Archaeology Wales

Five Mile Lane Road Improvements, Barry, Vale of Glamorgan

Archaeological Watching Brief

By

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Report No. 1306

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Summary

Archaeology Wales carried out an archaeological Watching Brief for Parsons Brinckerhoff as part of a programme of geotechnical ground investigation associated with proposed road improvements along Five Mile Lane (A4226) in the Vale of Glamorgan. A number of test pits was excavated and boreholes drilled along the proposed route, some of which passes through potentially archaeologically sensitive areas. Some of the test pits were located near to anomalies identified within a 2010 geophysical survey north and south of the excavated Whitton Roman farmstead and Villa site. None of the test pits or boreholes disturbed any archaeological features or deposits, although the proposed route appears to cross several geophysical anomalies of potential archaeological interest.

1. Introduction

In November 2014 Archaeology Wales was commissioned by Parsons Brinckerhoff to carry out an archaeological watching brief associated with a programme of geotechnical ground investigation between Weycock Cross and Sycamore Cross, Vale of Glamorgan, ahead of a road improvement scheme along the A4226 (Five Mile Lane) between NGR ST 07764 72823 and ST 08844 69435 (fig. 1). The road improvements scheme undertaken by the Welsh Assembly Government and Vale of Glamorgan District Council is set to upgrade and straighten the road as an improved access route associated with Cardiff International Airport. The current A4226 is a single carriageway varying in width between 6.0m and 7.3m. The proposed improvements include a realignment of the road between an area 1.5km from Sycamore Cross junction and a section of the road north of the River Weycock bridge.

Parsons Brinckerhoff (PB) carried out a Scoping Report in April 2014 and consulted with the acting Planning Archaeologist of the Glamorgan Gwent Archaeological Trust (GGAT). GGAT requested that a Watching Brief be undertaken during a programme of geotechnical ground investigations ahead of the proposed road improvements. Consequently, a Written Scheme of Investigation was prepared by PB in September 2014 (Parkinson 2014). Archaeology Wales (AW) was commissioned by PB to carry out this work in October 2014.

The aim of the Watching Brief was to monitor the excavation of test pits and examine bore-hole logs associated with the geotechnical ground work (AW Project Number: 2284). The work was carried out by Louis Stafford for Archaeology Wales in December 2014.

2. Site Description

Location, Topography, Geology

The current route of Five Mile Lane runs north-northwest between Weycock Cross on the north-western side of Barry and the A48 to the east of the village of Bonvilston. The direct, linear, distance between the two is 6.0km. The southern section of the road is adjacent to the port town of Barry, but the remainder of the route runs through a rural lowland landscape typified by medieval and post-medieval fields. East-west aligned

lanes and farmsteads are located on either side of the road. The landscape undulates along the route, but in gradually reduces in height from the northern section of the route located at above 90m AOD and Weycock Road at 60m AOD. The soils in the area can be described as seasonally wet and slightly acid loamy and clayey soils, although the central section is a combination of floodplain and freely draining base-rich soils (Soilscapes 2014). The geology of the routeway is generally characterised by Carboniferous Limestone, Jurassic Mudstone and interbedded Mudstone and Limestone (BGS 2014).

3. Historical Background

The rural landscape of the Vale of Glamorgan or Bro Morgannwg has been described as ‘countryside and nucleated villages’ that are ‘well known for their historic and attractive character. The surrounding agricultural landscape is also rich in hedgerows, trees and small woodlands, many of which are of considerable age. Historically the vale has been an important farming area whose fertility is owed to its shallow but freely-drained soils, which provide excellent land for tillage and pasture, praised by Rice Merrick in the 1580s as consisting of 'pleasant meadows and fruitful pastures, the plains fertile and apt for tillage, bearing abundance of all kinds of grain' (GGAT HLC Llancarfan).

The A4226 runs through a landscape with evidence of prehistoric, Roman, medieval and post-medieval activity. Prehistoric activity is attested by the presence of scatters of flint, possibly dating between the Mesolithic through to the Bronze Age, discovered between Whitton Mawr and Sully Moors (E002203: HER; appendix 1). Coed y Cwm Chambered cairn is a possible Neolithic mortuary monument located to the east of the northern section of the road.

Significant Roman period settlement in the area has been confirmed by discoveries and excavations at, and north-west of, Whitton Lodge. The excavated square enclosure at Whitton Lodge was found to contain multi-phase occupation spanning much of the Roman period occupation of Britain (1st to 4th century AD). It may also be significant that the place name ‘Black land’ is given to the farm 1.2km north-west of Whitton Lodge. This name is often associated with fields where past settlement or industrial activity has created dark earth deposits often found near Roman settlements (Richardson 1996, 463).

The northern section of the A4226 runs close to Bonvilston, a settlement said to be named after the de Bonville family, resident in the area from the twelfth-century (RCAHMW 1991, 83), although the Welsh name (Tresimwn) may refer specifically to Simon de Bonville (c. 1262). Other medieval activity in the immediate area of the northern section of road includes Coed y Cwm Ringwork.

Bonvilston Fieldscape (HLCA 010), located immediately west of the northern section of the road, displays a good example of the merging of medieval strip fields into a post-medieval field system and possible limestone extraction quarry (GGAT HLCA 010, 2015; figs. 2 and 4).

4. HER Data (figs. 2-9)

Following consultation with the planning archaeologist at GGAT, a1km HER search was conducted centred on the area of the proposed route corridor (0.5km either side of the proposed road). HER data (core and event) obtained from GGAT was plotted onto the 2010 OS map using QGIS and the details outlined below are appended (Appendix 1).

Two Scheduled Ancient Monuments (SAMs) are included within the search area and located 0.4km (GM 116) and 0.5km (GM 117) east of the northern end of the proposed route. Coed y Cwm Neolithic long barrow (GM 116) is described as a 'possible collapsed or unfinished burial chamber, comprising three large slabs of highly weathered tabular limestone' (PRN 00369: GGAT HER; appendix 1). Neither of these SAMs is at direct risk as a result of the proposed development. Approximately 100m south-east of this site Coed y Cwm Ringwork or sub-circular enclosure (GM 117) is probably of twelfth-century date and maybe associated with the original de Bonville settlement of that date (see 3, above).

Near to Coed y Cwm several sites (03870s, 03872s, 03873s and 03883s) within the HER are buildings and boundaries associated with the post-medieval Redland Farm.

To the immediate west of the current A4226 and 0.8km south of Bonvilston village Bonvilston Amalgamated Fieldscape (HLCA 010) comprises open fields with preserved earthworks formed by the amalgamation of medieval stripfields (figs. 2, 4). These field boundaries appear to have been opened up post-1945 when they appear intact, as they did in the 1885 OS map (fig. 4).

A limekiln (02624s) is located on the western side of the current A4226 at Whitton Bush Farm, whilst the proposed new route of the new road construction cuts through fields at Whitton Mawr where, in a field at 01434s, a Roman period hearth, Iron clinker, Roman pottery sherds, coins and tile fragments suggests considerable activity. The 1885 OS map indicates that human remains and silver coins had been discovered in various fields on both sides of Five Mile Lane in the mid nineteenth-century (fig. 5). This activity is probably associated with the Roman Villa complex 0.3km to the south at 03121s and E000743 where multiphase round and rectangular buildings spanning the first to fourth century AD were discovered and excavated in the 1960s (Jarrett and Wrathmell 1981). Although this field was scheduled as GM252 and appears so within the HER data, recent consultation with Cadw (Neil Maylan, Pers Comm. 2015) confirmed that the site was de-scheduled on July 22nd 1997, citing the 1960s excavations and resulting lack of surviving 'in situ' deposits.

North and south of the excavated Romano British farmstead, a geophysical survey was conducted in 2010 (Tanner 2010). Areas 1 and 2 of the survey were conducted to the immediate east of the A4226 whilst Area 3 was to the west. Survey areas 1 and 2 discovered a number of anomalies, including a possible enclosure, linear features, pits and ferrous rich areas (see figs. 6 and 7). Area 3 showed mainly magnetic disturbance and ferrous rich activity, although the survey boundary ferrous anomalies are likely to be from modern metal fencing. It is clear from the survey data and 1996 aerial photographs (see figs. 8 and 9) that a high number of archaeological features are

present in areas around the excavated Roman period site.

The only known HER sites at direct risk of damage from the proposed road scheme or geotechnical work associated with this are the anomalies highlighted within the geophysical survey, as well as any archaeological feature or deposits associated with the previous 1960s excavation. In the northern area of the road widening scheme route also passes along the eastern boundary of HLCA 010, the Bonvilston Amalgamated Fieldcape historic landscape.

5. Watching Brief Results

Rationale and methodology
A Watching Brief, as defined by the Chartered Institute for Archaeology (CIfA), is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed (CIfA December 2014, 4).

The aim of this Watching Brief was to establish the presence or otherwise of archaeological deposits/features discovered during the geotechnical work, to establish the nature of any deposits discovered, to preserve by record any deposits encountered and to allow significant remains to be brought to the attention of all interested parties.

5.1 Test Pits **(figures 10 – 16)**

Fourteen test pits were excavated as part of the geotechnical work in preparation for the road construction. These were excavated over a period of 3 days between the 18th and 20th of November 2014. Seven test pits (201 to 207) were excavated within a single field (Field 1) with very similar geology. Test pits 208 and 209 were excavated within field 2, 211 and 212 within field 3, 216 and 217 within field 7 and 218 and 219 within field 8. The remainder of the pits were excavated within different fields. Test Pit 210, within the field where Whitton Roman farmstead was located, was not excavated as access into the field could not be obtained. The pits were machine excavated and Louis Stafford carried out the archaeological watching brief on behalf of Archaeology Wales.

Test Pit 201 (Field 1: ST 07778 72139; 91.43mAOD) *(fig. 10)*
This pit was 2.4m long and 0.6m wide and excavated to a maximum depth of 1.3m. The 0.15m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The lower deposit (03) was an orange-brown boulder clay with limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 202 (Field 1: ST 07796 72066; 90.40m AOD) *(fig. 10)*
The pit was 2.45m long and 0.65m wide and was excavated to a depth of 1.3m. The upper deposit (01: topsoil) was 0.3m deep, dark-brown sandy clay with angular limestone fragments. The lower deposit (03) was a natural orange brown sandy clay with horizontally orientated well sorted limestone fragments. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 203 (Field 1: ST 07811 71964; 87.27m AOD) *(fig. 10)*
The pit was 2.4m long and 0.6m wide and was excavated to a depth of 1.2m. The upper deposit (01: topsoil) was a 0.2m deep dark-brown sandy clay deposit with angular limestone fragments. The lower deposit (03) was a natural orange brown sandy clay with well sorted limestone fragments. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 204 (Field 1: ST 07811 71964; 87.27m AOD) *(fig. 10)*
Test Pit 203 was 2.4m long, 0.6m wide and was excavated to a depth of 2.10m. The upper deposit (01: topsoil) was a 0.30m deep, dark-brown sandy clay with angular limestone fragments. The lower deposit (03) was a natural orange brown sandy clay with horizontally orientated well sorted limestone fragments. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 205 (Field 1: ST 07823 71866; 85.36m AOD) *(fig. 10)*
The pit was 2.45m long and 0.7m wide and was excavated to a depth of 1.6m. The upper deposit (01: topsoil) was 0.3m deep, dark-brown sandy clay with angular limestone fragments. The lower deposit (03) was a natural orange brown sandy clay with horizontally orientated well sorted limestone fragments. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 206 (Field 1: ST 07934 71698m; 81.25m AOD) *(figs. 10, 14-S1, 15a)*
Test Pit 206 was 2.4m long and 0.65m wide and was excavated to a depth of 1.10m. The upper deposit (01: topsoil) was 0.2m deep, dark-brown sandy clay with angular limestone fragments. Underlying this was a 0.2m deep colluvial sorted sandy sub-soil (02). The lower deposit (03) was an orange-brown stoney clay. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 207 (Field 1: ST 08011 71624; 83.61m AOD) *(figs.6, 10)*
This pit was 2.45m long and 0.6m wide and excavated to a maximum depth of 1.4m. The 0.15m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The lower deposit (03) was an orange-brown gravelly clay with limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 208 (Field 2: ST 08054 71501; 87.13m AOD) *(figs. 6, 10, 14-S2, 15b)*
This pit was 2.45m long and 0.6m wide and excavated to a maximum depth of 1.2m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The lower deposit (03) was an orange-brown gravelly clay with sub-angular limestone fragments that were well sorted. This test pit was not located near any anomalies within the geophysical survey (fig. 6) and no archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 209 (Field 2: ST 08096 71378; 87.86m AOD) *(figs. 6, 7, 11, 16a)*
This pit was 2.5m long and 0.65m wide and excavated to a maximum depth of 1.9m. The 0.2m deep upper deposit (01: top soil) was a dark brown sandy clay with sub-angular stones. The lower deposit (03) was an orange-brown gravelly clay with sub-angular limestone gravel. This test pit being excavated very near to some narrow linear features within the geophysical survey (fig. 6) although no archaeological artefacts, deposits or features were encountered within the pit. The ferrous disturbance in the geophysical survey adjacent to the pit is likely to be from the fence near the edge of the survey area.

Test Pit 210 – Not excavated due to access issues.

Test Pit 211 (Field 3: ST 08106 71086; 86.12m AOD) *(figs. 7, 11, 16b)*
This pit was 2.4m long and 0.6m wide and excavated to a maximum depth of 0.9m. The 0.2m deep upper deposit (top soil) was composed of dark brown sandy clay with sub-angular stones. The firm lower deposit (03) was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 212 (Field 3: ST 08101 71094; 84.26m AOD) *(fig. 11)*
This pit was 2.4m long and 0.7m wide and excavated to a maximum depth of 0.9m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit (03) below this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 213 (Field 4: ST 08091 70735; 82.24m AOD) *(fig. 12)*
This pit was 2.45m long and 0.65m wide and excavated to a maximum depth of 1.4m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit below (03) this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 214 (Field 5: ST 08061 70550; 82.02m AOD) *(fig. 12)*
This pit was 2.5m long and 0.6m wide and excavated to a maximum depth of 1.8m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit below (03) this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 215 (Field 6: ST 08088 70430m; 79.65m AOD) *(fig. 12)*
This pit was 2.45m long and 0.65m wide and excavated to a maximum depth of 1.6m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit below (03) this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 216 (Field 7: ST 08122 70052; 68.53m AOD) *(figs. 13, 16c)*
This pit was 2.6m long and 0.65m wide and excavated to a maximum depth of 1.2m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit below this (03) was an orange-yellow-brown clay with frequent angular and rounded limestone inclusions with well sorted horizontal orientation. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 217 (Field 7: ST 08184 69931; 61.95m AOD) *(figs. 13, 14-S3, 15c)*
This pit was 2.45m long and 0.65m wide and excavated to a maximum depth of 1.8m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The underlying deposit (02) was a 0.6m deep colluvial wash of sandy clay and angular limestone fragments with horizontal orientation. Deposit 3, a firm orange, grey-brown clay with moderate inclusions of rounded to angular limestone fragments underlay this to the base of the pit.
No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 218 (Field 8: ST 08296 69821; 51.05m AOD) *(fig. 13, 16d)*
This pit was 2.4m long and 0.7m wide and excavated to a maximum depth of 0.9m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit (03) below this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

Test Pit 219 (Field 8: ST 08407 69706; 38.87m AOD) *(figs. 13, 14-S4, 15d)*
This pit was 2.4m long and 0.7m wide and excavated to a maximum depth of 0.9m. The 0.2m deep upper deposit (01: top soil) was composed of dark brown sandy clay with sub-angular stones. The firm natural deposit (03) below this was an orange-grey-brown gravelly clay with sub-angular limestone fragments that were well sorted. No archaeological artefacts, deposits or features were encountered within the pit.

5.2 Test Pit Summary

The narrow test pits were excavated along the course of the proposed new road sections to gain a geotechnical profile of the fields. All the test pits were located in fields located on the western side of the current A4226 (Five Mile Lane). The field where Whitton Roman Villa and farmstead are located could not be accessed and, as a consequence, Test pit 210 was not excavated.

Test pits 201 to 207 were excavated within Field 1, a large sub-rectangular field with an irregular north-eastern corner and curving boundary located adjacent to the A4266, which sloped gently from north to south. The field measures 0.62km north to south and 0.45km east to west and is located to the west of HER site 01434s. Test pits 201 to 205 and 2007 had relatively shallow (0.2m deep) sandy clay topsoil that was that was found to overlay natural boulder clay. Test Pit 2006, sitting in a hollow towards the southern part of the field, had a colluvial subsoil washed down from the slope on either side resting on top of the natural clay. No archaeological deposits or features were present within these test pits.

Test pits 208 and 209 were located in the middle and at the southern end of Field 2 to the immediate south of Field 1. This inverted 'L shaped' field is located to the north of 03121s HER site, and measures 0.41km (maximum) east to west by 0.2km (maximum) north to south. Both test pits exposed very similar deposits to those located in the higher areas of Field 1 and no archaeological deposits were observed. Test Pits 211 and 212 were located in Field 3, a sub-rectangular field with an irregular western boundary located to the south of HER site 03121s. The field is aligned east to west and measures 0.45km in this direction and 0.2km north to south. Both test pits were located in the north-eastern and south-eastern areas of the field at similar levels and had characteristic sandy clay top soil of natural boulder clay, which was greyer than those excavated elsewhere. No archaeological deposits or features were observed. Test Pit 213 was excavated in the extreme southern end of Field 4, to the south of Field 3. This 0.9km by 0.6km sub-rectangular field was identical in terms of geology to those excavated in Field 3 and contained no observable archaeological deposits or features.

Test Pit 214 was excavated within narrow Field 5 (0.13km north to south by 0.70km east to west), located to the east of Grovelands, whilst Test Pit 215 was located near the northern boundary of Field 6 (0.13km north to south by 0.2km, east to west) to the south of Field 5. Both of these test pits showed deposit identical to Field 5 and neither contained evidence of archaeological deposits or features. Test Pits 216 and 217 were excavated within Field 7, a large (0.48km north to south by 0.35km, east to west) field located north of Sutton Fach Farm. There is a gentle, north-west to south east, slope within the field, and Test Pit 216 was located approximately 6m higher than 217. This slope explains the colluvial wash subsoil (deposit 02) within Test Pit 217 that is absent in 216.

Test Pits 218-219 were dug within Field 8, to the east and south east of Sutton Fach Farm. The 0.38km by 0.22km field slopes from north-west to south-east and is bordered by woodland on its eastern boundary. No archaeological features or deposits were located within the pits.

The test pits located within the archaeologically sensitive area as highlighted in the Written Scheme of Investigation included Test Pit 209 and 210 (Parkinson 2014, 15). Test Pit 210 was not excavated whilst Test Pit 209, although located near to some narrow linear features, did not contain any archaeological deposits or features. Test Pit 208, although within a sensitive area was located to the east of known anomalies within Area 1 of the 2010 geophysical survey.

5.3. Bore Hole Logs

A total of nine boreholes were drilled along the route of the proposed road within five fields (figs. 17-19). The logs of the boreholes were examined for any possible evidence of archaeological deposits.

Bore Hole 101 (Field 1: ST 07784 72062; 90.07m AOD) *(fig. 17)*
This Bore Hole was drilled to a depth of 6m within Field 1. The upper deposits were 0.2m deep greyish brown sandy-clay (topsoil) and 0.4m deep orange-brown sandy clay overlying 1.5m deep gravelly clay with sub-angular to fine limestone cobbles.

Bedrock (Mudstone) was reached at 2.4m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 102 (Field 1: ST 07883 71785; 84.08m AOD) *(fig. 17)*
This Bore Hole was drilled 6m deep, 0.29km to the south-southeast of BH1 within Field 1. The upper deposits were 0.10m deep greyish brown sandy-clay (topsoil) and 0.4m deep orange-brown sandy clay overlying 1.3m deep gravelly clay with sub-angular to fine limestone cobbles. Bedrock (Mudstone) was reached at 1.7-1.9m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 103 (Field 1: ST 08026 71581; 84.88m AOD) *(fig. 17)*
This Bore Hole was located 0.25 km t the south-southeast of BH-102 within Field 1 and drilled to a depth of 6m. The upper deposits were 0.15m deep greyish brown sandy-clay (topsoil) and 1.95m deep orange-brown sandy clay overlying 1.5m deep gravelly clay with sub-angular to fine limestone cobbles. Bedrock (limestone) was reached at 2.4m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 104 (Field 4: ST 08095 70839; 79.73m AOD) *(fig. 18)*
This Bore Hole was drilled to a depth of 6m within Field 1. The upper deposits were 0.2m deep greyish brown sandy-clay (topsoil) and 0.6m deep orange-brown and greyish sandy gravel overlying 0.6m deep clayey gravel with coarse limestone cobbles. Bedrock (Limestone) was reached at 2.65m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 105 (Field 7: ST 08091 70141; 72.10m AOD) *(fig. 18)*
The Bore Hole was drilled to a depth of 10m within Field 7. The upper deposits were 0.2m deep very soft greyish brown gravelly-clay (topsoil) and 0.4m deep orange-brown sandy gravelly clay with limestone boulders and cobbles between depths of 0.6m and 1.07m below ground surface. Bedrock (Limestone) was reached at 2.05m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 106 (Field 7: ST 08145 69996; 65.40m AOD) *(fig. 18)*
This Bore Hole was drilled 0.15km south-southeast of BH-105 to a depth of 10m within Field 7. The upper deposits were 0.2m deep greyish brown slightly sandy clay (topsoil) and 0.3m deep orange-brown sandy gravelly clay overlying 0.9m deep grey brown mottled silty clay. Bedrock (Limestone) was reached at 1.7m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 107 (Field 8: ST 08240 69874; 57.33m AOD) *(fig. 19)*
This Bore Hole was drilled to a depth of 10m within the northern area of Field 8. The upper deposits were 0.2m deep soft greyish brown sandy-clay (topsoil) and 2.0m deep orange-brown gravelly silty clay overlying 0.6m deep gravelly clay. Bedrock (Limestone) was reached at 2.8m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 108 (Field 8: ST 08330 69776; 44.21m AOD) *(fig. 19)*
This Bore Hole was drilled 0.13km south-southeast of BH-107 within Field 8 and to a depth of 10m. The upper deposits were 0.2m deep soft greyish brown sandy-clay (topsoil) and 0.4m deep orange-brown silty clay overlying 2.2m deep gravelly clay

with limestone cobbles. Bedrock (Mudstone) was reached at 2.8m below current ground surface. No deposits of an archaeological nature were recorded.

