

Barn (S3) is stone-built, in good repair but with replacement metal roof. It is in 18th century rural vernacular, a style which has changed little from the medieval period. The field corner location points towards a post-enclosure date, and thus to a post-medieval date. The wall fabric is coursed rounded boulders with occasional courses of flat-split stones all set in a white mortar. The quoins are rectangular gritstones in 'long and short' work, and the gable walls are capped with a flat coping. These features are all characteristic of 18th century build although the style dates back to the medieval period. The barn was not mapped in 1798; as others are shown on the 1798 map this is not likely to be an omission, suggesting a post-1798 date for barn S3. The construction style matches barn S2 which is shown in 1798.

In four places (R1-R4), ridge-and-furrow cultivation is visible as surface relief. Its orientation is mainly north-west/south-east but R3 is east-west

A pond (first mapped in 1895) lies at the north end of a field east of Stony Bottoms Plantation which is generally low-lying and partly waterlogged (P1). If the waterlogging has been long-term then there will be an area of significant palaeoenvironmental potential. Within this field a low bank (S6) probably reflects the presence of a levelled drystone wall forming a small enclosure or structure with an 'entrance' on its west side

At (S7) a cluster of features north of a levelled drystone wall (B8), may represent former domestic-scale quarrying: these comprise a small mound formed of with many small to large rounded boulders (spoil heap?), a small hollow to the south containing small boulders (quarry?), and a small enclosure formed of a low bank in an L-shape measuring about 4x8m in plan.

Three levelled drystone walls (B1-B3) are positioned quite close together and probably represent groups of enclosed strips: ridge-and-furrow R1 was visible between B1 and B2.

1.7 Summary of archaeological potential

Prior to the commencement of this project there were no recorded archaeological remains within the application site and few in the vicinity.

The site is thought to lie within former open fields, subsequently enclosed piecemeal by drystone walls perpetuating some of the earlier boundaries; these walls have now been removed or leveled, some being replaced by fairly recent hawthorn hedges. A number of other boundaries, now removed, are known only from 18th and 19th century mapping. Two cross-slope 'benches' may be lynchets (B5, B9) but are probably of natural origin. A map of 1798 shows two structures (S1, S4) removed by 1856, and a third still standing (S2). A map of 1856 shows two others (S3, S5), S3 still stands but S5 had been removed by 1912. Site inspection identified within the application site ridge-and-furrow earthworks at four locations (R1-R4), a levelled structure, stone heap and possible quarry pit in a group (S7), an enclosure / structure (S6), and a waterlogged field containing a probable infilled stream channel (P1), and recent earthworks, probably recent.

1.8 Site conditions

The site may be divided topographically into two main zones: the larger part of the area in which slopes are generally downwards from west to east, and within this an area of low-lying ground defined by steep slopes at its edges, running from about 100m southwest of the north corner of the application site widening to a terminal in the waterlogged ground east and northeast of Stony Bottoms Plantation. Steep slopes bordering the low ground are limited in extent but may contain significant deposits of colluvium or accumulated soil creep.

The site contains roughly equal areas of grassland and arable. In the grassland areas, access for evaluation should be straightforward, with the potential presence of stock, and

need for reinstatement being practical issues. Constraints on activities in the arable are discussed in the next section. Excavation in the area of waterlogged ground might be liable to flooding.

1.9 Fieldwork methods: effectiveness and constraints

Topsoil magnetic susceptibility (TMS) survey and detailed magnetometer survey have been employed in the earlier stages of the quarry and proved effective in locating kilns and features with in-situ burning. TMS can also identify concentrations of debris from various kinds of human activity such as occupation debris, but lack definition. Magnetometer survey can provide detailed plots of buried features. Both methods are best carried out on harvested crop, close-cropped grassland, bare soil or sown areas where crop growth is low. TMS can be carried out with little impact as walking is dispersed, but detailed magnetometer survey requires more intensive walking and might have some impact on more advanced crops. Ridged land is generally unsuitable for magnetic survey, and detailed magnetometer survey will not be effective in extremely wet conditions when mud adhering to the operators' boots tends to affect the magnetic readings.

