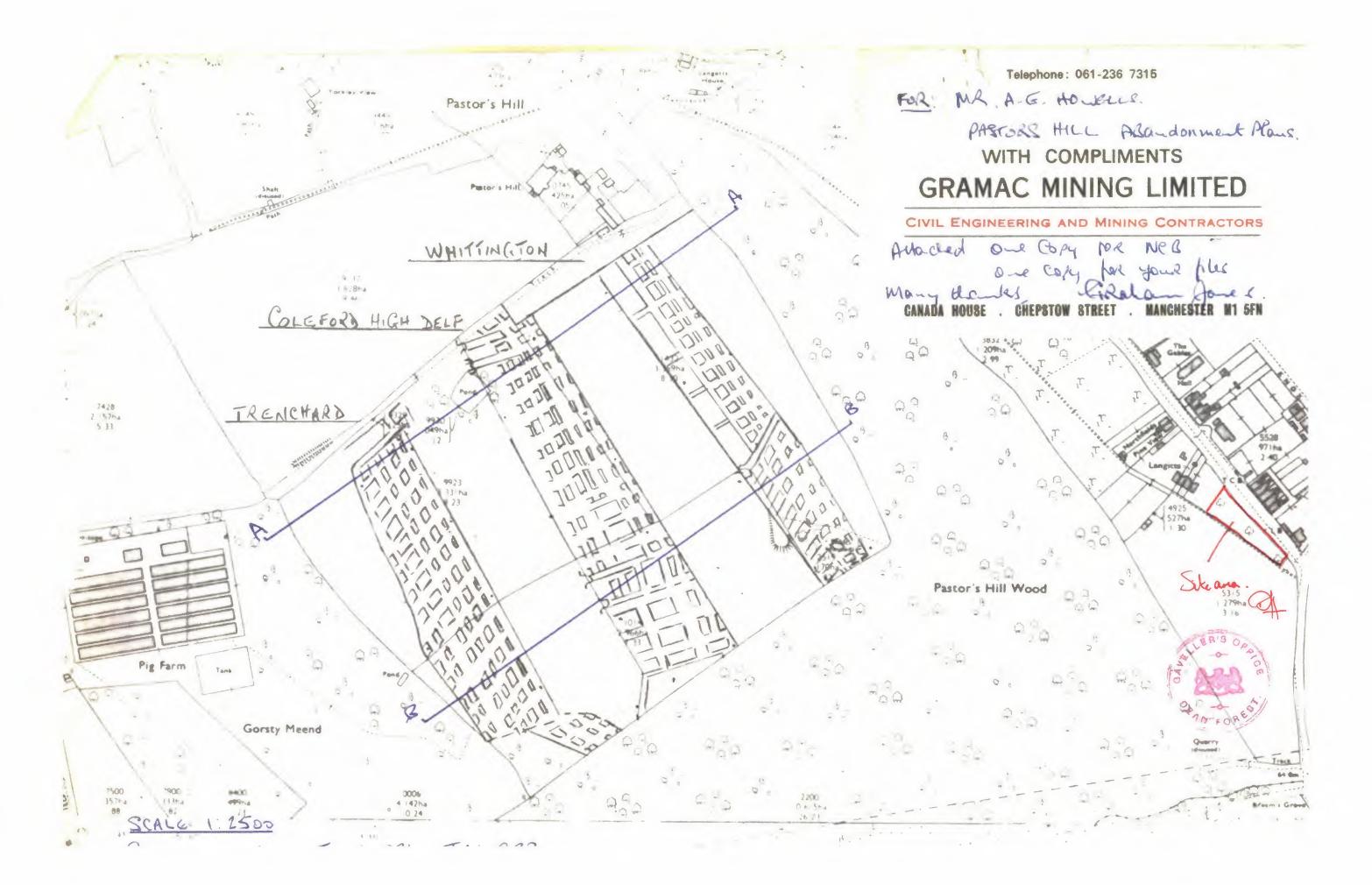


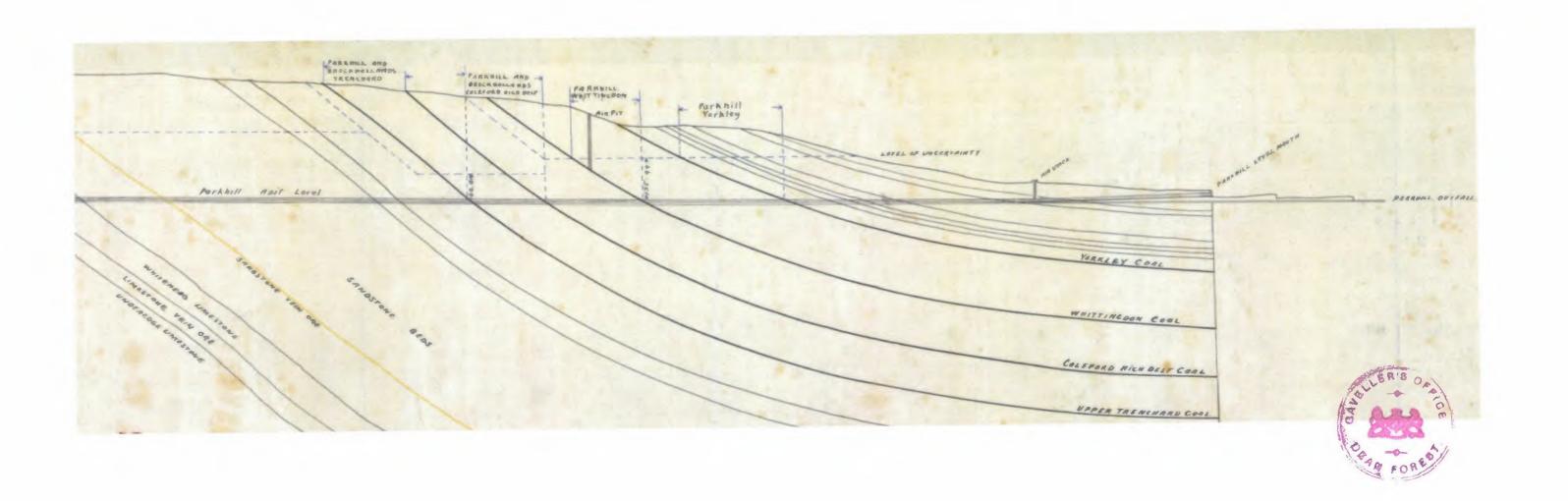














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October 2014



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