Bore Hole 109 (ST 07764 72309; AOD not recorded) *(fig. 17)*
This Bore Hole was located adjacent to the A466 and 0.46km north-west of Whitton Rosser Farm and drilled to a depth of 5.0m. The upper deposits were a 0.2m deep greyish brown sandy-clay (topsoil) overlying a 0.5m deep orange-brown sandy clay with cobbles. This in turn overlay a 0.3m deep silty clay and 1.1m deep deposit of stiff gravelly, silty clay. Bedrock (Limestone) was reached at 2.1m below current ground surface. No deposits of an archaeological nature were recorded.

5.4. Bore Hole Summary

The nine geotechnical bore holes were located along the proposed route of the road and, with the exception of 109, located within four out of the eight fields that were also test pitted.

Bore Hole 103 (Field 1), located near to Whitton Roman Villa, was highlighted as a possible sensitive sample, but no archaeological deposits were encountered within this log. All of the logs suggest that the topsoil horizon throughout the proposed route comprises a greyish-brown sandy clay deposit between 0.10m and 0.20 deep. The natural subsoils below the upper deposits varied throughout the route, with alternating sandy and gravelly clay horizons varying in depth between 0.4m and 2.0m. Limestone boulders and cobbles were encountered within Bore Hole 105 (north of Sutton Fach Farm) between depths of 0.6m and 1.07m below ground surface. This may be the result of drilling through a natural down-slope water channel. Jurassic interbedded limestone and mudstone bedrock varied in depth along the route between 1.7m and 2.8m. No clear archaeological deposits were encountered or described within any of the bore-logs.

6 Discussion and conclusions

The geotechnical work established that the upper horizons of sandy and gravelly clay with limestone cobbles overlie interbedded Jurassic Limestone and Mudstone throughout the tested area. None of the test pits were located within the Whitton Romano-British farmstead field, whilst the remainder established that, within the narrow interventions in fields 1-8, no archaeological features or deposits were present. The boreholes established that bedrock was located between 1.7m and 2.8m below current ground surface. In Field 4, to the south of the Roman Villa field, the bedrock was 2.65m below the ground surface, clearly too deep for any plough induced bedrock damage and, although no test pits or boreholes were excavated or drilled within the excavated Whitton Roman Site field, it seems that bedrock was considerably shallower within the excavation area. Jarrett and Wrathmell (1981, 2) assert that the shallow plough disturbed bedrock dips steeply south to north. If this is correct, the field that was not tested could have very shallow bedrock that dips deeper further north.

The proposed route appears to pass on the western side of the excavated Whitton Roman Farmstead, de-scheduled in 1997. A number of anomalies detected in Areas 1

and 2 in the 2010 survey may be directly in line with sections of the proposed new route, but were not detected in the geotechnical work. The reason for the lack of deposits within the test pits and bore holes appears to be the fortuitous positioning of the test pits within Field 2 and the lack of any test pits (TP210) or bore holes within the field containing either the excavated remains or Area 2 of the survey.

7. Bibliography

The following sources were consulted during the preparation of this appraisal:

BGS Geology Viewer - http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html (accessed 20/12/14)

GGAT. Llancarfan 010 Bonvilston Amalgamated Landscape (online Historic Landscape characterization)http://www.ggat.org.uk/cadw/historic_landscape/llancarfan/english/llancarfan_010.htm (accessed 01/15)

Jarrett, M.G. and Wrathmell, S. 1981. *Whitton: An Iron Age and Roman Farmstead in South Glamorgan*. Cardiff: University of Wales Press.

Parkinson, L. 2014. Five Mile Lane Road Improvements, Barry: Archaeological Watching Brief Written Scheme of Investigation (Prepared for Welsh Government by Parsons Brinckerhoff: September 2014)

RCAHMW 1991. RCAHMW Inventory of the Ancient Monuments in Glamorgan Volume III - Part 1a Medieval Secular Monuments. The Early Castles from the Norman Conquest to 1217.

Richardson, R. (1996) Field-Names with possible Roman Connections. *Transactions of the Woolhope Naturalists' Field Club*, 48, 453-69.

Soilscapes viewer: http://www.landid.org.uk/soliscapes2/ (accessed 20/12/14)

Tanner, J. 2010. A4226 Five Mile Lane Improvements, Barry. Geophysical Survey Report 2010/13 (GSB Prospection Report for AC Archaeology)

HER Data provided by GGAT (appended)
Aerial Photographs Courtesy of RCAHMW © Crown copyright: Royal Commission on the Ancient and Historical Monuments of Wales.

Appendix I HER data (GGAT)
Appendix II WSI (PB)
Appendix III TP and BH Logs (CC Ground Investigations)

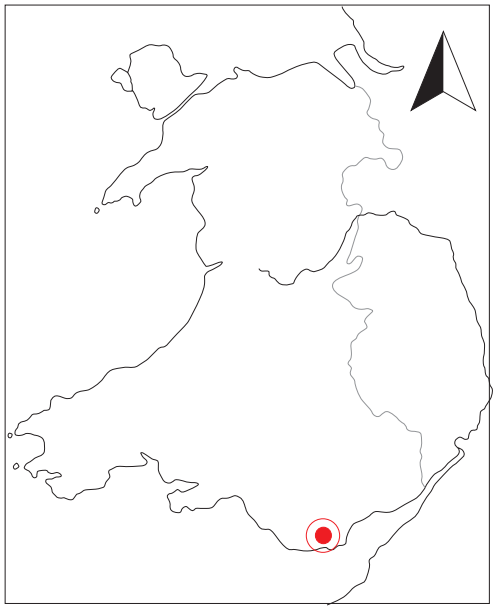
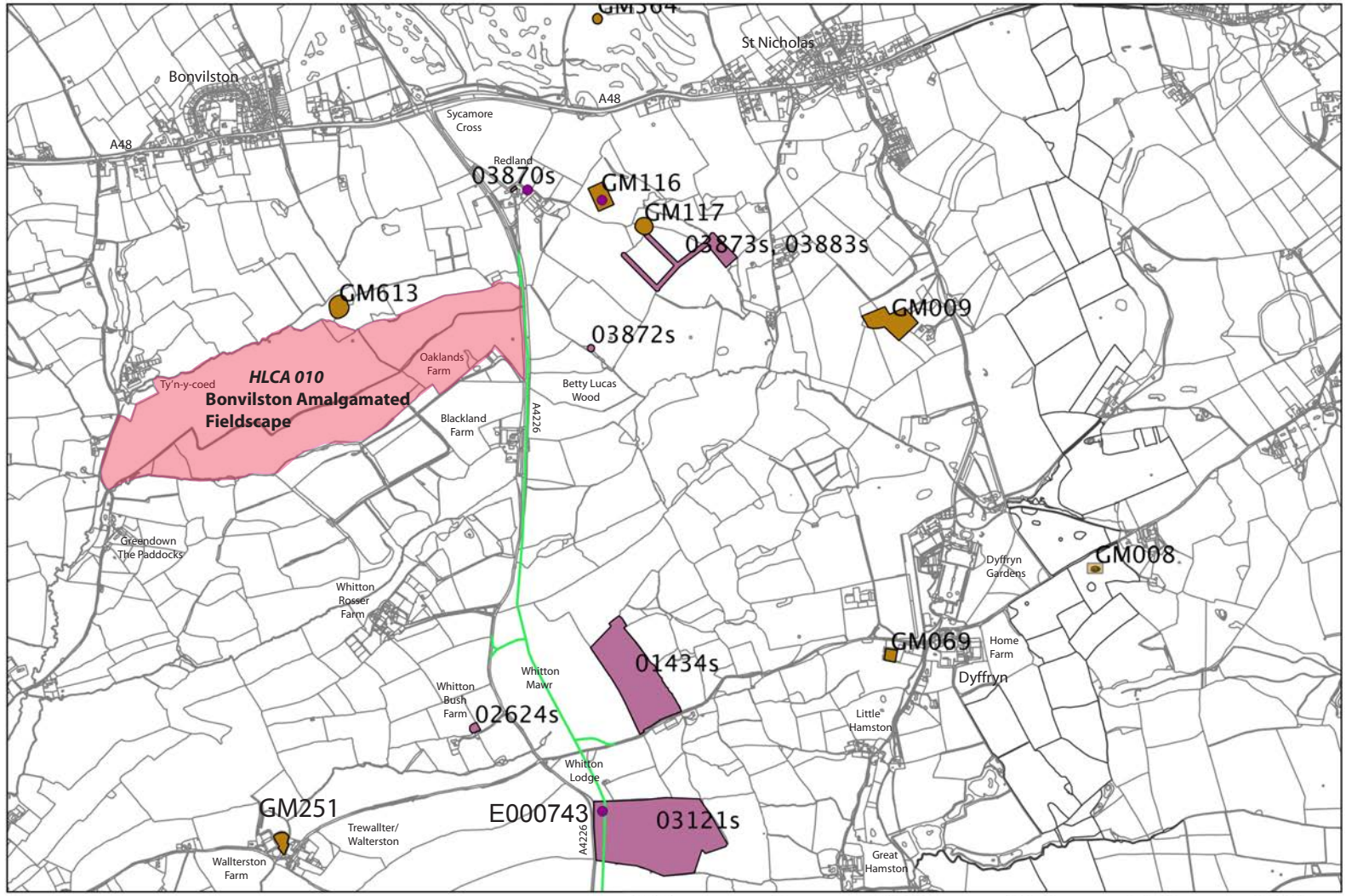


Fig. 1
Location of
Scheme Area

ARCHAEOLOGY WALES
Revealing the past, informing the future



Historic Landscape Character Area

HER site

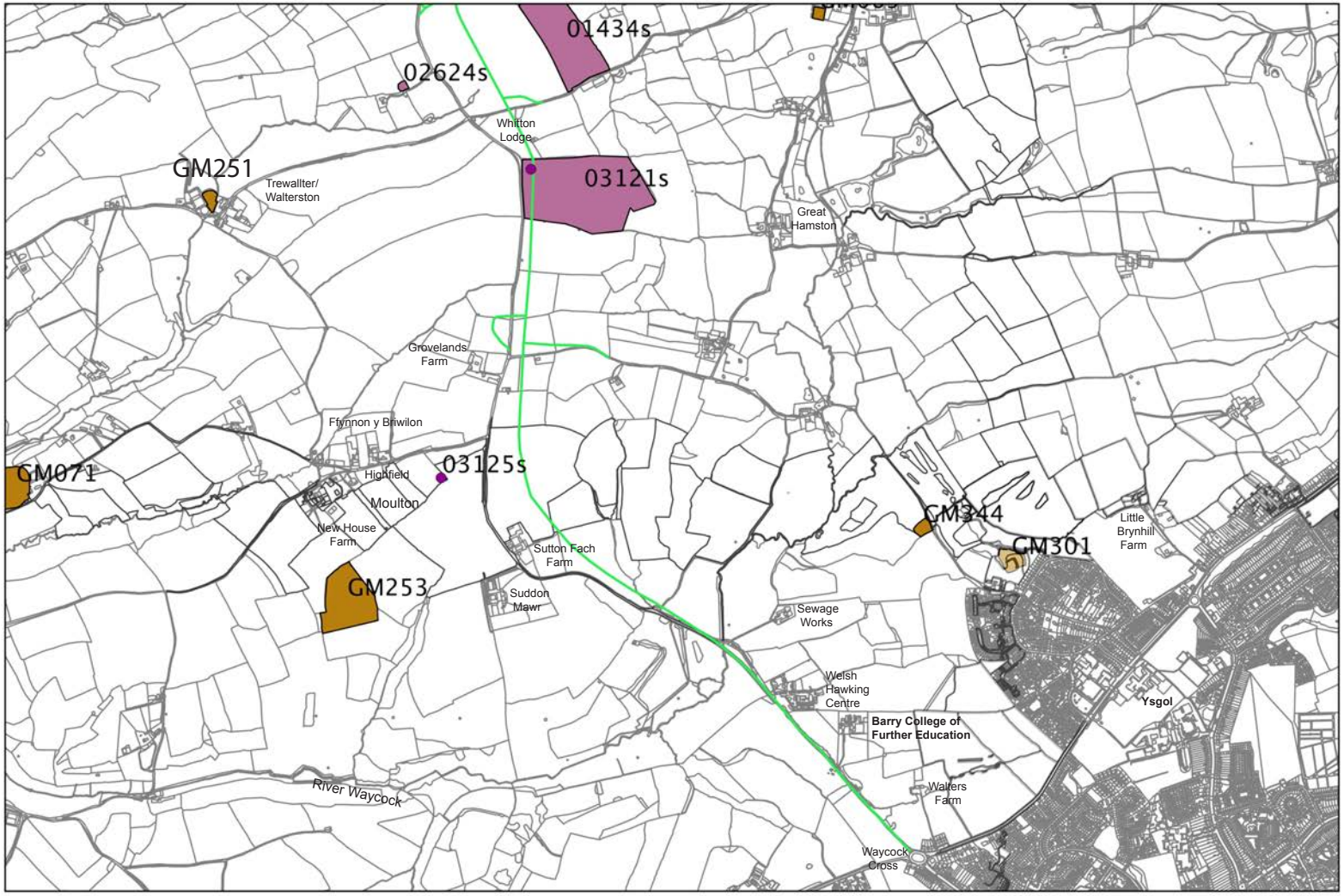
SAM

Proposed Route

Fig. 2

Northern section of proposed route shown in relation to known HER sites

ARCHAEOLOGY WALES
Revealing the past, informing the future



HER site

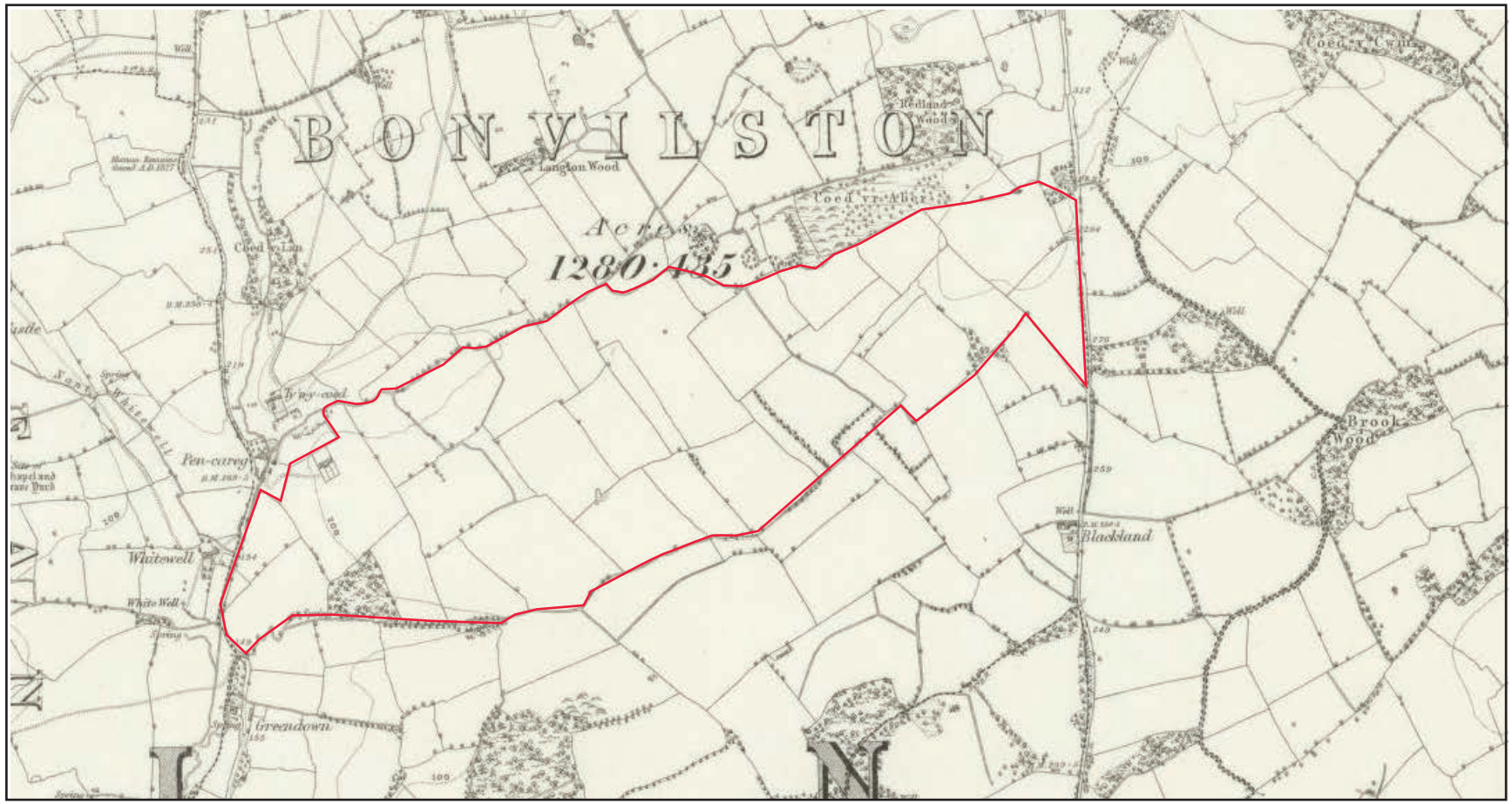
SAM

Proposed Route

Fig. 3

Southern section of proposed route shown in relation to known HER sites

ARCHAEOLOGY WALES
Revealing the past, informing the future



0 1.0 km

Fig. 4
Bonvilston Amalgamated Fieldscape on 1885 OS Map

ARCHAEOLOGY WALES
Revealing the past, informing the future

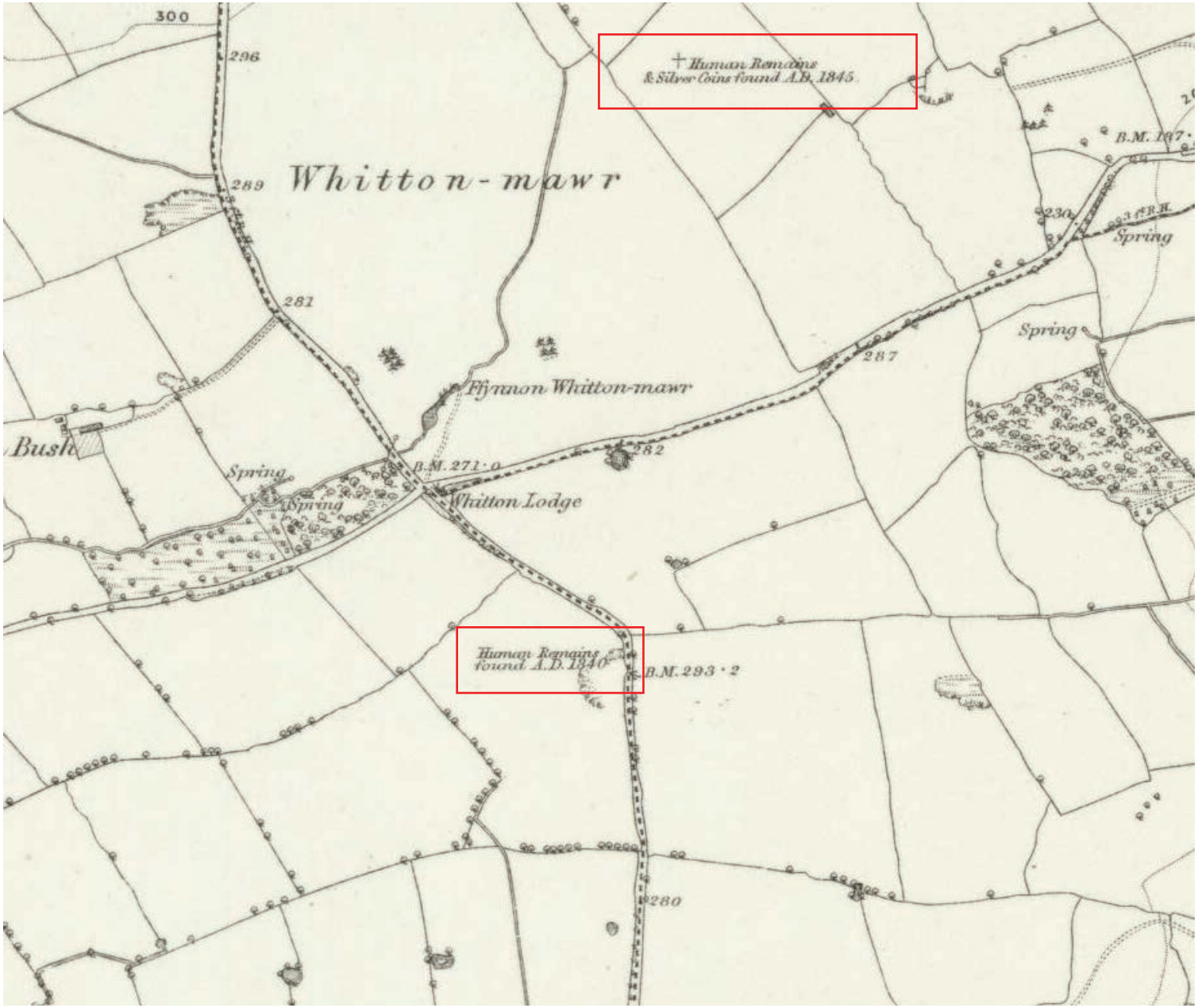
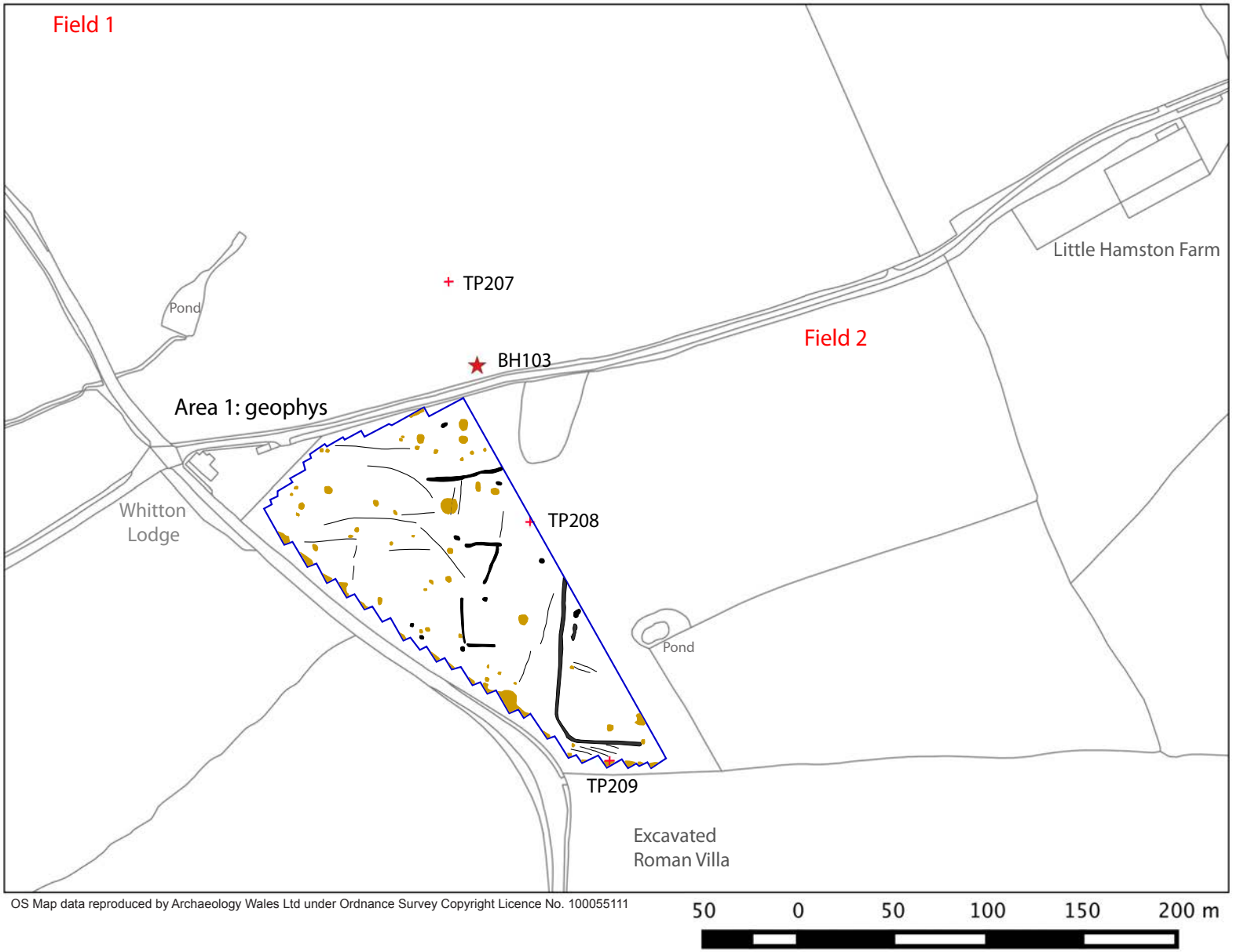