Fieldwalking has been employed in the earlier stages of the quarry: finds have generally been scarce but one minor concentration of worked flint and heated stones was identified. The method can only be used after ploughing, followed by a suitable period of weathering, during which any soil lumps will be broken up by rain and frost, and any soil adhering to artefacts on the surface will be washed off by rain. Fieldwalking can be carried out on fields which have been sown, provided that they are not sodden with rain, but crop growth will gradually hide the soil surface and so fieldwalking must be completed before this is too far advanced.

Test-pitting inevitably involves destruction of any crops present within the small trench area, and damage or destruction of the crop on access lines and areas of spoil heaps. Test-pits would measure up to 1x1m in plan with in some cases an additional machine-dug pit of about twice that area to one side.

Trenching inevitably involves destruction of any crops present within the trench area, and on access lines and areas of spoil heaps. Trenching in the waterlogged area might prove difficult due to waterlogging. The same applies to hand-dug test-pitting, although the area involved is small.

2.0 AIMS AND OBJECTIVES

2.1 Aims

The aims of the archaeological site investigations as a whole are to

- provide sufficient information at the pre-planning stage to permit an informed planning decision regarding an appropriate archaeological response to the development
- provide the client with information for budgetary and programming purposes
- locate and characterise any archaeological remains which may prove to be present
- identify blank areas

Priorities are the early identification of the presence and extent of any remains worthy of preservation in situ, and of any for which preservation by record would be acceptable.

Preservation by record could be partly scoped in advance, but because site investigations cannot identify with certainty all the archaeological remains which may be present, it is likely that further site investigation would be required through monitored stripping integrated with the phased extraction programme, together with contingency resources for further recording where necessary.

Given the scarcity of evidence for archaeological remains within the application site, a staged approach with interim reviews is proposed, comprising initial prospecting of the application site followed by review (Phase 1), leading to sample excavation of identified areas of potential (subsequent phases), some of which are already known.

2.2 Objectives: Phase 1 site investigations

- assess horizontal and vertical artefact distributions within the topsoil through test-pitting
- identify areas of colluvium where archaeological remains may be more deeply buried through test-pitting
- identify and characterise potential activity foci through geophysical survey and fieldwalking
- assess the spatial extent of palaeoenvironmental potential in the waterlogged area through auger survey

2.3 Objectives: subsequent phases of site investigations

- assess the archaeological potential of features identified in Phase 1
- assess the archaeological potential of known features identified in the historic mapping and site inspection (S7 stone heap and structure, structures S1-S6)
- assess the archaeological potential of the boundaries
- assess the nature and quality of the of the palaeoenvironmental potential of the waterlogged area through sampling

3.0 GENERAL ARRANGEMENTS FOR ARCHAEOLOGICAL FIELDWORK

3.1 Monitoring

The curatorial archaeologist and SLR will be kept informed of the project timetable, and will be invited to visit site at any time during the fieldwork and discuss the results with SLR, so that the implications for detailed design and mitigation can be resolved at an early date.

The curatorial archaeologist is

Lucie Hawkins
Development Control Archaeologist
Development and Countryside Service
Business and Environmental Services Directorate
County Hall
Northallerton
DL7 8AH
United Kingdom
Tel: 01609 532316

The archaeological consultant is

Gavin Kinsley
Associate Archaeologist
SLR Consulting
Aspect House, Aspect Business Park
Bennerley Road
Nottingham NG6 8WR
Tel: 0115 964 7280

All archaeologists employed by the archaeological contractor to work on the project will be suitably qualified to complete the tasks required, with CVs available on request. Use of an IFA-registered Organisation is recommended.

All archaeological work will adhere to the Institute of Field Archaeologists' *Standard and Guidance For Archaeological Field Evaluation* (2001).

An accession number will be obtained from the destination museum prior to commencement of fieldwork.

The proposed destination museum is

Yorkshire Museum
Museum Gardens
York YO1 7FR
Tel: 01904 687687

An OASIS record would be set up at the commencement of the project and completed along with the archive.

3.2 Health and Safety

SLR operates in accordance with the health and safety procedures as set out in:-

- the *Health and Safety at Work Act 1974* and related legislation.

- the *Health and Safety Manual* of the Standing Conference of Archaeology Unit Managers (2002)
- the Council for British Archaeology Handbook no. 6, *Safety in Archaeological Fieldwork* (1989)
- the *Construction Design and Management Regulations* (1994)
- and the *SLR Health and Safety Handbook*.