Fig. 5

1885 OS map showing findspots of human remains and coins near Whitton

ARCHAEOLOGY WALES
Revealing the past, informing the future



BH207
Bore hole

TP208
Test Pit

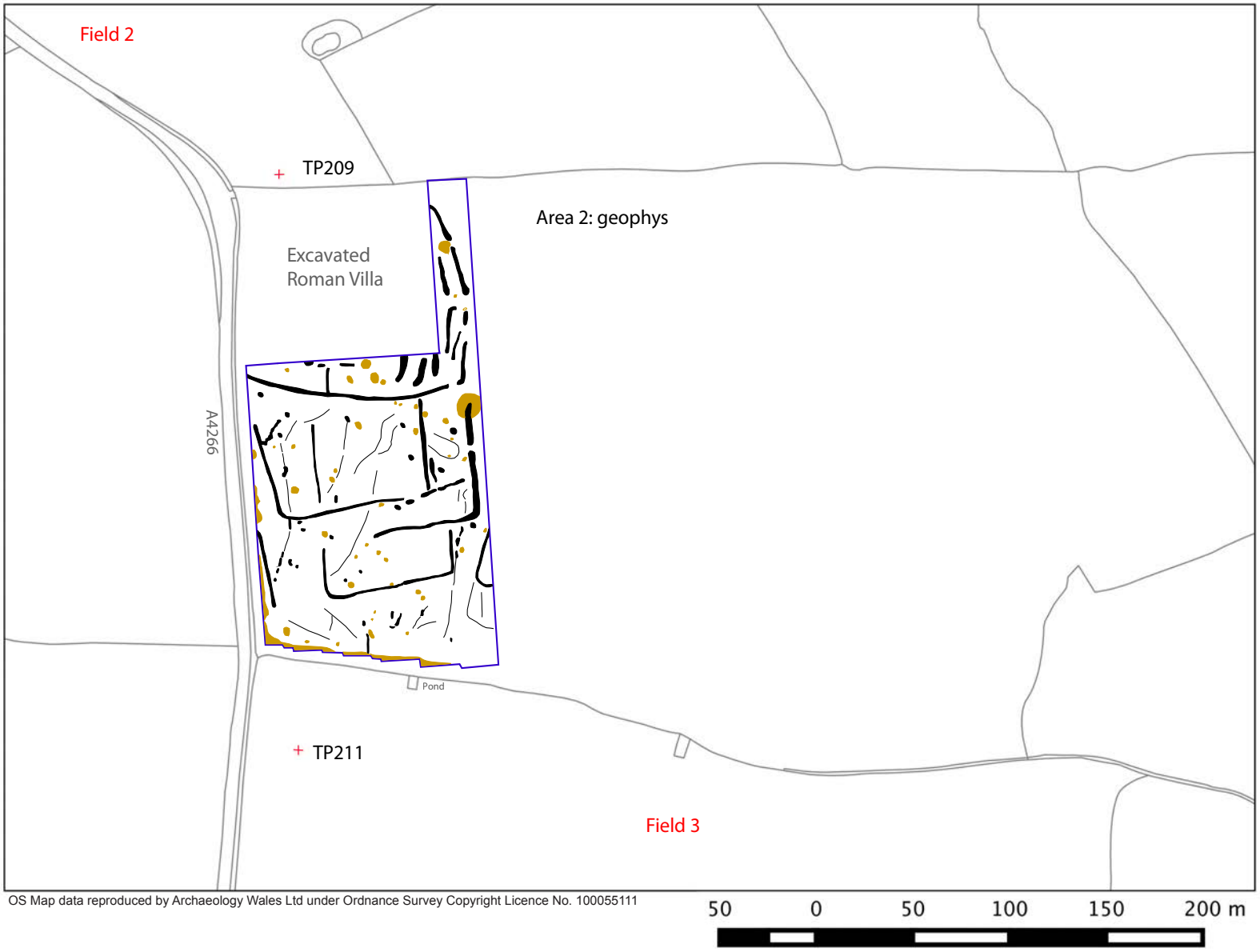
Ferrous area

Anomaly: probable/possible archaeology

Fig. 6

Area 1 of geophysics survey interpretation (after Tanner 2010, fig. 3)

ARCHAEOLOGY WALES
Revealing the past, informing the future



TP208
Test Pit

Ferrous area

Anomaly: probable/possible archaeology

Fig. 7

Area 2 of geophysics survey interpretation (after Tanner 2010, fig. 3)

ARCHAEOLOGY WALES
Revealing the past, informing the future

Oblique aerial photo-graph of Whitton Lodge Roman Villa, (looking south)

Fig. 8

1996 Aerial Photograph of Whitton Cropmarks

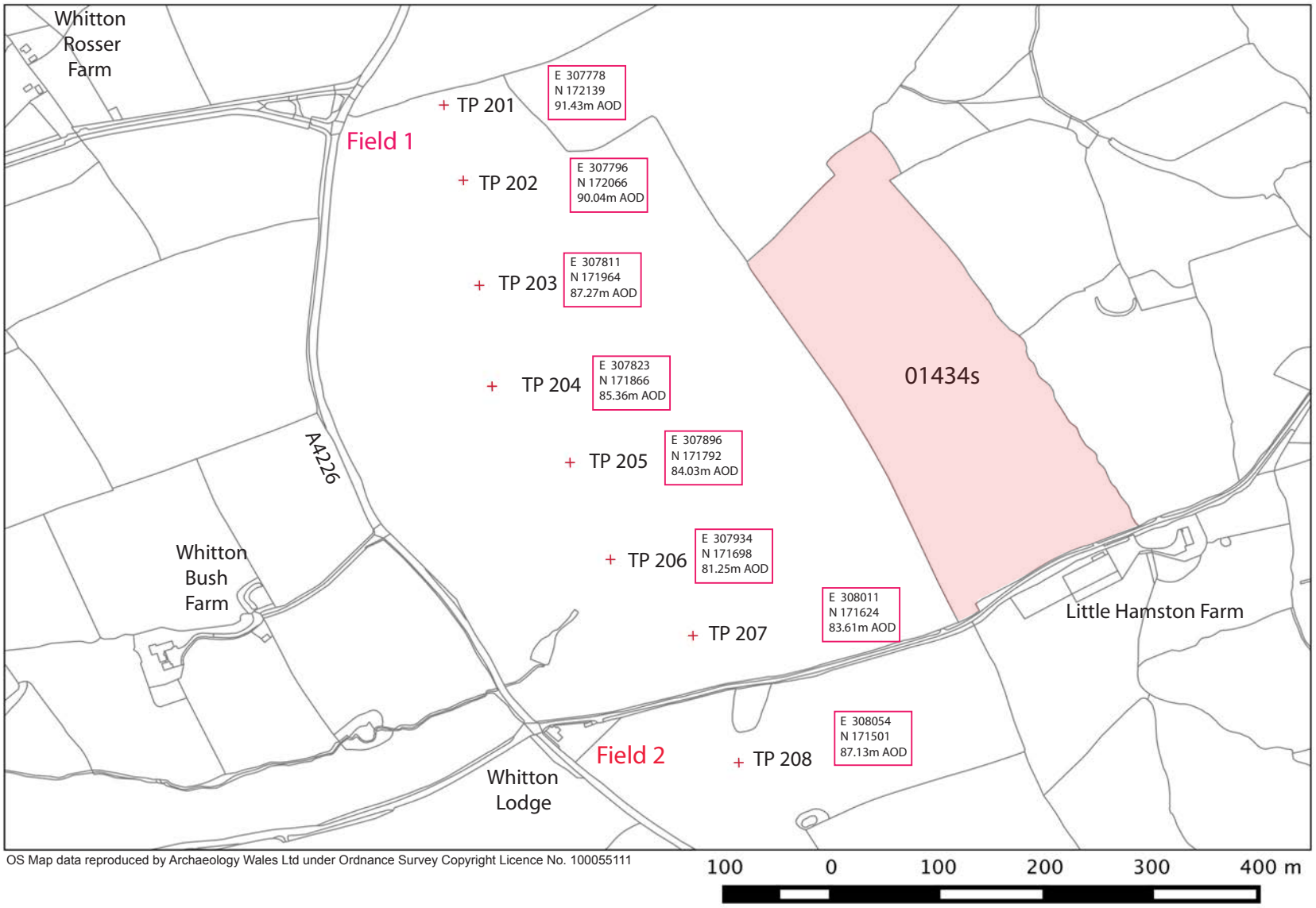
ARCHAEOLOGY WALES
Revealing the past, informing the future

Oblique aerial photograph of Whitton Lodge Roman Villa and A4226 (looking south)