The position regarding CDM will depend on the detailed arrangements for the archaeology site investigations.

Generic Risk Assessments exist for the principal types of archaeological work, although project specific risk assessments will also be produced prior to the commencement of the project.

Personal protective clothing and equipment will be used as necessary.

It will be the responsibility of the client to supply information on below-ground services. In addition a CAT scanning device will be used before and whilst trenching is in progress. Appropriate fencing and warning signage around each trench will be implemented as part of the archaeological works.

4.0 OUTLINE METHODOLOGY

4.1 Phase 1

Topsoil magnetic susceptibility (TMS) survey and selected areas of magnetometer survey The TMS survey will be carried out over the whole application site. All, or a selection, of any anomalies identified will be characterised by detailed magnetometry, in areas to be selected by agreement on site.

Test-pits will be excavated along transects, generally at 50m intervals in grassland, with supplementary pits in the arable where fieldwalking will also be carried out (49 pits). They will be excavated down to 1.2m below surface or to natural strata which do not produce artefacts. Sieving or sorting of the spoil will be carried out, subject to ground conditions.

Fieldwalking will be carried out on all arable areas on 30m transects divided into 10m long stints, recording finds by transect and stint.

Hand-auger survey will be carried out of waterlogged area P1. Auger holes will be drilled at 20m intervals along three transects orientated northeast/southwest and north/south, across the area. Supplementary holes will be drilled where necessary for closer definition of the edges of deposits.

A review will then be carried out of the boundaries and identified areas of ridge and furrow, sufficient to provide a detailed specification for subsequent detailed recording.

On completion of the above works, a review of results will be carried out and reported on, and a detailed WSI will be prepared for Phase 2.

4.2 Subsequent site investigation phases

Work after Phase 1 can only be specified in part and in outline as it is substantially dependent on results of Phase 1 work.

It could potentially include

- Further test-pitting in selected areas to further define artefact distributions or sedimentation sequences
- Sample excavation of any artefact concentrations or geophysical survey anomalies
- Sample excavation of selected boundaries
- Sample excavations to prove apparent blanks
- Detailed topographical survey and sample excavation of S7 levelled structure, stone heap and possible quarry pit
- Detailed physical and topographical survey and sample excavation of enclosures / structures S1-S6 in order to establish their nature date, function and any enhanced preservation beneath.
- Test-pitting in the area of palaeoenvironmental potential in the waterlogged field P1, in order to investigate the presence, extent, nature and date of any environmental deposits present.

5.0 DETAILED FIELDWORK METHODOLOGY

The position or area of each site investigation technique to be used in Phase 1 is shown in Drawing 1. There may be minor alterations to individual test-pit locations to avoid walls hedges and any other obstacles.

5.1 Test-pitting

The test-pits are to measure up to 1x1m in plan, and will be excavated by hand to a depth of 1.2m below surface (or to natural deposits if shallower), in anticipation that this depth will extend below the bottom of any deposits (including colluvium) that might contain artefacts. Where deep stratigraphy is present, hand-excavation may be preceded by a machine-dug pit placed adjacent to one side of the hand-excavated pit in order to provide a view of the stratification and to speed the excavation process. Where a machine is employed and an exposed section has been recorded, the hand-excavated part of the pit may be limited to an area of 0.5x0.5m in plan, but no less. Where topsoil has certainly been ploughed, it may be removed as one spit. Otherwise, hand-excavation will be in spits no thicker than 10cm (sloped to follow any surface slope), and finds will be attributed to spit, and to stratigraphic unit. Soil will be broken up into sufficiently small pieces to allow recovery of artefacts that could be <1cm. Following discovery of artefacts in any given pit, and if the nature of the subsoil permits, a 25% sample of the subsequently-excavated material in that pit will be sieved through a 7mm mesh. At least one full section will be recorded in a photograph and a drawing at 1:20 scale.

5.2 Geophysical survey

A detailed method statement will be obtained from the geophysics sub-contractor and agreed with all parties prior to commencement of the work. It will conform to the following general requirements.

5.2.1 Survey Control

The survey grids will be tied in with the National Grid to the nearest 1m, and will be internally accurate to ± 10 cm.

5.2.2 Topsoil magnetic susceptibility survey

In-situ topsoil magnetic susceptibility readings will be taken over the entire application site on a 10 m grid.

5.2.3 Magnetometer Survey

The scope of any detailed magnetometer survey will be agreed with the curatorial archaeologist and client prior to implementation. Designated areas to be investigated by detailed magnetometry will be surveyed on 1m transects with readings at 0.25m.

5.2.4 Report

The report on both types of surveys will include a method statement, and a description and assessment of results. It will include full mapping of results at appropriate scales, including (1) raw data, (2) processed data and (3) interpretation showing types of anomaly and their likely significance. The report will be submitted in MS Word and PDF format. For inclusion in the project archive data will be provided in digital and hard copy versions: raw data is to be provided as graphical representations and as numerical values in ASCII form, processed

- Detailed magnetometry to trace the extent of features discovered in previous surveys and sample excavations, if required. The scope would be chosen in the light of evaluation results.

4.3 Other fieldwork

Other fieldwork which can currently be identified, but may be carried out at any time prior to extraction, includes

- Detailed topographical survey of ridge-and-furrow in areas R1-R4
- Detailed survey of boundaries

It is highly likely that other fieldwork will be required prior to or during extraction, but the scope of this work would be dependent upon the results of the site investigations.

data as greyscale bitmaps, and interpretative plots as vector data registered to the National Grid.

5.3 Fieldwalking

The areas to be walked will be laid out in transects spaced at 30m intervals. The transects will be walked and inspected by members of the fieldwalking team, and finds recorded according to the collection and recording strategy (Table 5-1). Locations of find spots will be recorded using hand held GPS accurate to 5m or better. Details of ground conditions and survey protocol will be recorded on standard pro-forma. Finds are not expected to be numerous, but if this proves to be incorrect then the collection and recording strategy may be varied with the agreement of the curatorial archaeologist.

Table 5-1
Fieldwalking collection and recording strategy

| Category | Sub-category | Record concentrations in outline | Record Location & save |
|-----------------------------|--|----------------------------------|------------------------|
| Dateable artefacts | | | |
| | pottery, metal, glass, worked bone, worked flint, worked stone, brick / tile | post-medieval and later | medieval and earlier |
| Undateable artefacts | | | |
| | brick/tile, baked clay, metal, unworked animal bone, building stone (e.g. mortar adhering, faced), mortar, glass, slag, coal, charcoal | x | |
| | human bone, heated pebbles | | x |

KEY

Record concentrations in outline: record perimeter of concentration, note material category and save a sample of this type of find

Record location & save: record location, allocate three-letter code, and save artefact for further study.

Areas of soil discolouration/change in type and any other surface features thought to be of archaeological significance will be surveyed in outline.

5.4 Palaeoenvironmental auger survey

Hand-augered holes will be drilled initially at 20m intervals, along three transects (T1-T3) orientated northeast/southwest and north/south across the area. Supplementary holes may then be drilled if needed to define edges of units more closely. The holes will be drilled to a depth of 2.0m below ground level or until an obstacle is encountered, or until solid geology is reached, whichever is the higher. The stratigraphic sequence in each hole will be recorded

on a standard proforma, including surface heights to the nearest 0.1m OD and XY values to the nearest 1.0m.

A report will be provided with descriptive text and a plan summarising the results in each hole, and assessing the physical extent, depth, and nature of the deposits present and their palaeoenvironmental potential.

6.0 TREASURE

Any items of gold or silver or associated artefacts defined as Treasure by The Treasure Act, 1996, will be reported and recorded in accordance with the requirements of this legislation. A coroner's inquest will determine the status of treasure and ownership.

7.0 POST-FIELDWORK PROCESSING

All finds will be stored as recommended in "First Aid for Finds" (Archaeology Section of the United Kingdom Institute for Conservation, 2nd edition 1987), marked with site code and context

8.0 ARCHIVE INCLUDING FINDS

The archive will be compiled in accordance with any requirements of the destination museum. They will also follow the *Guidelines for the Preparation of Excavation Archives for Long-term Storage* (UKIC, 1990), and *Standards in the Museum Care of Archaeological Collections* (Museum and Galleries Commission 1992), where there is no conflict.