Fig. 9

1996 Aerial Photograph of Whitton Cropmarks

ARCHAEOLOGY WALES
Revealing the past, informing the future



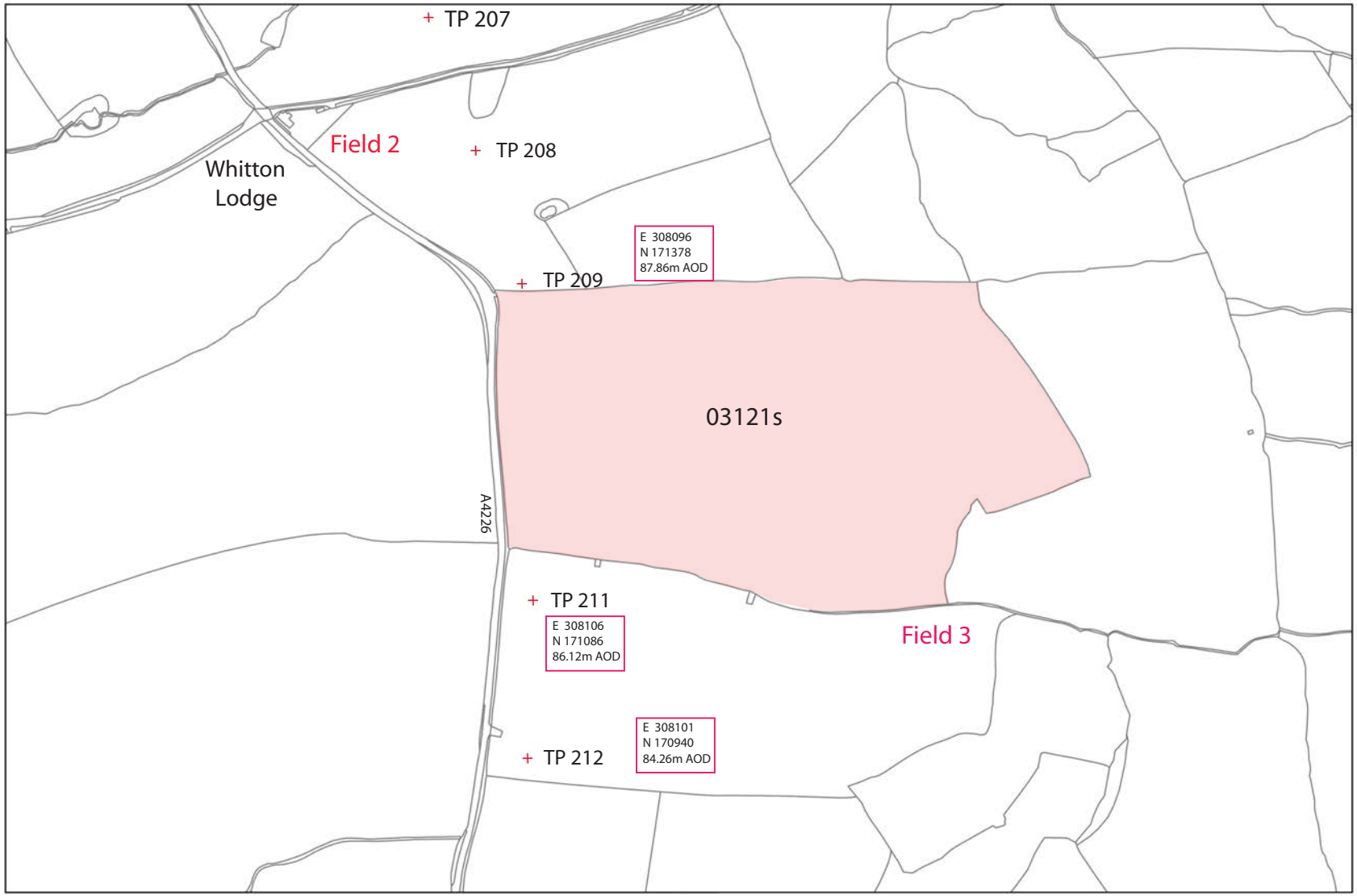
+ Test Pit Location

HER site

Fig.10

Test Pits 201 - 208

ARCHAEOLOGY WALES
Revealing the past, informing the future



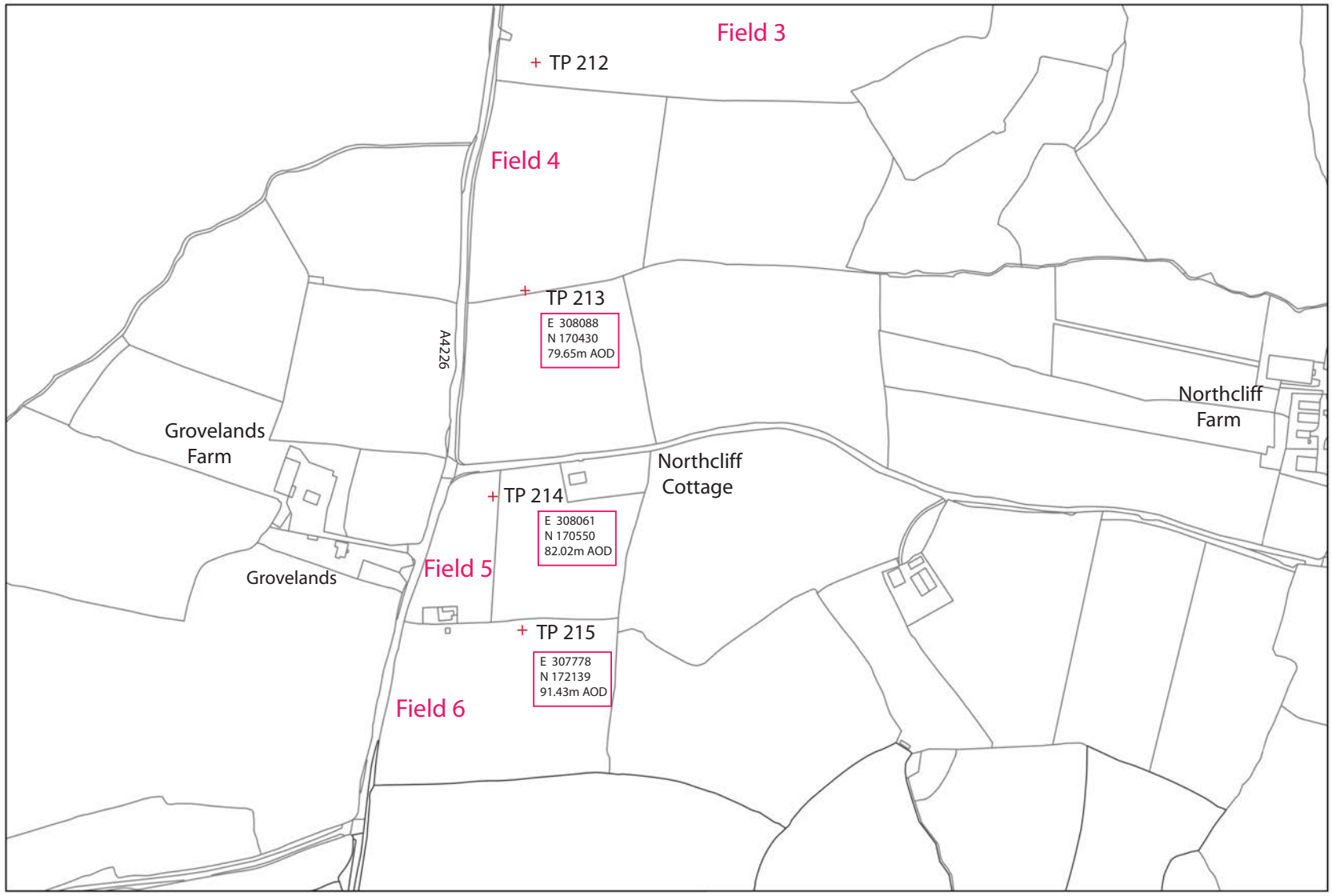
Test Pit Location

HER Site

Fig. 11

Test Pits (207,208) 209, 211-212

ARCHAEOLOGY WALES
Revealing the past, informing the future

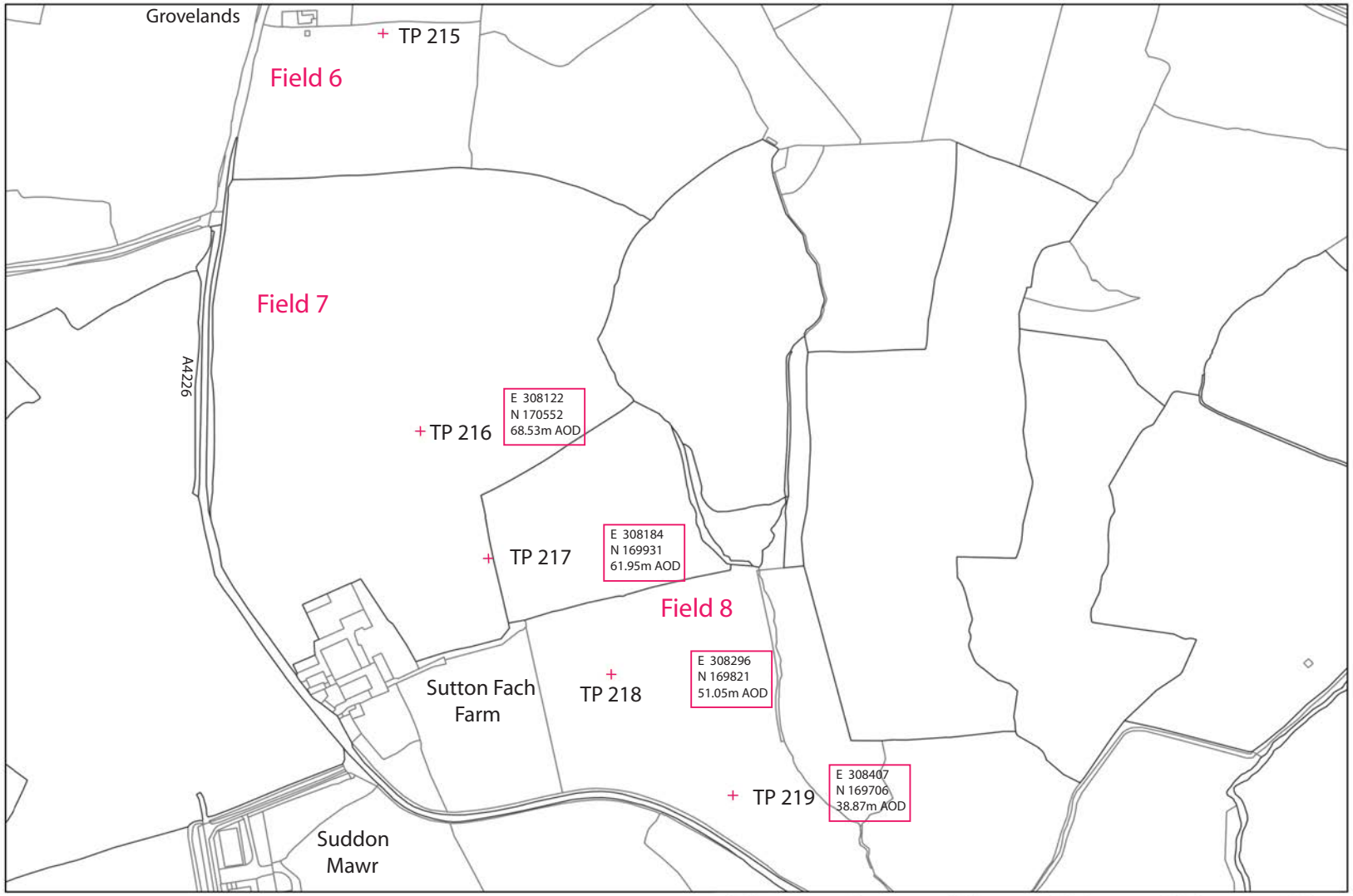


+ Test Pit Location

Fig. 12

Test Pits (212), 213 - 215

ARCHAEOLOGY WALES
Revealing the past, informing the future



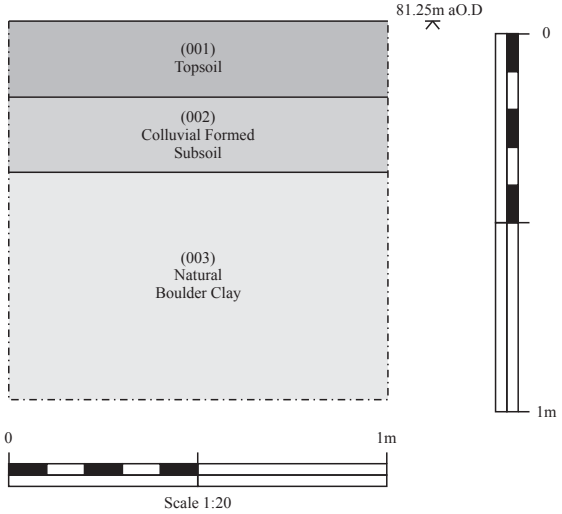
+ Test Pit Location

Fig. 13

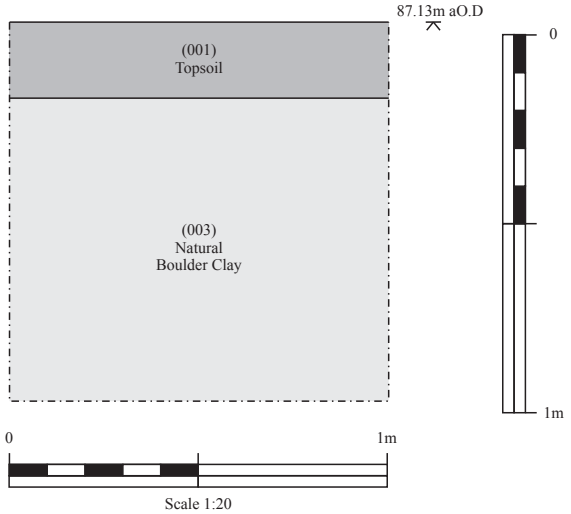
Test Pits (215), 216 - 219

ARCHAEOLOGY WALES
Revealing the past, informing the future

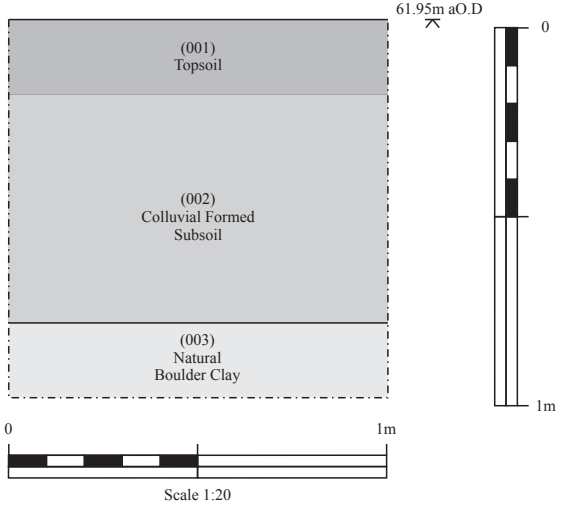
Section 1: East Facing Representative Profile TP206 (Field 1)



Section 2: South Facing Representative Profile TP208 (Field 2)



Section 3: East Facing Representative Profile TP217 (Field 7)



Section 4: East Facing Representative Profile TP219 (Field 8)

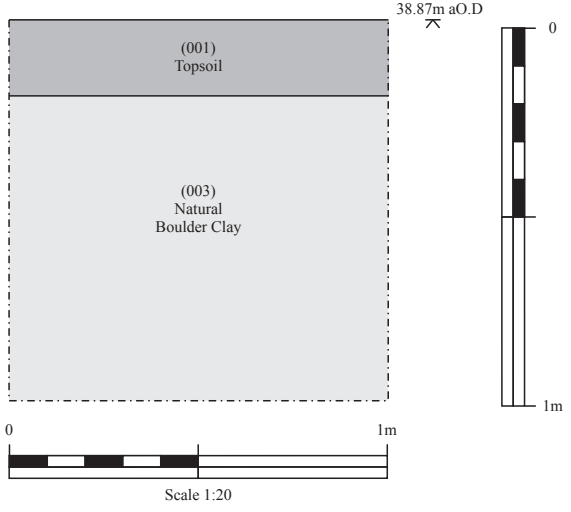


Fig.14

Representative Section Drawings

ARCHAEOLOGY WALES
Revealing the past, informing the future

Fig a: Test Pit 206, Scale = 1m

Fig b: Test Pit 208, Scale = 1m

Fig c: Test Pit 217, Scale = 1m

Fig d: Test Pit 219, Scale = 1m

Fig. 15

Images of Test Pits 206, 208, 217, 219

ARCHAEOLOGY WALES
Revealing the past, informing the future

Fig a: Test Pit 209, Scale = 1m

Fig b: Test Pit 211, Scale = 1m

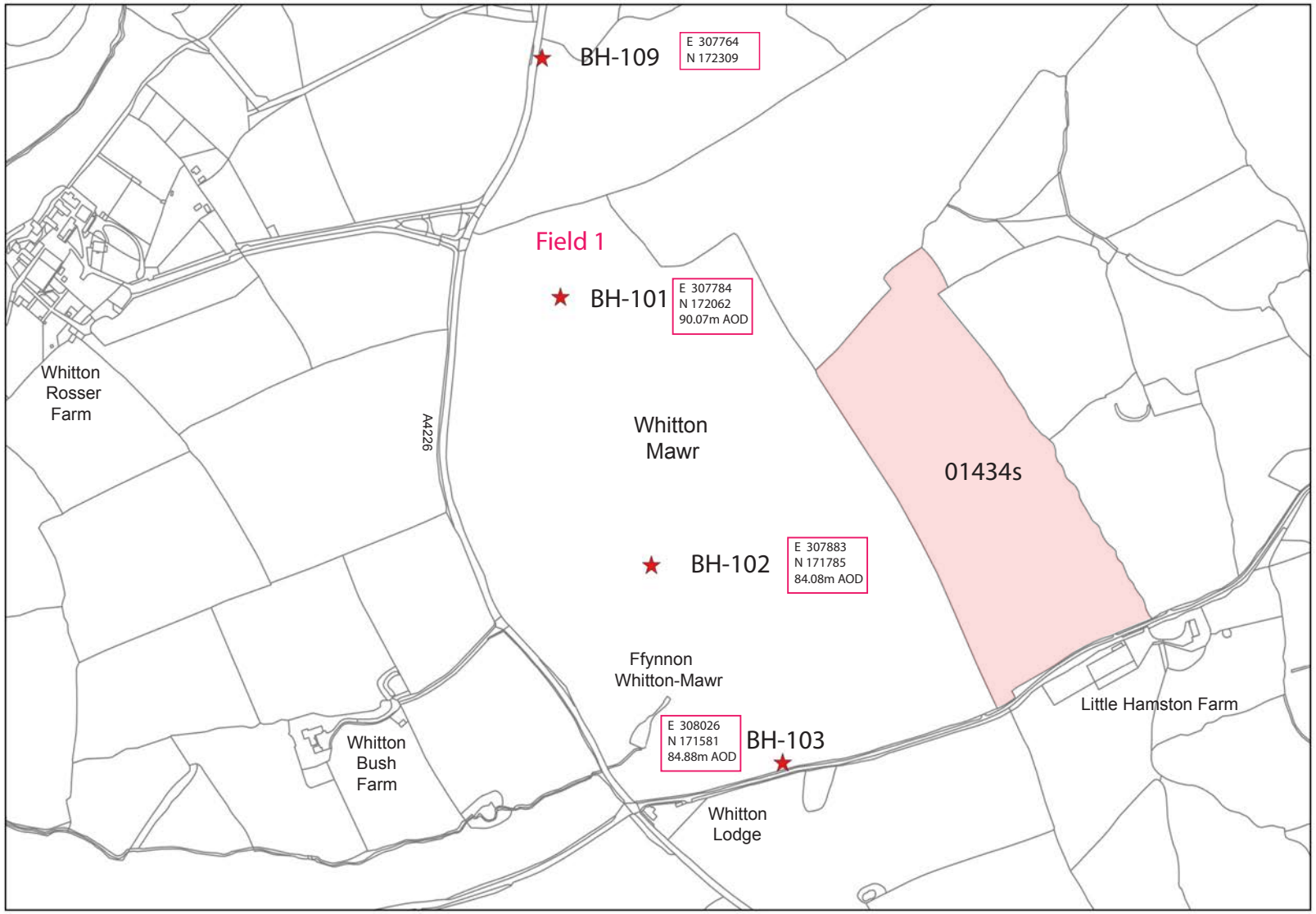
Fig c: Test Pit 216, Scale = 1m

Fig d: Test Pit 218, Scale = 1m

Fig. 16

Images of Test Pits 206, 208, 217, 219

ARCHAEOLOGY WALES
Revealing the past, informing the future

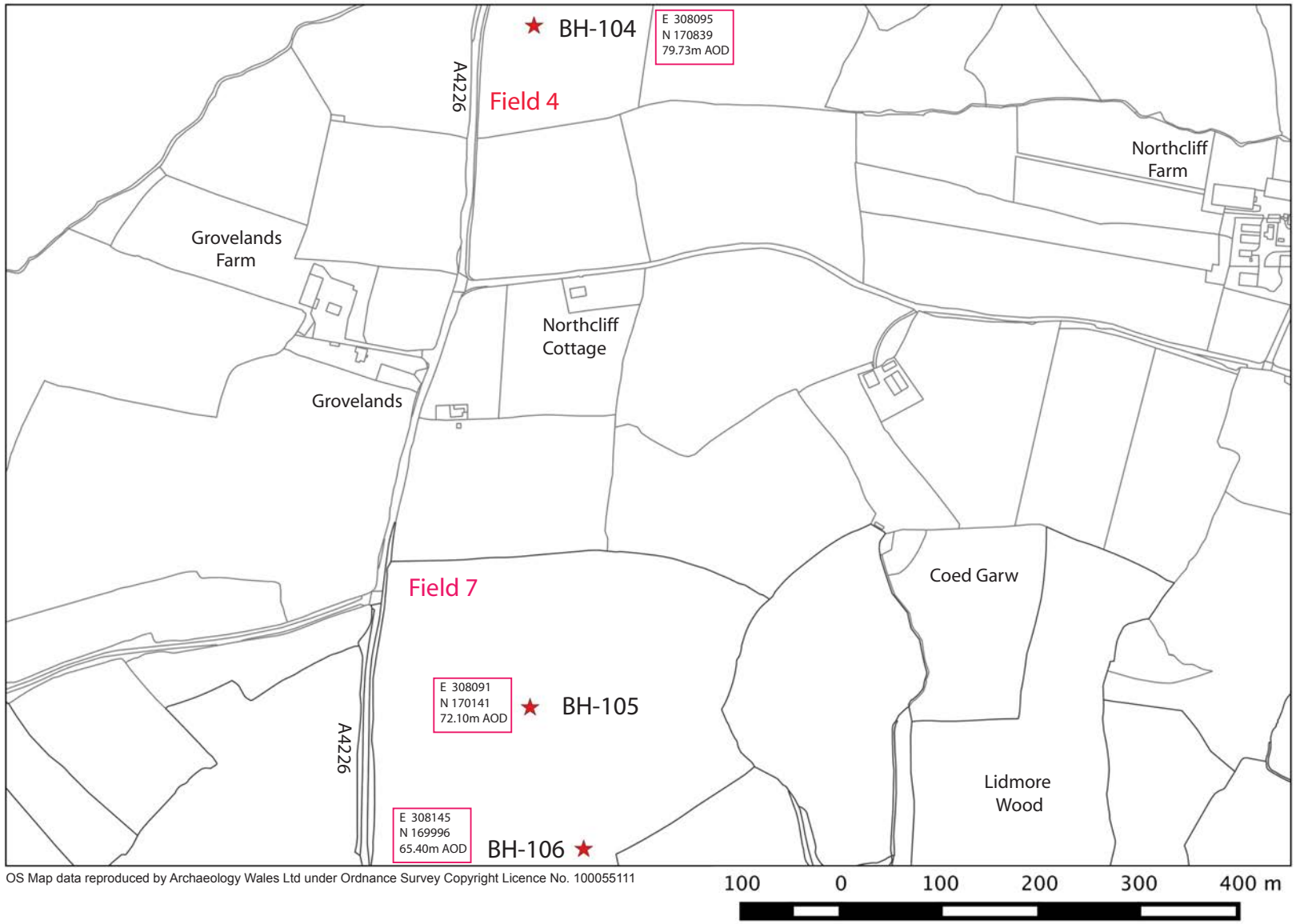


Bore Hole Location

Fig. 17

Bore Holes 109, 101-103

ARCHAEOLOGY WALES
Revealing the past, informing the future

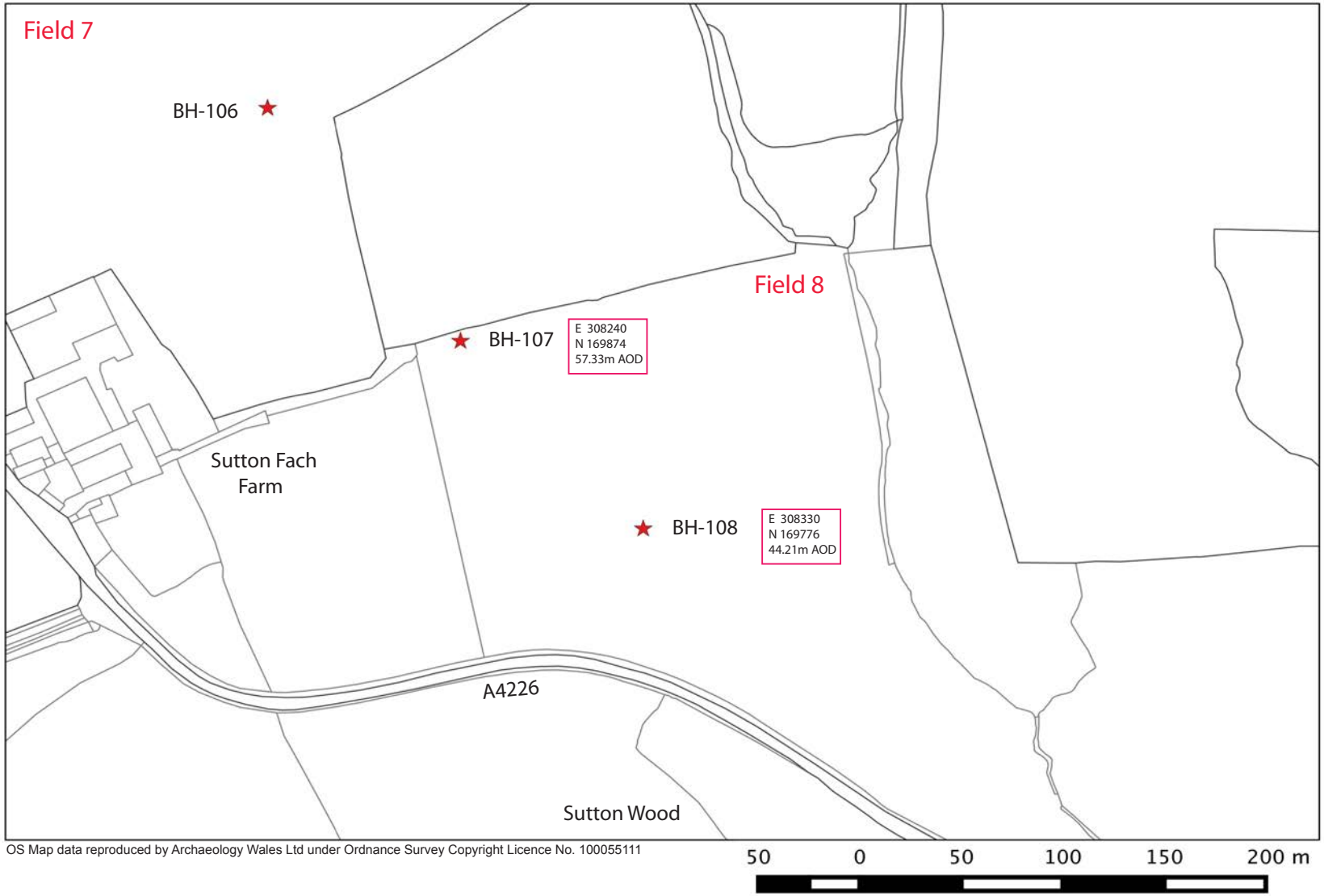


Bore Hole Location

Fig. 18

Bore Holes 104-106

ARCHAEOLOGY WALES
Revealing the past, informing the future



Bore Hole Location

Fig. 19

Bore hole locations (106) 107-108

ARCHAEOLOGY WALES
Revealing the past, informing the future

Archaeology Wales

APPENDIX I:

HER Data (GGAT)

GLAMORGAN GWENT ARCHAEOLOGICAL TRUST
HISTORIC ENVIRONMENT RECORD
ENQUIRY REPORT - CORE RECORDS

Enquiry reference number: 4907
Prepared by: Charina Jones, Glamorgan Gwent Archaeological Trust
Produced for: Iestyn Jones, Archaeology Wales Ltd

Search criteria

1km route of Five Mile Lane

PRN *00369s* **NAME** *Coed y Cwm* **NGR** *ST0810873779* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Neolithic, Long barrow, RANK: 1*
SUMMARY *A possible collapsed or unfinished burial chamber, comprising three large slabs of highly weathered tabular limestone. The largest slab is c 3m long and a maximum of 1m thick, being markedly thinner (0.4m - 0.9m) at its S end. It lies slightly tilted tow*

DESCRIPTION *A possible collapsed or unfinished burial chamber, comprising three large slabs of highly weathered tabular limestone. The largest slab is c 3m long and a maximum of 1m thick, being markedly thinner (0.4m - 0.9m) at its S end. It lies slightly tilted towards the SW. On its NE side it is propped up by numerous small stones underneath. The two smaller slabs are positioned immediately to the S and are c 1m across and 0.25m thick. The stones are situated on a low ridge, but there is no indication of any mound. It is unclear whether this is a genuine prehistoric monument or a natural feature. These stones may indeed be the last remains of a now denuded long barrow, but excavation in 1936 showed the slabs to rest on a natural gravel formation in which no trace of sockets could be found, which might argue against it having been a built structure (Daniel 1937). However, a polished flint axe was found beneath the surface about 0.5m E of the stones, indicating that at the very least they were the focus of some prehistoric activity. Reference: Daniel, GE, 1937, '##', Archaeologia Cambrensis #, 287-93 Dimensions: See descriptive text (1967/1976) Burial Chamber, Coed-y-cwm, at about 100m above OD on a low ridge overlooking a tributary stream of the R Waycock on the S. Four slabs of tabular limestone lie on the ridge in a position not accepted as natural when it was suggested in 1935 that they could represent a ruined or unfinished cromlech, sited at the E end of a much denuded long barrow. The largest slab is 3.0m long E-W by 1.4m by 0.5m thick, but the others are barely one quarter as large in area and half as thick. Excavation in 1936 showed them to lie on a natural gravel formation in which no trace of sockets can be found. A polished flint axe was found beneath the surface about half a metre E of the stones. The ridge was interpreted as natural in a cutting 6m W of the stones, but this may have been the unweathered surface beneath a vestigial long mound which was formerly detectable by levelling; furthermore, the stones are unlikely to have reached their present position through natural agency. (1982) These carboniferous limestone boulders are weathered over their upper surfaces to a depth of circa 0.13m, suggesting many thousands of years of weathering in situ and, together with the now slight, ploughed down mound upon which they rest, are most probably a natural formation. Bedrock of the same stone is very close to the surface hereabouts. (1986) The cairn stands in a grass field, grazed by cows, on a low ridge, with a small valley to the NE. The remains consist of one large and teo smaller stones to the south of the larger one. This is a large pitted stone, c.2.7m x 1m (max) lying slightly titled towards the south west. It is 0.4m - 0.9m thick being thinnest at the southern end. On its north eastern side it is propped up by some small stones underneath it. One at the southern end is larger than the rest. The two smaller stones just south of the larger one are of the same pitted srone and are c.1m across and 0.4m and 0.25m thick. There is no sign of a mound. GGAT 72 Prehistoric Funerary and Ritual Sites Project 2003*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1977-10-14 00:00:00

STATUS *scheduled ancient monument GM116*
CROSS REFERENCES *NPRN 93068 GGATE000738, GGATE001481*