The archive will be fully indexed and contain:

- all field records including potentially
 - site notebooks/diaries
 - photographs and photograph record sheets
 - drawings
 - context records
 - artefacts, ecofacts and any other sample residues
 - original finds records

- all post-fieldwork records including potentially
 - records of conservation and radiographs taken
 - sample records
 - computer discs and printout
 - other records including
 - copies of correspondence relating to fieldwork
 - contractor's survey reports (e.g. borehole, geophysical, documentary)

- report as circulated

Finds will be stored in a stable condition, appropriate containers, by prior agreement with the destination museum.

Finds remain the property of the landowner during fieldwork and post-fieldwork analysis. On the completion of the archive and report, the finds and the master copy of the archive, will be deposited with the destination museum.

9.0 ASSESSMENT AND REPORTING OF RESULTS

9.1 Interim report

Immediately upon completion of the site work an assessment of the site archive will be undertaken to include all written, drawn, and photographic records, artefacts and ecofacts/samples.

Within one week of completion of the fieldwork, a summary report will be completed, outlining the results of the fieldwork, their significance in relation to the project aims, and any comments on further work required to complete the project. The report will contain:

- mapping of locations of all fieldwork differentiating the basic type of archaeological work carried out and a summary of the results
- a synthesis and appraisal of the results of the fieldwork and an assessment of their significance in relation to potential archaeological remains on the sites, and the impact of construction.
- A written scheme of investigation for the Phase 2 site investigations

Copies will be provided to:

- the client
- the curatorial archaeologist
- SLR Consulting

9.2 Full report

Artefacts will be assessed to provide dating, social, economic, and technological information. Special or unusual features will be highlighted and reference made to other material recovered from the immediate environs of the evaluation sites.

The requirements for artefact conservation will be assessed and discussed with a specialist conservator.

Within three months of completion of the fieldwork of all phases of the site investigations, a detailed report will be completed. It will be sent in draft form to the client and to the curatorial archaeologist to allow comment and review to take place prior to formal submission.

It will contain at least:

- a non-technical summary
- the project's planning background, locational details, and geological and archaeological context
- the aims of the fieldwork and the methods employed
- the nature, location, extent, date, significance and quality of any archaeological and environmental material uncovered

- the nature and location of any subsoil deposits encountered
- the anticipated degree of survival of archaeological deposits and structures across the sites, and an assessment of the likely impact of the proposed works
- suitable illustration in drawings and photographs, including a site location plan, a location plan of the monitoring locations, and where appropriate, larger-scale plans and sections of individual excavation areas and features
- specialist assessments of finds stating the range, quality and significance of the material with proposals for further detailed analysis where appropriate
- outline recommendations further fieldwork including sampling strategies
- a list of the archive contents and details of the provision for its long-term storage, including any palaeoenvironmental samples taken

There may be a further stage of finds analysis prior to completion of the report and archive. Proposals for this further analysis will be made and with the agreement of the curatorial archaeologist and the archaeological consultant, analysis will be carried out and included in the report.

10.0 RESOURCES AND TIMETABLE

10.1 Staffing

Staffing and sub-contractor arrangements will be agreed with the client, the curatorial archaeologist and the SLR consulting prior to commencement of any work.

10.2 Plant

Plant hire and welfare facilities will be sourced locally, unless the client has a preferred supplier.

10.3 Programme

The fieldwork timetable is yet to be determined.

11.0 COPYRIGHT

SLR will retain full copyright of any commissioned reports, tender documents or other project documents, under the *Copyright, Designs and Patents Act* of 1988 with all rights reserved; excepting that SLR hereby provide an exclusive licence to the Client for the use of such documents by the Client in all matters directly relating to the project as described in this Project Design.