SOURCES
Report Ferrell, G. 1989 Archaeology in and Around the Bonvilston and St Nicholas Area 1 78-89/01
08/Pm Desc Text/Archaeology in and Around the Bonvilston and St Nicholas Area/Acess Archaeology/1989/SMR Report Archive
Pm desc text/Evans EM/2003/GGAT 72 Prehistoric Funerary and Ritual Sites Project
02/PM Excav Rep//Daniel GE/1937/Archaeol Cambrensis/pp287-93;
01/MM Record/OS//1970/ST 07 SE/;
03/PM List//RCAHM/1976/Glamorgan Invent/p40 No45;
05/PH Desc Text///1874/Trans Cardiff Natur Soc/Vol6 pp73-8;
06/MM Record Card/OS//8.4.82/ST 07 SE 12/;
04/PM Desc Text///1849/Archaeol Cambrensis/Vol4 No16 pp327-8;
07/MM Desc Text/CADW/Whittle E/1986/AM107/
010/Desc Text/Cadw/ Full Management Report/2006/ Copy in further information file

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PRN *00370s* **NAME** *Redland Standing Stone* **NGR** *ST07817382* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Bronze Age, Standing stone, RANK: 1*
SUMMARY *At Redland Farm, W of St Nicholas at 105m OD, a standing stone was recorded on several occasions during the 20th century. RCAHMW 1976 described it as an oval slab of limestone, 1.8m long, 1.2m wide and 0.5m thick. When visited in 1937 the stone was still*

DESCRIPTION *At Redland Farm, W of St Nicholas at 105m OD, a standing stone was recorded on several occasions during the 20th century. RCAHMW 1976 described it as an oval slab of limestone, 1.8m long, 1.2m wide and 0.5m thick. When visited in 1937 the stone was still standing, but by 1950 it had fallen and lay recumbent. Its location was described as being close to a hedge adjacent to the road that ran around the back of Redland Farm. However, during the present survey no trace of this stone was found. The stated NGR would place the stone on the line of a modern hedge of coniferous trees, and it is possible that it was removed during the planting of this boundary. Dimensions: Dimensions not known. (1967/1976) At Redland, W of St Nicholas, at 105m above OD. An oval slab of limestone, 1.8m long by 1.2m wide and 0.5m thick. It has fallen since it was seen by Daniel in 1936, and now lies recumbent and partly overgrown close to a hedge at ST07817382. (1950) This stone lying on its side, measures 2.0m high, 1.0m wide and 0.5m thick. GGAT 72 Prehistoric Funerary and Ritual Sites Project 2003*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: E001953 DATE OF ENTRY: 1977-10-14 00:00:00

STATUS *None recorded*
CROSS REFERENCES *NPRN 307721 GGATE001953, GGATE001962, GGATE001963, GGATE001481*

SOURCES
Documents OS Record Card
Report Pearson, A F and Lewis, R 2003 Prehistoric funerary and ritual sites. Blaenau Gwent, Caerphilly, Cardiff, Monmouthshire, Newport, Torfaen and the Vale of Glamorgan 1553 GGAT 72
Report Ferrell, G. 1989 Archaeology in and Around the Bonvilston and St Nicholas Area 1 78-89/01
06.Pm desc text/Evans EM/2003/GGAT 72 Prehistoric Funerary and Ritual Sites Project
02/PM Desc Text//Daniel GE/1937/Archaeol Cambrensis/p287;
01/MM Record Card/OS//1970/ST 07 SE 13/;
03/PM List//RCAHM/1976/Glamorgan Invent/p124 No561;
07/Pm Desc Text/Archaeology in and Around the Bonvilston and St Nicholas Area/Access Archaeology/1989/GGAT SMR Report Archive
04/PH Desc Text//Evans&Franklen G/1881/Trans Cardiff Natur Soc/Vol13
05/Desc Text/ FI/Jack W/17-5-50

PRN *00380s* **NAME** *Inhumation* **NGR** *ST08007177* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Unknown, Inhumation, RANK: 1*
SUMMARY *No new description.Dimensions not known.*

DESCRIPTION *No new description. Dimensions: Dimensions not known. (1862) Marginal. About 1850, in a field of some 65 acres called Whitton Mawr, some men employed in draining came upon a square patch of black soil, in strong contrast to the antural yellow earth which covers the lias. It contained a large number of skulls and other human bones belonging to men in the prime of life; their presence was explained by the Rev. JM Traherne. Who ascertained that after the battle of St Fagans in may 1648, the remnant of the routed royalists made for Fonmon Castle, but on the way where overtaken on the north side of Llancarvan, where a second combat took place, of which*

this balck soil and the bones are the remains. The field touches on Llancarvan parish, and is in the direct line of route. The skulls after exmination were replaced in the soil. (See also ST07 SE 22, 23, 25 for inhumtion burials.) (1953) Area centred ST 0800 7177. Perimeter of field Whitton Mawr extracted from OS 25" of 1900 - acreage 72.687. Ground perambulation and local enquiry revealed no additional information. The field was under plough, and the patch of black soil reffered to in the above could not be locacted. GGAT 72 Prehistoric Funerary and Ritual Sites Project 2003

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1977-10-14 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

02/PH Note///1862/Archaeol Cambrensis/p100
01/MM Record Card/OS//1957/ST 07 SE 24/;
Pm desc text/Evans EM/2003/GGAT 72 Prehistoric Funerary and Ritual Sites Project

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PRN *00381s* **NAME** *Inhumation* **NGR** *ST08057135* **COMMUNITY** *Llancarfan*
TYPE *Unknown, Inhumation, RANK: 1*
SUMMARY *No new description.Dimensions not known.*

DESCRIPTION *No new description. Dimensions: Dimensions not known. (1940) The remains of two human beings were found here in 1840. During field investigation no additional inform- ation was obtained or surface finds made. (1953) The quarry in which the remains were found has been largely levelled, and the area is now under the plough. It is doubtful if the quarry was ever more than 2.0m deep. During field investigation no additional information wwas obtained or surface finds made. It is probable that the remains are associated with the battle site at ST 07 SE 24. GGAT 72 Prehistoric Funerary and Ritual Sites Project 2003*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1977-10-14 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Pm desc text/Evans EM/2003/GGAT 72 Prehistoric Funerary and Ritual Sites Project
01/MM Record Card/OS//1953/ST 07 SE 25/

PRN *00382s* **NAME** *Whitton Lodge Roman Villa* **NGR** *ST08117133* **COMMUNITY** *Wenvoe*
TYPE *Roman, Villa, RANK: 1*
Iron Age, defended enclosure, RANK: 1
SUMMARY *Roman Villa near Whitton Lodge, discovered in 1956. Excavation has shown that there were ten phases of occupation between the later 1st century AD to c340 AD, and that the site developed from a round house settlement into a villa.*

DESCRIPTION *Roman Villa near Whitton Lodge. The site was discovered by H J Thomas in 1956 and consists of a rectangular area about 65m by 60m standing 0.6m above ground level. Fully excavated, and proved to be a square enclosure defined by a bank and ditch, apparently primary feature and in use until end of settlement. Ten phases of occupation, main features of which sumarised below; dates are approximate. Phases 1 and 2 (may be the other way round): gate-tower at entrance; internal building represented by roundhouses; Phase 1 probably round about second quarter and Phase 2 third quarter 1st century AD. Phase 3: roundhouses; AD 70-95. Phase 4: roundhouses, internal divisions; possibly also 2 sub-square buildings, though these are preferably assigned to Phase 5; AD 95-115. Phase 5: roundhaouse, internal divisions (including stone-founded wall for the first time); possibly subsquare buildings, see above; AD 115-35. Phase 6: gate tower replaced by simple doorway; use of buildings with stone foundations (esp rectangular building against bank = S range) concurrently with timber structures; AD 135-60. Phase 7: Further rectilinear stone buildings (S range) and enclosures, probably includes hypocausted addition to S range; AD 160-230. Phase 8: multi-room stone building (W range) added, probably of two storeys; hypocuated building may have been added, certainly went out of use; AD230-80. Phase 9: New building (N range); NE Phase 6 building rebuilt; AD 280-300. Phase 10: N range rebuilt to larger and more complex plan; AD 300-340. No evidence for occupation beyond AD 340. Reference Jarrett and Wrathmell 1981 Wiggins and Evans 2005 Following two Geophysical Surveys undertaken in 2010, features appearing to be walls were surveyed extending below and above the specified site area, along with series of ditches, enclosures, weaker linear features, small pits, a former quarry, two ring ditches, a third*

smaller ring, an increase in magnetic levels in the southern half of the field (perhaps due to ploughing), and a rectilinear pattern possibly indicating Romano-British features were recorded (Tanner 2010 and Attwood 2010).

CONDITION
CONDITION: Near destroyed DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1977-10-14 00:00:00

STATUS *scheduled ancient monument GM252*
CROSS REFERENCES *NPRN 94626 GGATE000743, GGATE001455, GGATE003308, GGATE003309 , GGATE002203, GGATE001657*

SOURCES
Report Wiggins, H and Evans, E 2005 Prehistoric defended enclosures in Glamorgan with recommendations for fieldwork 1828
Jarrett, M G and Wrathmell, S 1981 Whitton: An Iron Age and Roman farmstead in South Glamorgan
Report Tanner TJ 2010 Five Mile Lane Improvements, Barry: Geophysical Survey 2921 2011/04
Report Attwood, G 2010 Five Mile Lane Improvements, North of Whitton Cross, Vale of Glamorgan: Geophysical Survey Report 2922 2011/04, HER_MM_02203
Report Evans, E M 2001 Romano-British southeast Wales settlement survey: Final report 726
01/MM Record Card/OS///1957/SS 07 SE 26/;
02/PM List//RCAHM/1976/Glam Invent/p114 No761;
03/PM Photograph

PRN *01434s* **NAME** *Hearth at Whitton* **NGR** *ST083719* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Roman, Hearth, RANK: 1*
SUMMARY *Iron clinker, Roman sherds and tile fragments found. Possible smelting hearth. In fields to NW & W late Roman sherds & coins found.*

DESCRIPTION *Iron clinker, Roman sherds and tile fragments found. Possible smelting hearth. In fields to NW & W late Roman sherds & coins found. Roman sherds PRN 3039s*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1981-05-01 00:00:00

STATUS *None recorded*
CROSS REFERENCES *related PRN 3039s GGATE001657*

SOURCES
Report Evans, E M 2001 Romano-British southeast Wales settlement survey: Final report 726
01/PM Desc Text//Thomas H/1958/Bull Board Celtic Stud/Vol.17 p.92-6

PRN *02624s* **NAME** *Lime Kiln* **NGR** *ST07707170* **COMMUNITY** *Llancarfan*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Thaw Valley Survey; OS1 57 lime kiln sheet 46.10*

DESCRIPTION *Thaw Valley Survey; OS1 57 lime kiln sheet 46.10*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1997-04-23 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Thaw Valley Survey Report. GGAT
/PM/desc text/Graves-Brown, P.M./1997/Thaw Valley Survey Report. GGAT
/PM/map/Ordnance SURVEY FIRST EDITION 25 "//sheet 46.10

PRN *02625s* **NAME** *Lime Kiln* **NGR** *ST07707180* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Thaw Valley Survey; OS1 58 lime kiln sheet 46.10*

DESCRIPTION *Thaw Valley Survey; OS1 58 lime kiln sheet 46.10*

CONDITION

CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1997-04-23 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Thaw Valley Survey Report. GGAT
/PM/map/Ordnance SURVEY FIRST EDITION 25 "//sheet 46.10
/PM/desc text/Graves-Brown, P.M./1997/Thaw Valley Survey Report. GGAT

PRN *02626s* **NAME** *Lime Kiln* **NGR** *ST08107130* **COMMUNITY** *Wenvoe*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Thaw Valley Survey; OS1 59 lime kiln sheet 46.11*

DESCRIPTION *Thaw Valley Survey; OS1 59 lime kiln sheet 46.11*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1997-04-23 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Thaw Valley Survey Report. GGAT
/PM/map/Ordnance SURVEY FIRST EDITION 25 "//sheet 46.11
/PM/desc text/Graves-Brown, P.M./1997/Thaw Valley Survey Report. GGAT

PRN *02628s* **NAME** *Lime Kiln* **NGR** *ST08507130* **COMMUNITY** *Wenvoe*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Thaw Valley Survey; OS1 60 lime kiln sheet 46.11*

DESCRIPTION *Thaw Valley Survey; OS1 60 lime kiln sheet 46.11*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1997-04-23 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Thaw Valley Survey Report. GGAT
/PM/desc text/Graves-Brown, P.M./1997/Thaw Valley Survey Report. GGAT
/PM/map/Ordnance SURVEY FIRST EDITION 25 "//sheet 46.11

PRN *02629s* **NAME** *Lime Kiln* **NGR** *ST08307206* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Thaw Valley Survey; OS1 61 lime kiln sheet 46.11*

DESCRIPTION *Thaw Valley Survey; OS1 61 lime kiln sheet 46.11*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1997-04-23 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Thaw Valley Survey Report. GGAT
/PM/desc text/Graves-Brown, P.M./1997/Thaw Valley Survey Report. GGAT
/PM/map/Ordnance SURVEY FIRST EDITION 25 "//sheet 46.11

PRN *03039s* **NAME** *WHITTON* **NGR** *ST081721* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Roman, Sherd, RANK: 1*
SUMMARY *Find of Roman pottery*

DESCRIPTION *In next field to NW (to 01434S) later Roman pottery has been found Originally entered under 01434S*

CONDITION
CONDITION: DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY:

STATUS *None recorded*
CROSS REFERENCES *- - GGATE001657*

SOURCES
Report Evans, E M 2001 Romano-British southeast Wales settlement survey: Final report 726
01/PM Desc Text//Thomas H/1958/Bull Board Celtic Stud/Vol.17 p.92-6

PRN *03040s* **NAME** *WHITTON* **NGR** *ST08007190* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Roman, Findspot, RANK: 1*
SUMMARY *Roman silver coins and human bone*

DESCRIPTION *In next field to W (to 01434S), OS map marks discovery of silver coins and human bone in 1845' Originally entered under 01434SM May be a duplicate of 380: check*

CONDITION
CONDITION: DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY:

STATUS *None recorded*
CROSS REFERENCES *- - GGATE001657*

SOURCES
Report Evans, E M 2001 Romano-British southeast Wales settlement survey: Final report 726

PRN *03051s* **NAME** *WSP 11* **NGR** *ST08317129* **COMMUNITY** *Wenvoe*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Soon on 1762-3 estate map.*

DESCRIPTION *Limekiln (1762-3 estate map).*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1999-03-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- -*

SOURCES

GGAT Assessment Whitton Mawr - Sully Moors Gas Pipeline 1996

PRN *03121s* **NAME** *WHITTON FIELD SYSTEM* **NGR** *ST08367127* **COMMUNITY** *Wenvoe*
TYPE *Iron Age, Enclosure, RANK: 1*
ROMAN, FIELD SYSTEM, RANK: -
SUMMARY *RCAHMW AP 965108 47/48 extensive series of rectangular enclosures, apparently associated with "villa" site 00382s*

DESCRIPTION *RCAHMW AP 965108 47/48 extensive series of rectangular enclosures, apparently associated with "villa" site 00382s*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1999-03-06 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE001455, GGATE001657*

SOURCES
Report Wiggins, H and Evans, E 2005 Prehistoric defended enclosures in Glamorgan with recommendations for fieldwork 1828
Report Evans, E M 2001 Romano-British southeast Wales settlement survey: Final report 726
01/Air photo//RCAHMW/965108/47-48

PRN *03125s* **NAME** *Moulton* **NGR** *ST07757009* **COMMUNITY** *Llancarfan*
TYPE *Unknown, Enclosure, RANK: 1*
SUMMARY *Enclosures seen on RCAHMW AP 965109 58/59*

DESCRIPTION *Enclosures seen on RCAHMW AP 965109 58/59. The AP appears to show part of a small, sub-rectangular feature. (01 Zienkiewicz)*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 1999-05-06 00:00:00

STATUS *None recorded*
CROSS REFERENCES *NPRN 309455 GGATE001597, GGATE001551*

SOURCES
Zienkiewicz, L 2003 Prehistoric interrupted ditch enclosures of south-east Wales 1516
Report Wiggins, H and Evans, E 2005 Prehistoric defended enclosures in Glamorgan with recommendations for fieldwork 1828
Gerrard, C. Wiggins, H. and Evans, E. 2006 Prehistoric defended enclosures in Glamorgan with recommendations for fieldwork: Year 3 report 2619

PRN *03717s* **NAME** *Coed yr Abad Grange* **NGR** *ST074734* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Medieval, Grange, RANK: 1*
SUMMARY *Wood, now called Coed yr Aber, but originally Coed yr Abbot; RCAHMW connect this with a reference in the 17th century by Lhuyd to Abbot's Castle,*

DESCRIPTION *Wood, now called Coed yr Aber, but originally Coed yr Abbot; RCAHMW connect this with a reference in the 17th century by Lhuyd to Abbot's Castle, and suggest that it may have some connection with Greendown Grange (Margam Abbey), with is known to have been connected with Bonvilston. Evans 2003: GGAT 73 Early-Medieval Ecclesiastical Sites Project database*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2004-03-12 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

Evans EM, 2003-04, GGAT 73 Early Medieval Ecclesiastical Sites Project

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PRN *03869s* **NAME** *Redlands Farm, Bonvilston 9* **NGR** *ST082737* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Medieval, Pond, RANK: 1*
SUMMARY *A round pond to the north of the medieval ringwork on what appears to be an artificial terrace above the cwm.*

DESCRIPTION *A round pond to the north of the medieval ringwork on what appears to be an artificial terrace above the cwm. CCW Tir Gofal HE2 (1999-2000)*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES - - *GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03870s* **NAME** *Redlands Farm, Bonvilston 15* **NGR** *ST07767382* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Barn, RANK: 1*
SUMMARY *A barn, partly converted, with end external stair to hayloft shown on OS 1st Edition and Tithe maps.*

DESCRIPTION *A barn, partly converted, with end external stair to hayloft shown on OS 1st Edition and Tithe maps. CCW Tir Gofal HE2 (1999-2000)*

CONDITION
CONDITION: Intact DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03872s* **NAME** *Redlands Farm, Bonvilston 13* **NGR** *ST08077318* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Pond, RANK: 1*
SUMMARY *A pond with no evidence of any specific associations or antiquity.*

DESCRIPTION *A pond with no evidence of any specific associations or antiquity. CCW Tir Gofal HE2 (1999-2000)*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03873s* **NAME** *Redlands Farm, Bonvilston 12* **NGR** *ST08367356* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Field boundary, RANK: 1*
SUMMARY *Second field boundary marked by line of trees running north west from RF2 towards 00386s.*

DESCRIPTION *Second field boundary marked by line of trees running north west from RF2 towards 00386s. CCW Tir Gofal HE2 (1999-2000)*

CONDITION
CONDITION: Damaged DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03875s* **NAME** *Redlands Farm, Bonvilston 10* **NGR** *ST08147370* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Garden terrace, RANK: 1*
SUMMARY *A artificial terrace on the south west side of the cwm to the north of ring work 00368s - the pond RF9 is situated on the south of the terrace. Irregularities in the terrace bank suggest possible house platforms, although they may represent quarrying.*

DESCRIPTION *A artificial terrace on the south west side of the cwm to the north of ring work 00368s - the pond*

RF9 is situated on the south of the terrace. Irregularities in the terrace bank suggest possible house platforms, although they may represent quarrying - at one point what could have been walling was eroding from the bank, but this could equally have been the natural limestone that had eroded. CCW Tir Gofal HE2 (1999-2000)

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03883s* **NAME** *Redlands Farm, Bonvilston 17* **NGR** *ST08607359* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Post-Medieval, Field boundary, RANK: 1*
SUMMARY *A terraced hedge boundary running south east from RF16, its purpose is unclear.*

DESCRIPTION *A terraced hedge boundary running south east from RF16, its purpose is unclear. CCW Tir Gofal HE2 (1999-2000)*

CONDITION
CONDITION: Near intact DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-07-16 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- - GGATE002631, GGATE002632*

SOURCES
Report Graves-Brown, P. 2000 Redlands Farm, Bonvilston, Vale of Glamorgan. HE2 Archaeological Farm Visit Report 2112 HER Search Room
01/Pm desc text/GGAT 67 Tir Gofal/1999-2000/CCW Tir Gofal HE2 data/S16000357

PRN *03949s* **NAME** *Quarry near Nant Talwg, Barry* **NGR** *ST09786818* **COMMUNITY** *Barry*
TYPE *Post-Medieval, Quarry, RANK: 1*
SUMMARY *Quarry of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48*

DESCRIPTION *Quarry of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48 River Valleys Survey (2000).*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-09-01 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- -*

SOURCES

01/Pm Desc Text/Sell S/2000/GGAT 48 River Valleys Survey: Ely and the Vale of Glamorgan

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PRN *03951s* **NAME** *Possible Limekiln, Barry* **NGR** *ST095686* **COMMUNITY** *Rhoose*
TYPE *Post-Medieval, Lime kiln, RANK: 1*
SUMMARY *Limekiln of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48*

DESCRIPTION *Limekiln of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48 River Valleys Survey (2000).*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-09-01 00:00:00

STATUS *None recorded*
CROSS REFERENCES *- -*

SOURCES

01/Pm Desc Text/Sell S/2000/GGAT 48 River Valleys Survey: Ely and the Vale of Glamorgan

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PRN *03952s* **NAME** *Possible Quarry South of Walters Farm, Barry* **NGR** *ST09726872* **COMMUNITY** *Barry*
TYPE *Post-Medieval, Quarry, RANK: 1*
SUMMARY *Quarry of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48*

DESCRIPTION *Quarry of Post-Medieval date, identified from the First Edition OS Six Inch Maps of the study area Ely and the Vale of Glamorgan. GGAT 48 River Valleys Survey (2000).*

CONDITION
CONDITION: Not known DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2003-09-01 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

01/Pm Desc Text/Sell S/2000/GGAT 48 River Valleys Survey: Ely and the Vale of Glamorgan

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PRN *04147s* **NAME** *Ring Ditches, Whitton Cross* **NGR** *ST0776271815, ST0779471797* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Unknown, ring ditch, RANK: -*
SUMMARY *A geophysical survey of the area north of Whitton Cross indicated two ring ditches measuring approximately 28m (E) and 35m (F) in diameter respectively (Atwood 2010).*

DESCRIPTION *A geophysical survey of the area north of Whitton Cross indicated two ring ditches measuring approximately 28m (E) and 35m (F) in diameter respectively. While one ring must be later than the other, it is not possible to establish the chronological relationship on the basis of the magnetic results alone. Ring E appears to have some central features and there are hints of an anomaly shadow in the interior; there is no obvious break in the ditch. Other anomalies suggest pits or short ditch lengths, appended to the ring. There are also features within ring F though offset from the central area and there is a break, or entrance, in the south-east quadrant. Formerly identified as E (ST0776271815) and F (ST0779471797) (Atwood 2010).*

CONDITION
CONDITION: Submerged DESCRIPTION: - RELATED EVENT: E003309 DATE OF ENTRY: 2011-07-04 00:00:00

STATUS *None recorded*
CROSS REFERENCES *Associated with 04148s GGATE003309*

SOURCES
Report Attwood, G 2010 Five Mile Lane Improvements, North of Whitton Cross, Vale of Glamorgan: Geophysical Survey Report 2922 2011/04, HER_MM_02203

PRN *04148s* **NAME** *Ring Ditch, Whitton Cross* **NGR** *ST0778272208* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Unknown, ring ditch, RANK: 0*
SUMMARY *The ring ditch in the northern field of Whitton Cross is approximately 11m in diameter with an entrance on the south-east. Formerly identified as K (Atwood 2010).*

DESCRIPTION *The ring ditch in the northern field of Whitton Cross is approximately 11m in diameter with an entrance on the south-east. Formerly identified as K (Atwood 2010).*

CONDITION
CONDITION: Submerged DESCRIPTION: RELATED EVENT: E003309 DATE OF ENTRY: 2011-07-04 00:00:00

STATUS *None recorded*
CROSS REFERENCES *Associated with 04147s GGATE003309*

SOURCES
Report Attwood, G 2010 Five Mile Lane Improvements, North of Whitton Cross, Vale of Glamorgan: Geophysical

Survey Report 2922 2011/04, HER_MM_02203

PRN *04476s* **NAME** *RAF Rhoose North Eastern Antilanding Trenches* **NGR** *ST 08100 69540* **COMMUNITY** *Rhoose*
TYPE *Modern, , RANK: -*
SUMMARY *A series of purpose built trenches covering farmland 1.7km to the northeast of the airfield.*

DESCRIPTION *A series of purpose built trenches covering farmland 1.7km to the northeast of the airfield. These trench systems, visible on aerial photograph (RAF Medmenham HLA /429/016. 26/03/1942), were designed to be 4 ft. wide flanked with spoil piles to enhance the obstacle (approved method issued by War Office on 27th May 1940) and help prevent the successful landing of enemy glider-borne and airborne forces.*

CONDITION
CONDITION: Near Destroyed DESCRIPTION: - RELATED EVENT: - DATE OF ENTRY: 2014-06-27 00:00:00

STATUS *None recorded*
CROSS REFERENCES - -

SOURCES

AM - 12.04.14 (14:12) - HTML file produced from GGAT HER, GGAT file number 899.
Glamorgan Gwent Archaeological Trust, Heathfield House, Heathfield, Swansea, SA1 6EL.
tel (01792) 655208 , fax (01792) 474696, email her@ggat.org.uk , website www.ggat.org.uk

GLAMORGAN GWENT ARCHAEOLOGICAL TRUST
HISTORIC ENVIRONMENT RECORD
ENQUIRY REPORT - EVENT RECORDS

Enquiry reference number: 4907
Prepared by: Charina Jones, Glamorgan Gwent Archaeological Trust
Produced for: Iestyn Jones, Archaeology Wales Ltd

Search criteria

1km route of Five Mile Lane

PRN *E000738* **NAME** *COED Y CWM, PARTIAL EXCAVATION, 1936* **NGR** *ST0810873779* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Partial excavation* **YEAR** *1936* **ORGANISATION** - **PERSON** *Daniel*
SUMMARY *Partial excavation at COED Y CWM by Daniel*

DESCRIPTION -

COMMENTS *Previously recorded as 40177s*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00369s*

SOURCES

PRN *E000743* **NAME** *WHITTON LODGE ROMAN VILLA, UNSPECIFIED EXCAVATION, 1965-70* **NGR** *ST08117133* **COMMUNITY** *Wenvoe*
TYPE *Unspecified excavation* **YEAR** *1965-70* **ORGANISATION** - **PERSON** *Jarret MG*
SUMMARY *Unspecified excavation at WHITTON LODGE ROMAN VILLA by Jarret MG*

DESCRIPTION -

COMMENTS *Previously recorded as 40184s*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00382s*

SOURCES

PRN *E001481* **NAME** *Archaeological Assessment of Bonvilston and St Nicholas* **NGR** *ST0873* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Desk-based assessment* **YEAR** *1989* **ORGANISATION** *Access Archaeology* **PERSON** -
SUMMARY *Access Archaeology carried out a preliminary desk-based study of HER information in relation to a proposed devlopment in the Bonvilston and St Nicholas area. The assessment concluded that the porposed development area was a region of archaeological interest.*

DESCRIPTION *Access Archaeology carried out a preliminary desk-based study of HER information in relation to a proposed devlopment in the Bonvilston and St Nicholas area. The assessment also included a summary of environmental changes in the Vale of Glamorgan during the Holocene period. The assessment concluded that the porposed development area was a region of archaeological interest (Ferrell 1989).*

COMMENTS *None*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00358s, GGAT00366s, GGAT00367s, GGAT00369s, GGAT00370s, GGAT00372s, GGAT00374s, GGAT00376s, GGAT00696s, GGAT03830s, GGAT03831s*

SOURCES
Report Ferrell, G. 1989 Archaeology in and Around the Bonvilston and St Nicholas Area 1 78-89/01

PRN *E001597* **NAME** *Field visit to Moulton* **NGR** *ST07757009* **COMMUNITY** *Llancarfan*
TYPE *Field visit* **YEAR** *2006* **ORGANISATION** *Glamorgan Gwent Archaeological Trust* **PERSON**
SUMMARY *Field visit undertaken as part of Prehistoric defended enclosures of Glamorgan, year 3.*

DESCRIPTION *Field visit undertaken as part of Prehistoric defended enclosures of Glamorgan, year 3. This report presents the results on the third years work of the Prehistoric defended enclosures GGAT78. A desk-based assessment of known and potential prehistoric defended enclosures in the former county of Glamorgan was undertaken in the lead up to a programme of field work. Identified sites were visited and details including form, current condition and current threats were noted and added to a database already compiled from existing records. The results presented in this report are drawn from fieldwork carried out mainly in the third year of the project, but also some which took place in the first and second years. The principal part of this report is formed of a gazetteer of sites prefaced by an introduction discussing general aspects of their appearance. The project forms part of the pan-Wales project to study these sites. The term prehistoric defended enclosure includes hillforts, coastal promotory forts, ringworks and lowland defended sites.*

COMMENTS
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT03125s*

SOURCES

PRN *E001953* **NAME** *Field visit Redland Standing Stone* **NGR** *ST07817382* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Field visit* **YEAR** *2003* **ORGANISATION** *Glamorgan Gwent Archaeological Trust* **PERSON**
SUMMARY *Field visit to Redland Standing Stone undertaken as part of GGAT 72 Prehistoric funerary and ritual sites project (Pearson and Lewis 2003).*

DESCRIPTION *Field visit undertaken as part of GGAT 72 Prehistoric funerary and ritual sites project. This forms part of the pan-Wales Prehistoric funerary and ritual sites project that intends to visit all funerary and ritual sites of the Neolithic & Bronze Age in Wales and assess their state of preservation in order to ensure their continued preservation (Pearson and Lewis 2003).*

COMMENTS
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00370s*

SOURCES
Report Pearson, A F and Lewis, R 2003 Prehistoric funerary and ritual sites. Blaenau Gwent, Caerphilly, Cardiff, Monmouthshire, Newport, Torfaen and the Vale of Glamorgan 1553 GGAT 72

PRN *E001962* **NAME** *Field visit Redland Standing Stone* **NGR** *ST07817382* **COMMUNITY** *St Nicholas and*

Bonvilston
TYPE *Field visit* **YEAR** *1950* **ORGANISATION** **PERSON** *Jack, W*
SUMMARY *Visit recorded on an OS Record Card.*

DESCRIPTION *Visit recorded on an OS Record Card.*

COMMENTS
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00370s*

SOURCES
Documents OS Record Card

PRN *E001963* **NAME** *Field visit Redland Standing Stone* **NGR** *ST07817382* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Field visit* **YEAR** *1970* **ORGANISATION** **PERSON** *MHB*
SUMMARY *Visit recorded on an OS Record Card.*

DESCRIPTION *Visit recorded on an OS Record Card.*

COMMENTS
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES - *GGAT00370s*

SOURCES
Documents OS Record Card

PRN *E002203* **NAME** *Whitton Mawr - Sully Moors Gas Pipeline DBA* **NGR** *ST077121* **COMMUNITY** -
TYPE *Desk-Based Assessment* **YEAR** *1996* **ORGANISATION** *GGAT* **PERSON** *Maynard, D*
SUMMARY *The Glamorgan-Gwent Archaeological Trust was commissioned by British Gas TransCo to undertake a Desk-Based Assessment, prior to construction of a Gas Pipeline at a site in the Vale Of Glamorgan; due to the archaeological potential of the area both an evaluation and watching brief were recommended. (Maynard 1996).*

DESCRIPTION *The Glamorgan-Gwent Archaeological Trust was commissioned by British Gas TransCo to undertake a Desk-Based Assessment, prior to construction of a Gas Pipeline at a site in the Vale Of Glamorgan. Archaeological finds at the site included (but were not limited to): Prehistoric - A scatter of Flint waste, possibly dating to the Mesolithic period. Other finds of Flint were were from the Neolithic & Bronze Age periods. - A group of Barrows of Bronze Age date. Early Medieval / Medieval - Scatters of Medieval pottery. Study of the available sources of information has indicated that the pipeline route passes close to several sites of archaeological interest. The limits of these sites are not presently known, and it is possible that archaeological deposits exist on the route of the pipeline. The western end of the pipeline passes within 50m of two Iron Age / Roman Age settlement sites, and within 100m of an undated burial site. In order to determine the nature of the archaeological resource in this section of the route, it is recommended that an archaeological Evaluation be carried out prior to the construction of the pipeline. The Evaluation should be carried out on the section between approximately ST 078 721 and ST 086 714. The results of the Evaluation will be used to devise an appropriate mitigation strategy. Wenvoe Castle Gardens are included in the provisional ICOMOS/Cadw Register of Historic Parks and Gardens. It is noted that the Vale Of Glamorgan Draft Deposit Local Plan does not permit developments which 'would adversely affect the character, appearance or setting of designed landscapes, parks or gardens of historic, cultural, aesthetic, archaeological or botanical importance'. Cadw: Welsh Historic Monuments may wish to be consulted concerning the section of pipeline crossing Wenvoe Castle Gardens. It is recommended that the construction of the pipeline is the subject of an archaeological Watching Brief. Monitoring of the topsoil strip will determine whether additional work is necessary. It is further suggested that, if possible, the easement width is reduced in the vicinity of the known archaeological site at Old Court, Biglis (Maynard 1996).*

COMMENTS *None*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES *E002204, E002205, E002206 GGAT02881s, GGAT00578s, GGAT05079s, GGAT05080s,*

GGAT05081s, GGAT00382s, GGAT05078s, GGAT05082s, GGAT02430.5s

SOURCES
Report Maynard, D 1996 Whitton Mawr - Sully Moors Gas Pipeline, Desk-Based Assessment 395 96/01

PRN *E002204* **NAME** *Whitton Mawr - Sully Moors Gas Pipeline WB* **NGR** *ST077121* **COMMUNITY** -
TYPE *Watching Brief* **YEAR** *1997* **ORGANISATION** *GGAT* **PERSON** *Locock, M*
SUMMARY *The Glamorgan-Gwent Archaeological Trust was commissioned by British Gas TransCo to undertake a Watching Brief for the construction of a Gas Pipeline in the Vale Of Glamorgan, running from Whitton Mawr to Sully Moors (Locock 1997)..*

DESCRIPTION *The Glamorgan-Gwent Archaeological Trust was commissioned by British Gas TransCo to undertake a Watching Brief for the construction of a Gas Pipeline in the Vale Of Glamorgan, running from Whitton Mawr to Sully Moors. One sherd of Roman pottery was recovered from the route. The Desk-Based study had shown that the intended route ran close to several known sites, but had limited direct impact. This Watching Brief has confirmed that the impact is small (Locock 1997).*

COMMENTS *None*
ARTEFACTS
TYPE: sherd MATERIAL: pottery PERIOD: Roman DESCRIPTION: 1 sherd of Roman pottery was recovered from the route.

CROSS REFERENCES *E002203, E002205, E002206*

SOURCES
Report Locock, M 1997 Whitton Mawr - Sully Moors Gas Pipeline, Watching Brief 490 97/01

PRN *E003134* **NAME** *St Athan* **NGR** *ST00456795* **COMMUNITY** *St Athan*
TYPE *Evaluation* **YEAR** *2010* **ORGANISATION** *Wessex Archaeology* **PERSON** -
SUMMARY *Wessex Archaeology were commissioned by Entec UK, acting on behalf of Metrix Ltd, Welsh Assembly Government and the Ministry of Defence to undertake an archaeological field evaluation, in support of proposed planning applications for a redevelopment of land located within and surrounding area of MoD St Athan.*

DESCRIPTION *Wessex Archaeology were commissioned by Entec UK, acting on behalf of Metrix Ltd, Welsh Assembly Government and the Ministry of Defence to undertake an archaeological field evaluation, in support of proposed planning applications for a redevelopment of land located within and surrounding area of MoD St Athan. A total of 187 trenches were excavated within five areas, these were: 71 trenches at Batslays 25 trenches at Picketston 3 trenches at Waycock Cross 66 trenches at Tremains Farm 22 trenches within MoD St Athan These evaluations revealed evidence for Bronze Age, Late Iron Age, Romano-British and Medieval activity.*

COMMENTS *None*
ARTEFACTS
TYPE: sherd MATERIAL: pottery PERIOD: Prehistoric DESCRIPTION: Grog-tempered ware
TYPE: sherd MATERIAL: pottery PERIOD: Iron Age DESCRIPTION: Iron Age coarseware
TYPE: sherd MATERIAL: pottery PERIOD: Roman DESCRIPTION: Oxon colour coated ware
TYPE: sherd MATERIAL: pottery PERIOD: Roman DESCRIPTION: Oxidised ware
TYPE: sherd MATERIAL: pottery PERIOD: Roman DESCRIPTION: Greyware
TYPE: sherd MATERIAL: pottery PERIOD: Roman DESCRIPTION: Black Burnished ware
TYPE: sherd MATERIAL: pottery PERIOD: Medieval DESCRIPTION: Medieval sandy ware
TYPE: sherd MATERIAL: pottery PERIOD: Medieval DESCRIPTION: Medieval coarseware
TYPE: sherd MATERIAL: pottery PERIOD: Post-medieval DESCRIPTION: Redware
TYPE: sherd MATERIAL: pottery PERIOD: Post-medieval DESCRIPTION: North Devon gravel-tempered ware
TYPE: sherd MATERIAL: pottery PERIOD: Post-medieval DESCRIPTION: Stoneware
TYPE: sherd MATERIAL: pottery PERIOD: Post-medieval DESCRIPTION: Refined whiteware
TYPE: sherd MATERIAL: pottery PERIOD: Unknown DESCRIPTION: Calcareous ware
TYPE: fragment MATERIAL: bone PERIOD: Roman DESCRIPTION: horse bone
TYPE: fragment MATERIAL: bone PERIOD: Roman DESCRIPTION: cattle bone
TYPE: fragment MATERIAL: bone PERIOD: Roman DESCRIPTION: sheep/goat
TYPE: fragment MATERIAL: bone PERIOD: Roman DESCRIPTION: pig bone
TYPE: fragment MATERIAL: bone PERIOD: Roman DESCRIPTION: dog bone
TYPE: fragment MATERIAL: bone PERIOD: Medieval DESCRIPTION: cattle bone
TYPE: fragment MATERIAL: bone PERIOD: Post-medieval DESCRIPTION: pig bone
TYPE: fragment MATERIAL: bone PERIOD: Unknown DESCRIPTION: cattle bone

TYPE: fragment MATERIAL: bone PERIOD: Unknown DESCRIPTION: sheep/goat bone
TYPE: fragment MATERIAL: bone PERIOD: Unknown DESCRIPTION: pig bone

CROSS REFERENCES - *GGAT04114s, GGAT04107s, GGAT04117s, GGAT00481s, GGAT04118s*

SOURCES
Report Wessex Archaeology 2010 Defence Technical College and Aerospace Business Park, St Athan, Glamorgan: Archaeological Evaluation Report 2815 2010/07
Report (digital) Wessex Archaeology 2010 MoD St Athan HER_MM_0183, HER Archive Room Box 2

PRN *E003308* **NAME** *A4226 Five Mile Lane Improvements, Barry: Geophysical Survey*
NGR *ST080713* **COMMUNITY** *Llancarfan*
TYPE *Geophysical Survey* **YEAR** *2010* **ORGANISATION** *GSB Prospection* **PERSON**
SUMMARY *GSB Prospection was commissioned by AC Archaeology on behalf of Soltys Brewster Consulting Ecology to undertake a geophysical survey of an area approximately 3km northwest of Barry and 1km east of Walterson (Tanner 2010).*

DESCRIPTION *GSB Prospection was commissioned by AC Archaeology on behalf of Soltys Brewster Consulting Ecology to undertake a geophysical survey of an area approximately 3km northwest of Barry and 1km east of Walterson. The site is either side of the A4226 and is bounded to the north by the road from Walterston to Dyffryn and the A48/A4232 junction. Aims were to locate and characterise any anomalies of possible archaeological interest, and numerous ditches were detected south of the Romano-British farmstead. Several enclosures, a number of weaker linear features, small pits and a former quarry were detected (Tanner 2010).*

COMMENTS *None*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES *E003309 GGAT00382s*

SOURCES
Report Tanner TJ 2010 Five Mile Lane Improvements, Barry: Geophysical Survey 2921 2011/04

PRN *E003309* **NAME** *A4226 Five Mile Lane Improvements, North of Whitton Cross Geophysical Survey*
NGR *ST078718* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Geophysical Survey* **YEAR** *2010* **ORGANISATION** *GSB Prospection* **PERSON** -
SUMMARY *GSB Prospection was commissioned by AC Archaeology on behalf of Soltys Brewster Consulting Ecology to undertake a geophysical survey of an area approximately 3km northwest of Barry and 1km east of Walterton (Attwood 2010).*

DESCRIPTION *GSB Prospection was commissioned by AC Archaeology on behalf of Soltys Brewster Consulting Ecology to undertake a geophysical survey of an area approximately 3km northwest of Barry and 1km east of Walterton. The site is to the east of the A4226. Aims were to locate and characterise any anomalies of possible archaeological interest, and two ring ditches, a third smaller ring, an increase in magnetic levels in the southern half of the field (perhaps due to ploughing), and a rectilinear pattern possibly indicating Romano-British features were recorded (Attwood 2010).*

COMMENTS *None*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES *E003308 GGAT00382s, GGAT04147s , GGAT04148s*

SOURCES
Report Attwood, G 2010 Five Mile Lane Improvements, North of Whitton Cross, Vale of Glamorgan: Geophysical Survey Report 2922 2011/04, HER_MM_02203

PRN *E003774* **NAME** *Dyffryn Park Vale of Glamorgan* **NGR** *ST0796973820* **COMMUNITY** *St Nicholas and Bonvilston*
TYPE *Desk based assessment* **YEAR** *1992* **ORGANISATION** *Arbour International* **PERSON** -
SUMMARY *This report is a preliminary study of archaeological remains in the area of the development scheduled at Dyffryn Park.The report does not make any assessment of the impact of the proposed development on the*

archaeology existing on the site.

DESCRIPTION *Arbour International undertook a report on the archaeology extant in Dyffryn Parc prior to its proposed development .It contains a fairly detailed description of the numerous sites dating from the earliest periods of human activity;from Neolithic to Medieval and later.Its most important site is the Neolithic Chambered Tomb at Tinkinswood in which were found the remains of 50 people.The report does not make any assessment of the impact of the proposed development on the archaeology existing on the site. It concludes that further exploration of the area's archaeology would be required before future development was undertaken.*

COMMENTS *None*
ARTEFACTS
TYPE: None recorded MATERIAL: - PERIOD: - DESCRIPTION: -

CROSS REFERENCES -

SOURCES
Report Arbour Internaional 1992 Archaeology within and around the Parc Dyffryn development area. 57 92/05

AM - 12.04.14 (14:12) - HTML file produced from GGAT HER, GGAT file number 899.
Glamorgan Gwent Archaeological Trust, Heathfield House, Heathfield, Swansea, SA1 6EL.
tel (01792) 655208 , fax (01792) 474696, email her@ggat.org.uk , website wwwggat.org.uk

Archaeology Wales

APPENDIX II:

WSI (Parsons Brinckeroff)

PARSONS BRINCKERHOFF

September 2014

FIVE MILE LANE ROAD IMPROVEMENTS, BARRY: ARCHAEOLOGICAL WATCHING BRIEF WRITTEN SCHEME OF INVESTIGAITON

Welsh Government

[3512646D-HHC]

Final

Five Mile Lane Road Improvements, Barry

Archaeological Watching Brief Written Scheme of investigation

Prepared for
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

Llywodraeth Cymru
Parc Cathays
Caerdydd
CF10 3NQ

Prepared by
Parsons Brinckerhoff
Manchester Technology Centre
Oxford Road,
Manchester
M1 7ED

Report Title	**:**	**Five Mile Lane Road Improvements, Barry**
Report Status	**:**	**Final**
Job No	**:**	**3512646D-HHC**
Date	**:**	September 2014

DOCUMENT HISTORY AND STATUS

Document control			
Prepared by	Louise Parkinson	**Checked by** *(technical)*	Alison Plummer
Approved by		**Checked by** *(quality assurance)*	

Revision details			
Version	**Date**	**Pages affected**	**Comments**
1.0			

CONTENTS

List of Figures

LIST OF ABBREVIATIONS

GGAT	Glamorgan and Gwent Archaeological Trust
HER	Historic Environment Record
PB	Parsons Brinckerhoff
RAMS	Risk Assessment Method Statement
WSI	Written Scheme of Investigation

1 INTRODUCTION

1.1 Project Background

1.1.1 This Written Scheme of Investigation (WSI) has been prepared by Parsons Brinckerhoff (PB) in respect of a proposed Scheme to improve the A4226 Five Mile Lane, west of Cardiff and north-west of Barry, between Weycock Cross and Sycamore Cross (Figure 1).