12.0 TO BE ARRANGED BY THE CLIENT OR CLIENT'S AGENT

- Undertaking from the owner of the finds to deposit them in the destination museum.
- Access to areas of fieldwork at all times for the duration of the fieldwork

13.0 CLOSURE

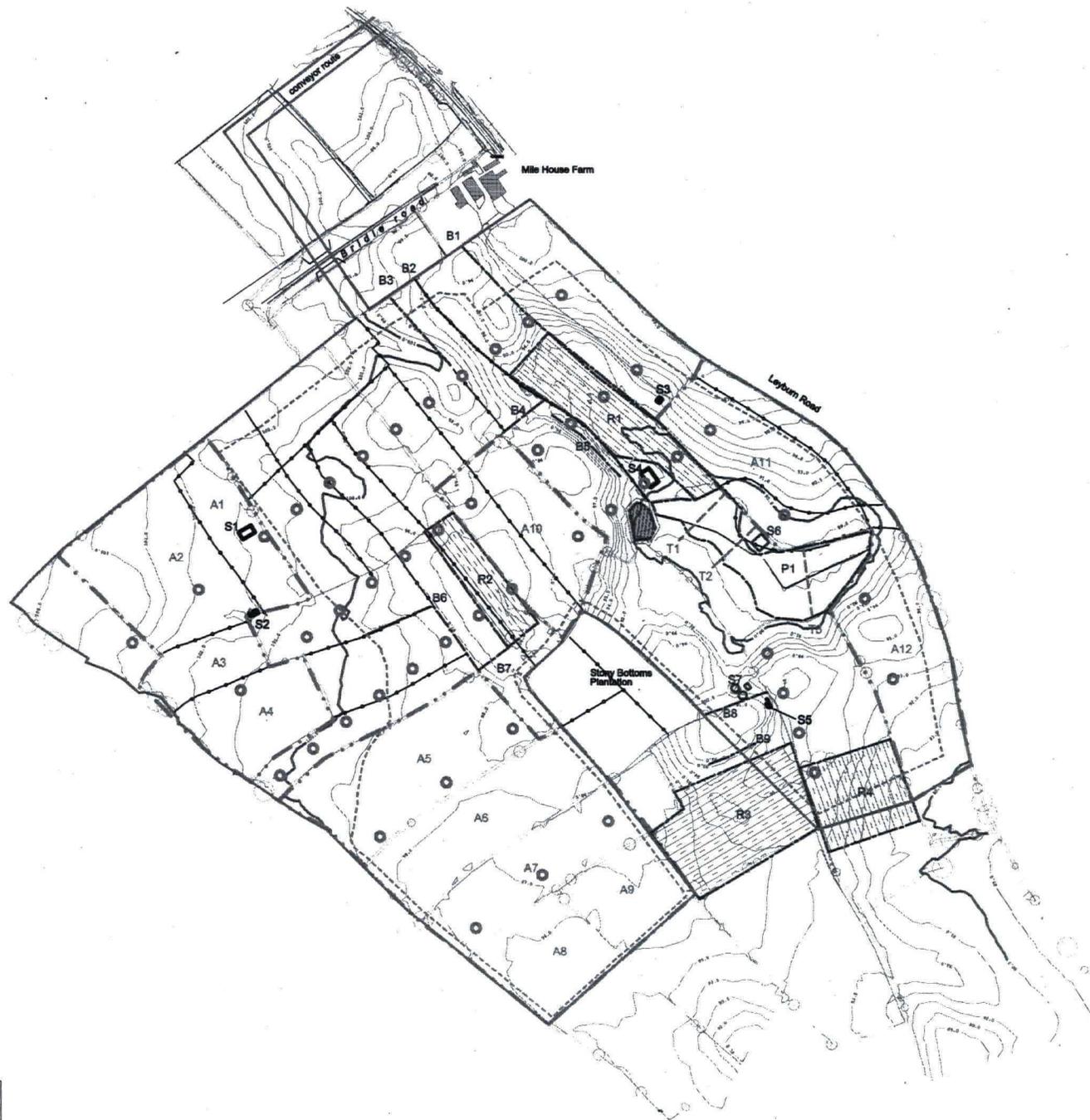
This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Lafarge Aggregates; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

14.0 PUBLISHED SOURCES CONSULTED

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LEGEND

-  APPLICATION BOUNDARY (PART)
-  PROPOSED MINERAL EXTRACTION AREA
-  HISTORIC MAPPING BOUNDARY
-  HISTORIC MAPPING FEATURE
-  SITE INSPECTION FEATURE
-  EXISTING HEDGEROW
-  EXISTING FENCE
-  FIELDWALKING
-  TEST-PIT
-  AUGER TRANSECT