1.1.2 The route currently fails to meet appropriate highway standards for a 60mph road and therefore a number of improvements will be required to upgrade it. The existing A4226 is a single carriageway road, in a rural location, varying in width between 6.0 and 7.3m. The route is classified and maintained as an 'A' road by the local authority.

1.1.3 The proposals include making use of the existing and already upgraded highway immediately off the A48 at Sycamore Cross. The proposed alignment will go offline at a point approximately 1.5km from the Sycamore Cross signalised junction and follows a southerly course running parallel with the existing A4226. The proposed alignment re-joins the existing A4226 Five Mile Lane just north of the existing River Weycock bridge.

1.1.4 The works will be undertaken by the Welsh Government in association with Vale of Glamorgan District Council, which is committed to improving access to the Cardiff International Airport and the St Athan Enterprise Zone in order to encourage economic development and inward investment. It will also encourage wider use of the airport.

1.2 Consultation

1.2.1 PB has carried out a Scoping Report of the proposed option (April 2014) in which an outline discussion of the impact of the Scheme on known and potential heritage assets was presented. Following this consultation was undertaken with the acting Planning Archaeologist at Glamorgan and Gwent Archaeological Trust (GGAT). During this process it was established that a proposed programme of geotechnical ground investigation involving test-pitting activities will require an archaeological watching brief. This document presents the methodology for the watching brief.

1.3 Summary of Archaeological and Historical Background

1.3.1 There is evidence within the Scheme area for archaeological and built heritage assets spanning the Prehistoric to Post-medieval periods.

1.3.2 Cottrell Park Standing Stone is of presumed prehistoric date. It is a Grade II listed building. No other sites are known to date to this period although a fallen monolith (standing stone) at Redland Park may be of this period. Cropmarks recorded to the south- east may also date to this period.

1.3.3 Of the three Romano-British archaeological sites recorded, Whitton Lodge Roman Villa is a complex site that is recorded over an extensive area. This includes a villa and extensive cropmark enclosures believed to be broadly contemporaneous. Although not a statutory designated asset it is considered by cadw to be of national importance. Several inhumation burials have been discovered in the Whitton Lodge area. These may be of Romano-British date and may indicate the location of more extensive cemetery sites. Two further sites at Whitton Lodge are the location of coins, pottery and human remains.

1.3.4 There are seven archaeological sites recorded from the Post-medieval period. Five are limekilns and one is a quarry and these are known from historical maps. A further site comprises the location of a hoard of 17th century coins. Two historic buildings are recorded in the study area (Sheepcourt Cottage and a post- medieval barn) but neither is Listed.

1.3.5 One historic landscape area has been identified in the study area, the east extent of the Llancarfan Character Area. This comprises the historic landscape area of Bonvilston amalgamated fieldscape, designated by Cadw and the Countryside Council for Wales. It represents an area of land that is largely a Post-medieval agricultural landscape, with some agri-industrial features (limekilns etc.), located within the historic parish of Bonvilston. Roads bound the character area to the east, where the A4226 runs north to south from the A48, and to the west, where a more minor road runs north to southwest from the A48 down to the junction at Pancross.

1.3.6 It is anticipated that additional detailed research will identify further assets along the route and the potential for buired archaeological remains.

2 PURPOSE OF THE WATCHING BRIEF

2.1 Aims and Objectives

2.1.1 The following aims, objectives and methodology are set out in accordance with the IfA's Standard and Guidance for an Archaeological Watching Brief (updated 2008). The overall aims of the watching brief are:

- to establish the presence or otherwise of archaeological deposits/features;
- to establish the nature of the deposits;
- to preserve by record any archaeological deposits encountered, and
- to allow the presence of significant remains to be brought to the attention of all interested parties (statutory and otherwise).

2.2 Methodology

2.2.1 The scope of works will include the excavation of a total of 19 test pits for the purposes of geotechnical ground investigation works. Test Pits 207 to 211 will be located close to the site of Whitton Lodge Roman Villa, and a borehole (BH103) will also be bored close to this asset.

2.2.2 The archaeological watching brief will adopt the following approach:

- **Rapid Research:** site familiarisation to include a brief appraisal of the known historical and archaeological background to the site and will include consultation with the HER where necessary;
- **Fieldwork:** on-site monitoring of the test pits (19 in number);
- **Borehole Logs:** examination of the boreholes logs, and with particular reference to Borehole 103.
- **Reporting:** the production of a report and archive following the completion of the stages above.

Rapid Research

2.2.3 The rapid research will provide an outline archaeological and historical context for the results of the watching brief. It is anticipated that historic mapping and the Historic Environment Record (HER) will be consulted as appropriate.

2.2.3 At the start of work (immediately before fieldwork commences) an OASIS online record *http://ads.ahds.ac.uk/project/oasis/* will be initiated and key fields completed on details, location and creators forms.

Fieldwork

2.2.4 The on-site monitoring will comprise the observation and recording of the location, extent and character of any surviving archaeological features and/or deposits exposed within the test pits. The monitoring will include the detailed investigation of any subsoil horizons, the accurate recording of all archaeological horizons and features, and any artefacts retrieved during the monitoring.

2.2.5 Machine stripping will be undertaken to an agreed standard, using a toothless ditching bucket, and monitored by the archaeologist. On areas that are cleared the exposed sub-soil or archaeological horizon will be cleaned by hand immediately after machine stripping and any archaeological deposits or negative features planned. Topsoil should be stored at a safe distance away from the test pits, so as to limit the potential for spoil slippage or collapse into the excavation area.

2.2.6 Any archaeological features present will be sample excavated (pits and postholes half-sectioned, linear features no more than 10%, and extensive layers subject to partial removal).

2.2.7 The recording of important or complex features may require the geotechnical ground investigations works to be delayed by up to an hour, and in addition it may be necessary to call in further archaeological support if a feature of high importance is identified, or a high density of archaeology is present. This would be undertaken following consultation with the GGAT Planning Archaeologist and the client's representative.

2.2.8 Recording will comprise a full description and classification of features present on *pro-forma*. Recording will be undertaken stratigraphically with test pit and context numbers applied as appropriate. A location plan of the test pits and boreholes will be provided by the client, and this will be annotated and cross-referenced to correspond with the site archive.

2.2.9 Under normal circumstances archaeological features will be planned at 1:20 and sections drawn at 1:10. Levels will be taken for all significant features. The site drawings will be processed through an industry standard GIS or CAD package for the production of final drawings.

2.2.10 A photographic record will be compiled and a full index produced detailing as a minimum feature number, location, and direction of shot. A high megapixel digital camera will be utilised, and a photographic scale will appear in all images. The photographic record will include both general and feature specific photographs, a photographic scale (including north arrow) will be included in the case of detailed photographs. A selection of images will be used to illustrate the report.

Human Remains

2.2.11 Any human remains uncovered will be left *in-situ,* covered and protected. The local coroner will be informed immediately, and if removal is essential the exhumation will require the provision of a Department of Constitutional Affairs license under section 25 of the Burial Act of 1857. No investigation beyond establishing the date and the character of the remains will be undertaken.

2.2.12 Any gold or silver artefacts recovered during the course of the investigations will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Suitable security will be employed to protect the finds from theft prior to removal from site. Any treasure will be reported to the Portable Antiquities Scheme Finds Liaison Officer.

Finds

2.2.13 All finds will be lifted and processed in accordance with the United Kingdom Institute for Conservation (UKIC) First Aid for Finds, 1998, and the recipient museums guidelines. All finds will be retained unless otherwise agreed with the GGAT Planning Archaeologist, although certain classes of building material can be discarded. All finds, where appropriate, will be washed. The landowner will be consulted as to consent in writing for finds to be deposited with the recipient museum.

2.2.14 Archive storage will be agreed with relevant receiving museum prior to fieldwork taking place.

2.2.15 Any finds assessment reports will be undertaken by a specialist with suitable regional knowledge.

Environmental Samples

2.2.16 Sampling of interpretable and datable archaeological deposits will be undertaken for the purposes of technological, pedological and chronological analysis where appropriate.

2.2.17 Environmental samples (bulk samples of 40 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). An assessment of the environmental potential of the site will be undertaken through the examination of suitable deposits by a palaeoecological specialist, who will examine the potential for further analysis. The assessment would include soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosoils and cut features. In addition, the samples would be assessed for plant macrofossils, insect, molluscs and pollen from waterlogged deposits. The costs for the palaeoecological assessment are defined as a contingency and will only be called into effect if good deposits are identified and will be subject to the agreement of the Planning Archaeologist and the client.

2.2.18 Advice will also be sought as to whether a soil micromorphological study or any other analytical techniques will enhance the understanding of the site formation processes, including the amount of truncation to buried deposits and the preservation of deposits within negative features.

Report and Archive

2.2.19 In the event that the client requests an interim statement it should be noted that it is unlikely that a full set of final illustrations will be supplied, but rather copies of the site archive. The final report will be submitted within four weeks from the end of fieldwork to the client and other authorised stakeholders. The report will also be submitted to the GGAT Planning Archaeologist and a copy to the HER. It will present the following information:

- A summary statement of the findings;
- The background to the project including a site location plan related to the national grid;
- An outline of the methodology;
- A brief historical background to the Scheme Area;
- A detailed account of the archaeological features encountered during the watching brief;
- A discussion of the archaeology in a local and regional context;
- Location plan of monitored areas and/or other fieldwork in relation to the proposed development. At least two corners of each area shall be given 10 figure grid refer A section/s drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- Copies of photographs, and other illustrations as appropriate;
- All technical reports;
- A copy of this WSI, and indications of any agreed departure from that design;
- The report will also include a complete bibliography of sources from which data has been derived.

Archive

2.2.20 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current Institute for Archaeologists guidelines (IfA 2009). The paper archive will be deposited with GGAT.

Other Matters

2.2.21 An HER summary sheet will also be completed within four weeks (copy attached with brief) and supplied to the Historic Environment officer. This will be completed in digital form (copy can be emailed). This will include a plan showing the position of the watching brief.

2.2.22 All parts of the OASIS online form will be completed for submission to the HER. This should include an uploaded pdf version of the entire report (a paper copy should also be included with the archive).

Timetable

2.2.23 The duration of the watching brief will be dependent upon the progress of the groundwork contractor. The current estimate is four days.

2.2.24 It is anticipated that the report will be compiled within four weeks of completion of the fieldwork.

2.2.25 Normal practice is to deposit the site archive within six months of completion of the project.

Project Team

2.2.26 The archaeological fieldwork will be directed by the Archaeology and Heritage Principal Consultant at Parsons Brinckerhoff, **Alison Plummer, BSc (Hons), MIfA**. Alison has 28 years of archaeological fieldwork and archaeological project management, and Charlotte has ten years of experience in fieldwork.

Health and Safety

2.2.27 A risk assessment method statement (RAMS) will be compiled prior to undertaking the fieldwork. The archaeological programme of work will also be subject to the ground investigation contractors risk assessment and safe working practice.

3 STANDARDS AND GUIDANCE

Institute for Archaeology, 2008 *Standard and Guidance for an archaeological watching brief*, Reading

Institute for Archaeology, 2008 *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials*, Reading

Institute for Archaeology, 2009 *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*, Reading

Institute for Archaeology, 2013 *Standard and Guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment*, Reading

Planning Policy Wales, 2014, *Chapter 6: Conserving the Historic Environment*, Cardiff

Welsh Office, *Planning and the Historic Environment: Archaeology, Welsh Circular 60/96*, Cardiff

FIGURES

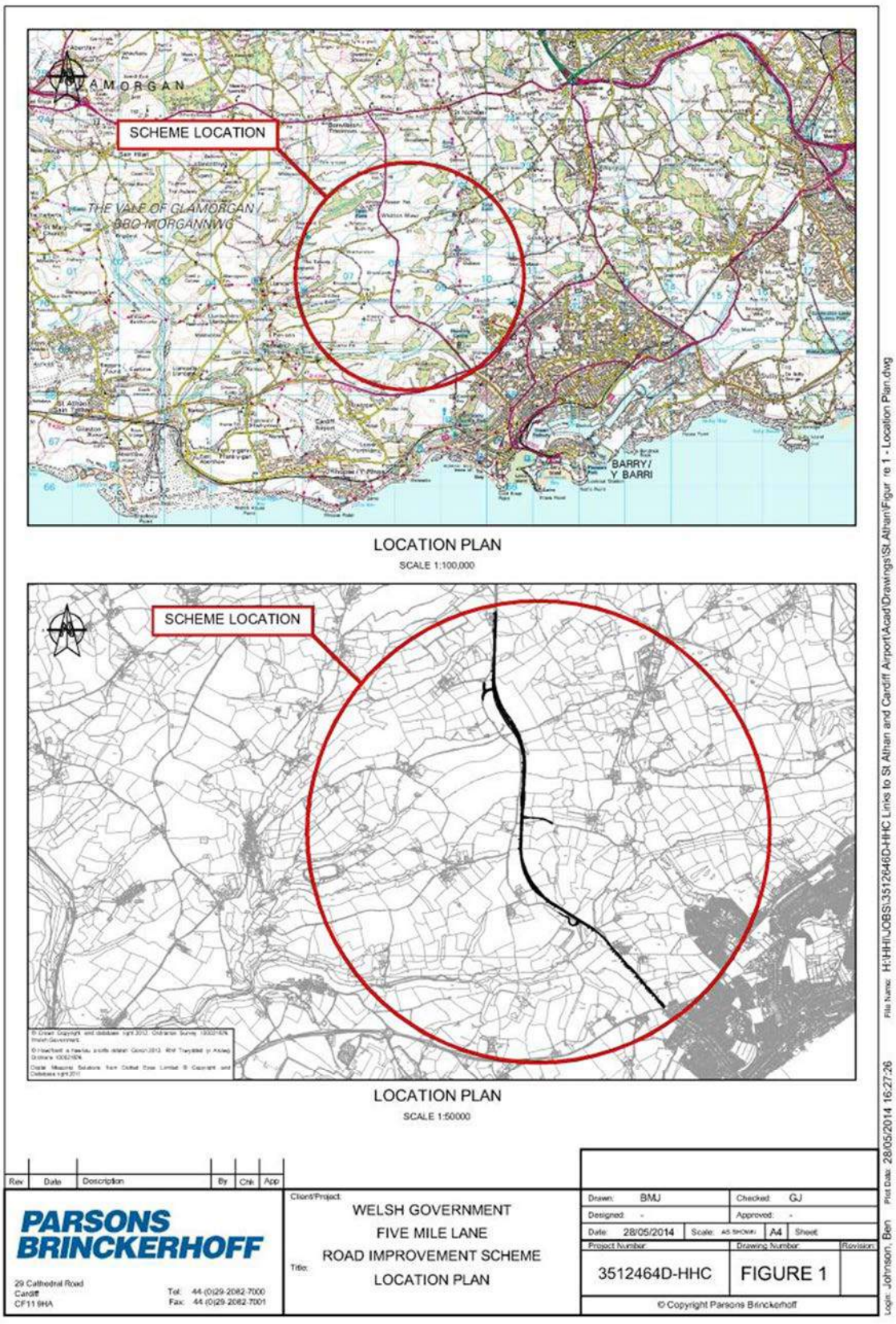
SCHEME LOCATION
THE VALE OF GLAMORGAN / BRO MORGANNWG
BARRY / Y BARRI
LOCATION PLAN
SCALE 1:100,000
SCHEME LOCATION
LOCATION PLAN
SCALE 1:50000
Rev
Date
Description
By
Chk
App
PARSONS BRINCKERHOFF
29 Cathedral Road
Cardiff
CF11 9HA
Tel: 44 (0)29 2082 7000
Fax: 44 (0)29 2082 7001
Client/Project:
WELSH GOVERNMENT
FIVE MILE LANE
ROAD IMPROVEMENT SCHEME
Title:
LOCATION PLAN
Drawn: BMJ
Checked: GJ
Designed: -
Approved: -
Date: 28/05/2014
Scale: AS SHOWN
A4
Sheet
Project Number
Drawing Number
Revision
3512464D-HHC
FIGURE 1
© Copyright Parsons Brinckerhoff
Login: Johnson, Ben
Plot Date: 28/05/2014 16:27:26
File Name: H:\HH\JOBS\3512646D-HHC Links to St Athan and Cardiff Airport\Acad\Drawings\St Athan\Figur re 1 - Location Plan.dwg