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MARFIELD QUARRY

ARCHAEOLOGICAL SITE INVESTIGATIONS

SITE INVESTIGATIONS PHASE 1

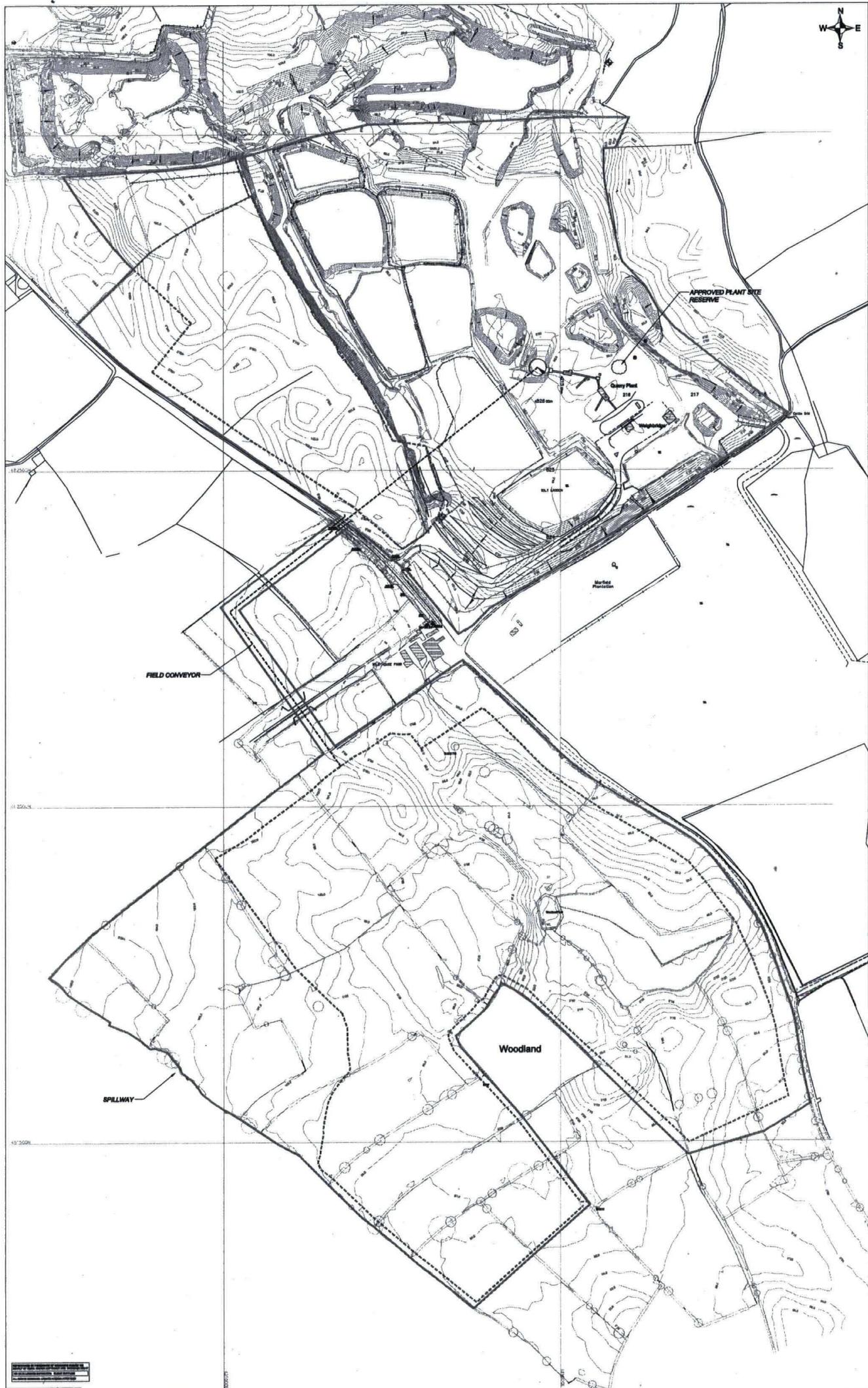
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Date DECEMBER 2008

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|--|----------------------------------|
| | APPLICATION BOUNDARY |
| | PROPOSED MINERAL EXTRACTION AREA |

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MARFIELD QUARRY
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