Figure 2: Location of Test Pits and Boreholes

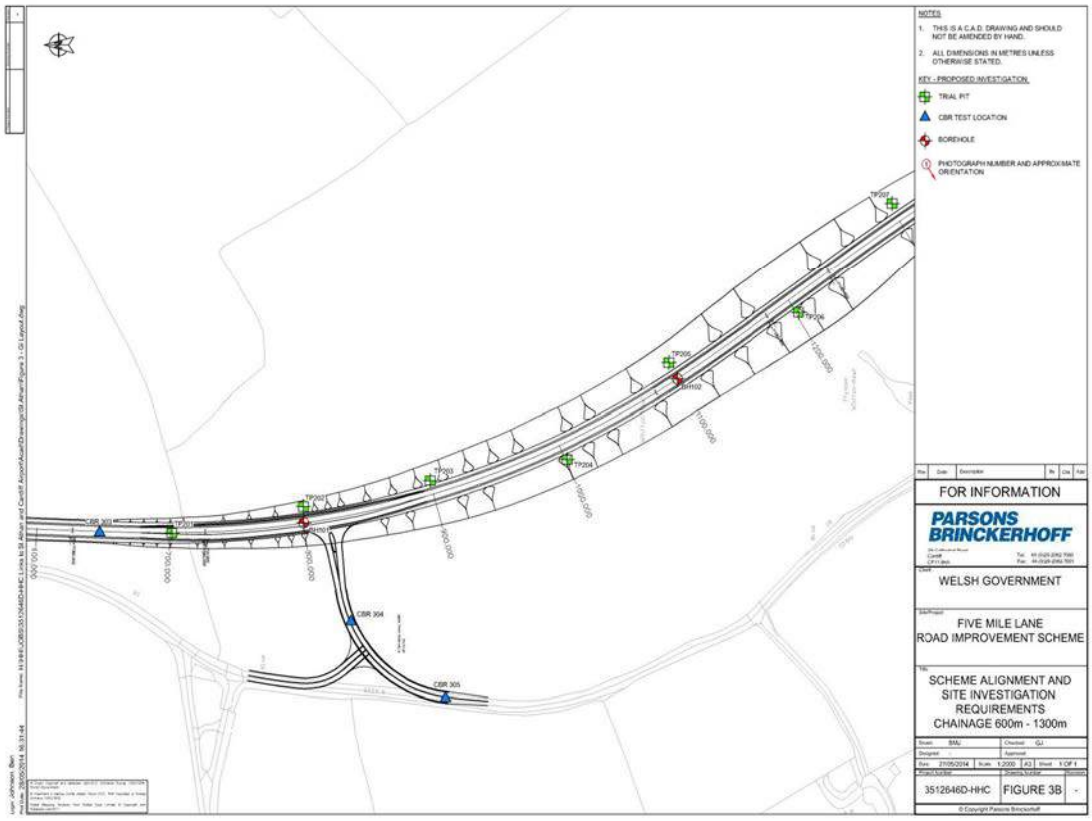

Figure 3: Location of Test Pits and Boreholes

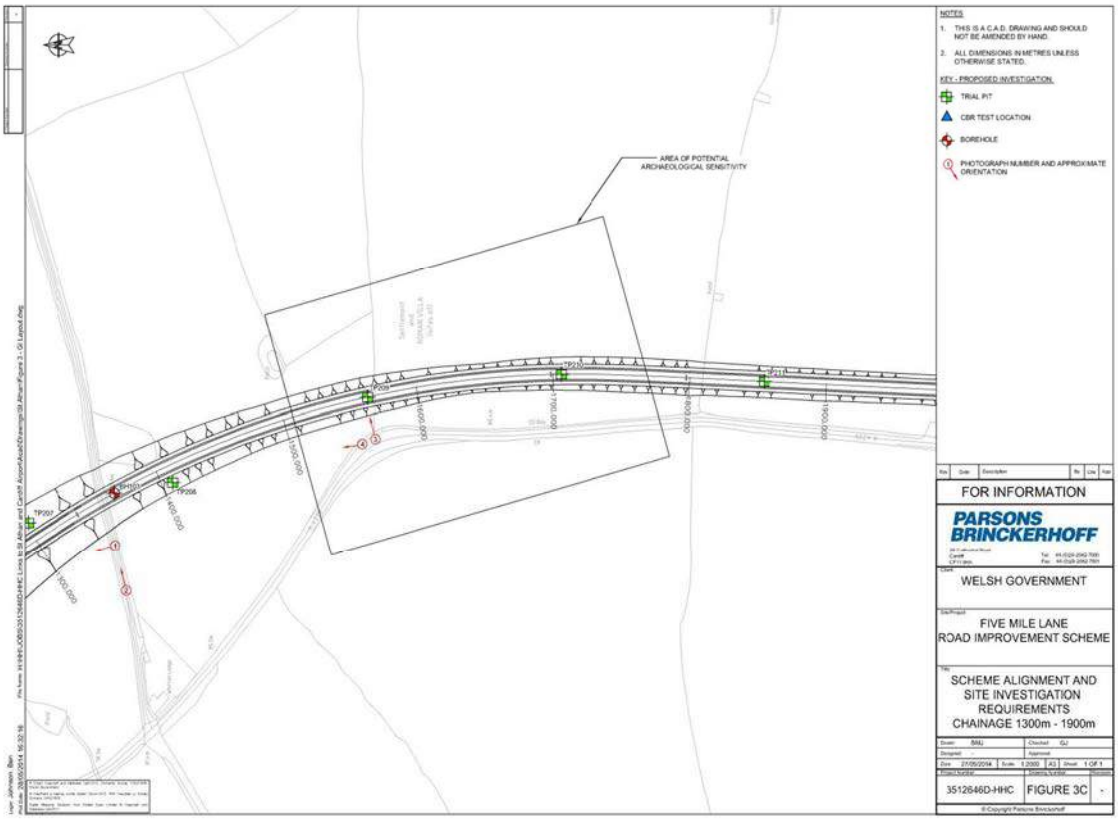

Figure 4: Location of Test Pits and Boreholes

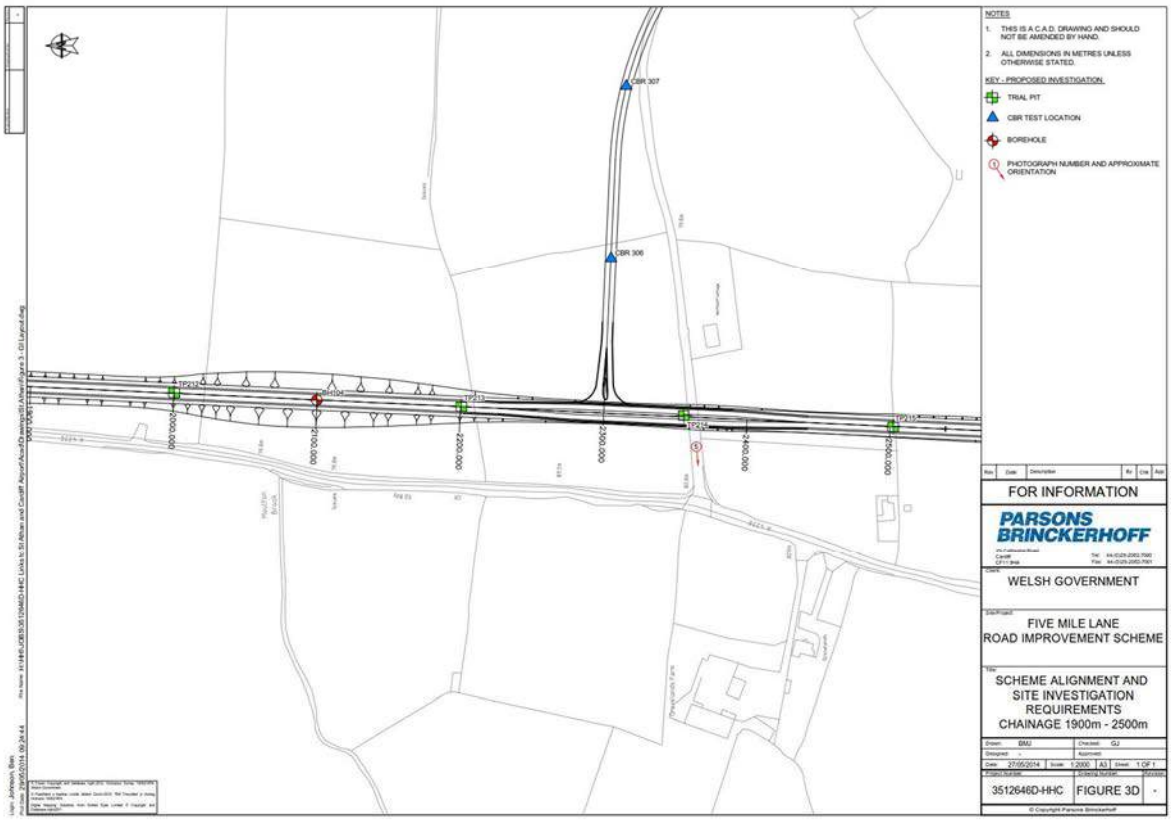

Figure 5: Location of Test Pits and Boreholes

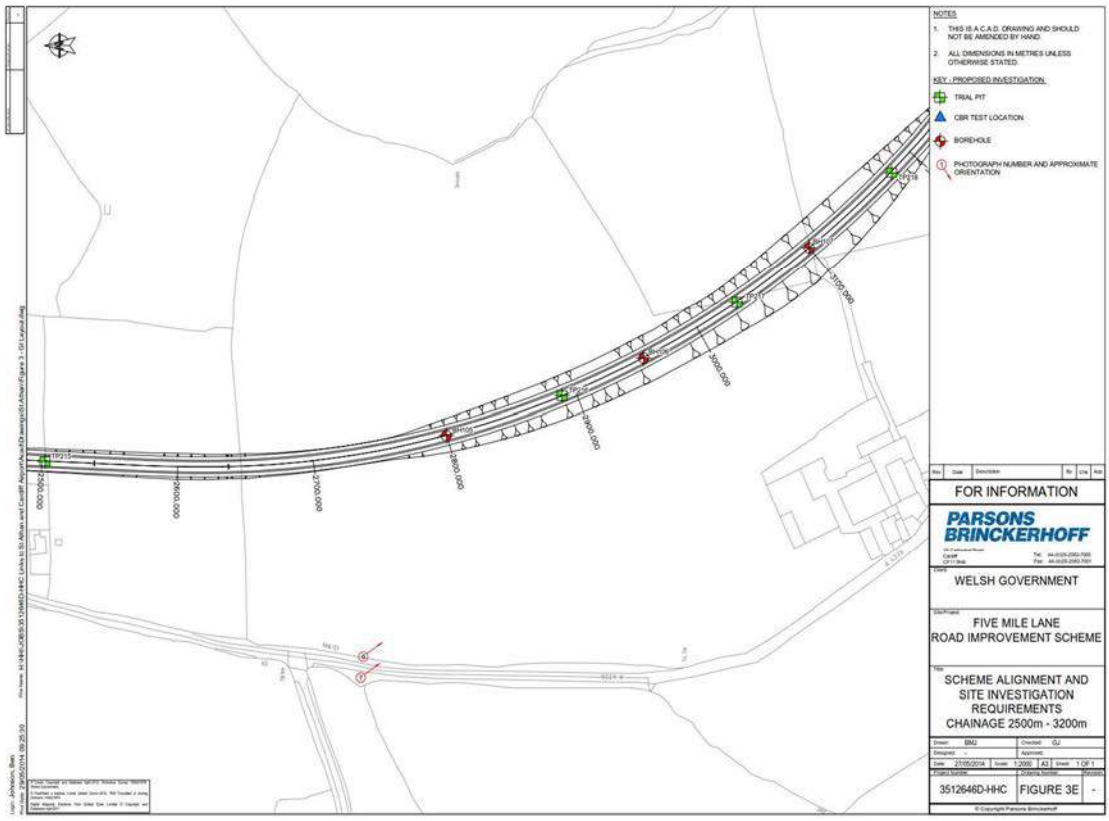

Figure 5: Location of Test Pits and Boreholes

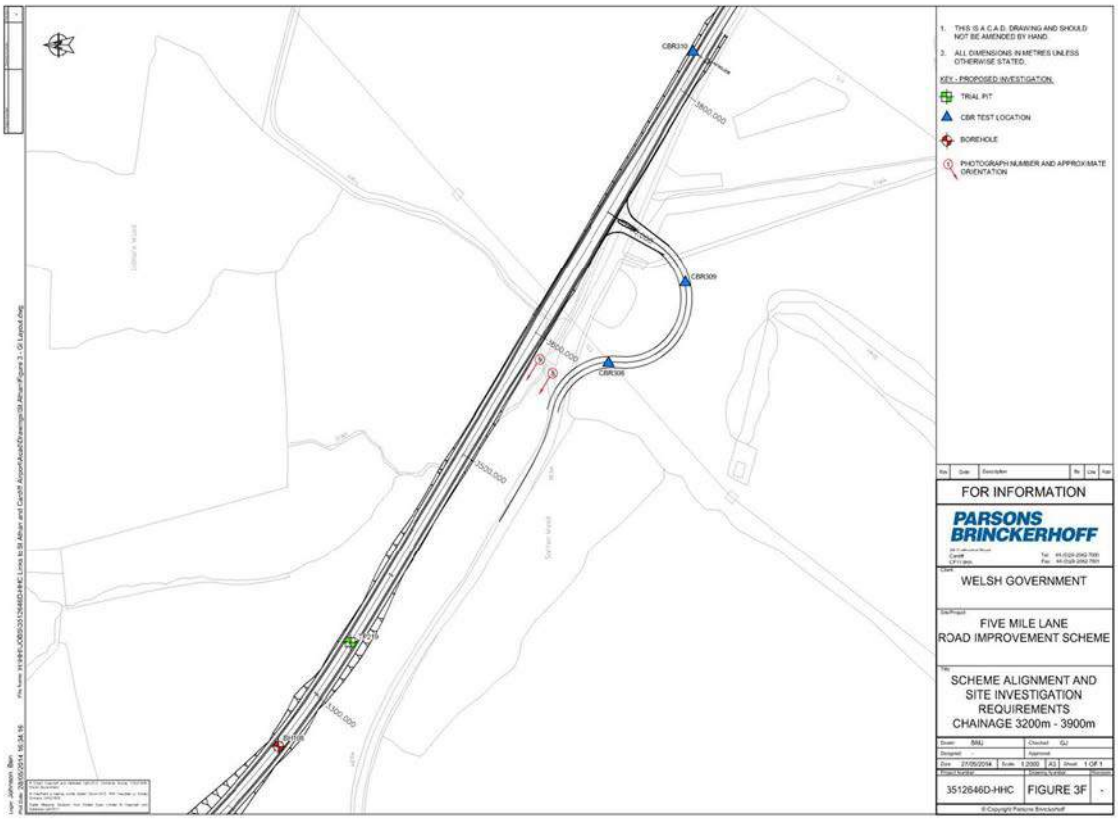

Figure 6: Location of Test Pits and Boreholes

Archaeology Wales

APPENDIX III:

Test Pit and Borehole Logs
(CC Ground Investigations Ltd)

CC GROUND INVESTIGATIONS LTD

ROTARY BOREHOLE LOG

Telephone: 01452 739165 , Fax: 01452 739220 , Email: info@ccground.co.uk

Borehole No. **BH101**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307784 N 172062	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 90.07mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 18/11/2014 End: 21/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
								Soft greyish brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	89.87	
		B D ES	0.30 - 0.60 0.30					Soft orangish brown mottled grey slightly sandy CLAY with occasional rootlets.	(0.40)		
		D	0.60						0.60	89.47	
1		B	0.80 - 1.20					Firm orangish brown slightly sandy slightly gravelly CLAY with a high cobble content. Gravel is angular to subangular fine to coarse limestone. Cobbles are limestone.			1
		B CPT	1.20 - 1.70 1.20 - 1.65	C 12					(1.50)		
2									2.10	87.97	2
		CPT	2.20 - 2.41	C*238				Very dense grey and orangish brown very clayey very gravelly COBBLES. Gravel is very angular to angular medium to coarse limestone. Cobbles are limestone.	(0.30)		
		C	2.40 - 2.80		C	98% 50% 25%		Medium strong grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely and closely spaced planar and undulating rough.	2.40	87.67	
		CS	2.65 - 2.75					2.45-2.50m: Subvertical undulating rough discontinuity with orangish brown staining on discontinuity surfaces.	(0.50)		
		C CPT	2.80 - 3.20 2.80 - 2.93	C*272	C	73% 45%		2.50-2.59m: Extremely weak.	2.90	87.17	
3		CS	3.00 - 3.10			0%		2.65-2.75m: Subvertical undulating rough discontinuity with orangish brown staining on discontinuity surfaces.	3.00	87.07	3
		C	3.20 - 4.00			100% 75% 21%			(0.44)		
								Stiff dark grey calcareous CLAY.	3.44	86.63	
					C			Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	3.50	86.57	× × ×
								3.10-3.20m: Non intact, recovered as angular to subangular medium to coarse gravel.	3.56	86.51	
		CS	3.84 - 4.00					3.35-3.44m: Subvertical undulating rough discontinuity with orangish brown staining on discontinuity surfaces.	3.68	86.39	
4		C CPT CS	4.00 - 5.00 4.00 - 4.15 4.18 - 4.33	C*750	C	100% 78% 63%		Medium strong locally weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal closely spaced undulating rough.	(0.84)		4
								Extremely weak orangish brown calcareous SILTSTONE. Discontinuities are subhorizontal extremely closely spaced undulating rough.	4.52	85.55	
								Medium strong grey LIMESTONE. Discontinuity set 1; Subhorizontal very closely and closely spaced undulating rough. Discontinuity set 2; 2 no. subvertical extremely closely spaced undulating rough stained orangish brown on discontinuity surfaces.	4.70 4.76 4.90	85.37 85.31 85.17	
5		C CPT	5.00 - 6.00 5.00 - 5.03	C**	C	100% 76% 59%					5
								Strong grey LIMESTONE. Discontinuities are subhorizontal closely to medium spaced undulating rough.	(1.10)		
		CS	5.79 - 6.00					3.68-3.77m: Subvertical undulating rough with a little clay smear on discontinuity surfaces. 3.80-3.84m: Soft orangish brown slightly sandy slightly gravelly clay infill. Gravel is subangular fine limestone.			
6											6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-2.40m. Waterflush rotary core drilled (116mm) 2.40-6.00m.
CASING: 150mm diameter to 2.10m. 140mm diameter to 2.40m.
GROUNDWATER: Seepage at 0.60m. No rise recorded.
INSTALLATION: 50mm ID HDPE slotted standpipe: 3.00-6.00m. 50mm ID HDPE plain pipe: 0.00-3.00m Washed gravel response zone: 2.50-6.00m. Bentonite pellet seal: 0.20-2.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
18/11/14	0.60	Nil	0.60

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
18/11/2014	2.40	2.10	1.00
20/11/2014	2.40	Nil	0.50
20/11/2014	6.00	2.40	1.10

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ROTARY BOREHOLE LOG

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Borehole No. **BH101**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307784 N 172062	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 90.07mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 18/11/2014 End: 21/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing			Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		No/Type	Depth (m)	Result							
		CPT	6.00 - 6.14	C**					6.00	84.07	
								4.00-4.16m: Soft dark grey calcareous clay (possibly softened due to drilling disturbance. 4.31-4.39m: Medium strong dark grey calcareous mudstone. 4.39-4.41m: Extremely weak dark grey calcareous mudstone.			
7								Extremely weak dark grey calcareous MUDSTONE. Discontinuities are randomly orientated extremely closely spaced planar rough.			7
								Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.			
								Weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal closely spaced undulating rough.			
								Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough. 5.05-5.10m: Non intact, recovered as angular to subangular medium to coarse gravel. 5.10-5.20m: Subvertical undulating smooth discontinuity (possibly drilling induced). 5.20-5.46m: Weak dark grey calcareous mudstone. Discontinuities are subhorizontal extremely closely spaced to very closely spaced undulating rough. 5.54-5.58m: Medium strong dark grey calcareous mudstone. 5.58-5.60m: Locally stained orangish brown 5.60m: 20° stepped rough discontinuity (possibly drilling induced). 5.70-5.73m: Locally stained orangish brown 5.73-5.83m: Medium strong dark grey calcareous mudstone.			
8											8
9								Borehole completed at 6.00m			9
10											10
11											11
12											12
13											13

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH102**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307883 N 171785	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 84.08mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 17/11/2014 End: 20/11/2014	Logged By PF/RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		B D ES	0.30 - 0.50 0.30 0.50					MADE GROUND: Soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine to medium limestone.	0.10	83.98	
		B D	0.70 - 1.10 0.70					Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone. From 0.60m: High cobble content. Cobbles are sub-angular limestone.	(1.30)		
1		CPT	1.20	C*214							1
		C CPT	1.40 - 2.00 1.40	C*222	C	50% 20% 20%		No Recovery.	1.40 (0.30)	82.68	
		CS	1.75 - 1.89		C			Very weak grey mottled black calcareous mudstone COBBLE.	1.70 1.75	82.38 82.33	
2		C CPT	2.00 - 3.00 2.00 - 2.05	C**		100% 50% 50%		Strong grey LIMESTONE with subhorizontal very closely spaced undulating rough discontinuities. 1.89-1.90m: Firm orangish brown slightly sandy slightly gravelly clay infill. Gravel is subangular fine limestone.	1.92 2.00	82.16 82.08	2
					C			Extremely weak orangish brown mottled grey calcareous MUDSTONE with subhorizontal very closely spaced undulating rough discontinuities.	(0.80)		
		CS	2.80 - 3.00					Strong grey LIMESTONE with subhorizontal very closely and closely spaced undulating rough discontinuities with <10mm soft to firm orangish brown silty clay infill. 2.18-2.22m: Subvertical undulating rough discontinuity. 2.32-2.35m: Non intact, recovered as subangular medium to coarse gravel. 2.35-2.53m: 2 no. very closely spaced undulating rough discontinuities with a little clay smear on discontinuity surfaces. 2.56-2.70m: 2 no. very closely spaced undulating rough discontinuities (one possibly drilling induced).	2.80	81.28	
3		C CPT CS	3.00 - 3.80 3.00 - 3.04 3.20 - 3.50	C**	C	94% 56% 56%			3.00	81.08	3
									(1.32)		
		C CPT	3.80 - 5.00 3.80 - 3.85					Weak orangish brown and grey calcareous SILTSTONE with subhorizontal medium spaced undulating rough discontinuities. 2.80-3.00m: 2mm wide calcite vein.			
4				C**		100% 78% 70%					4
		CS	4.44 - 4.61		C			Strong grey LIMESTONE with subhorizontal very closely and closely spaced undulating rough discontinuities with <10mm soft to firm orangish brown silty clay infill. 3.10-3.20m: Subvertical undulating rough discontinuity. 3.57-3.60m: Soft orangish brown mottled grey slightly gravelly clay infill. Gravel is subangular fine limestone. 3.77-3.80m: Soft orangish brown mottled grey slightly gravelly clay infill. Gravel is subangular fine limestone. 3.87-4.09m: Subvertical 2mm wide calcite vein. 4.09-4.14m: Stiff orangish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular fine calcareous siltstone.	4.32 4.44	79.76 79.64	
									(0.61)		
5		C CPT	5.00 - 6.00 5.00 - 5.04	C**		100% 46% 30%			5.05 5.12	79.03 78.96	5
									(0.38)		
					C			4.32-4.40m: 70° undulating rough discontinuity.	5.50	78.58	
		CS	5.82 - 6.00					Weak to medium strong grey locally stained orangish brown calcareous SILTSTONE with horizontal closely spaced planar rough discontinuities.	5.74	78.34	
6											6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-1.40m. Waterflush rotary core drilled (116mm) 1.40-6.00m.
CASING: 150mm diameter to 1.40m. 140mm diameter to 3.00m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 3.00-6.00m. 50mm ID HDPE plain pipe: 0.00-3.00m Washed gravel response zone: 2.50-6.00m. Bentonite pellet seal: 0.20-2.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
20/11/2014	6.00	3.00	1.40

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Borehole No. **BH102**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307883 N 171785	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 84.08mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 17/11/2014 End: 20/11/2014	Logged By PF/RS

(m)	Water Levels	Core Run, Samples & Testing			Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		No/Type	Depth (m)	Result							
		CPT	6.00 - 6.04	C*750				4.43-4.44m: Firm orangish brown silty clay infill.	6.00	78.08	
								Medium strong grey LIMESTONE with subhorizontal closely spaced undulating rough discontinuities with <10mm firm orangish brown silty clay infill. 4.81-4.83m: Firm orangish brown silty clay infill.			
								Very weak orangish brown mottled grey calcareous MUDSTONE with randomly orientated extremely closely spaced undulating rough fractures.			
7								Strong grey LIMESTONE with subhorizontal closely spaced undulating rough discontinuities. 5.12-5.22m: Vertical 3mm wide calcite vein. 5.38-5.50m: Discontinuities are randomly orientated extremely to very closely spaced undulating rough.			
								Extremely weak dark grey calcareous MUDSTONE with subhorizontal very closely to closely spaced undulating rough discontinuities.			
8								Strong grey LIMESTONE with subhorizontal closely spaced undulating rough discontinuities. 5.81-5.82m: Firm grey clay infill.			
								Borehole completed at 6.00m			
9											
10											
11											
12											
13											

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH103**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308026 N 171581	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 84.88mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 17/11/2014 End: 19/11/2014	Logged By PF/RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		B	0.30 - 0.60					MADE GROUND: Soft dark brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine to medium limestone.	0.15	84.73	
		D	0.30					Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone. From 0.45m: High cobble content. Cobbles are sub-angular limestone.			
		B	0.40 - 0.70								
		D	0.40								
		ES	0.50								
		D	0.60								
1		B	0.90 - 1.20								1
									(1.95)		
		B	1.20 - 1.70	C 12							
		CPT	1.20 - 1.65								
2											2
								Orangish brown and grey clayey COBBLES. Cobbles are sub-angular limestone.	2.10	82.78	
		CPT	2.20 - 2.41	C*238					(0.30)		
		C	2.40 - 3.00					Strong grey LIMESTONE with subhorizontal very closely and closely spaced undulating rough discontinuities. 2.40-2.62m: Subvertical undulating rough discontinuity. 2.67-2.70m: Firm orangish brown silty clay infill.	2.40	82.48	
					C				(0.43)		
		CS	2.70 - 2.82						2.83	82.05	
3								Weak to medium strong orangish brown mottled grey calcareous MUDSTONE with subhorizontal closely spaced undulating rough discontinuities. 2.86-2.96m: 60° undulating rough discontinuity with a little clay smear on surfaces.	3.05	81.83	3
		C	3.00 - 3.30	C**							
		CPT	3.00 - 3.07		C						
		CS	3.15 - 3.26								
		C	3.30 - 3.50		C						
		CS	3.30 - 3.45								
		C	3.50 - 4.00					Strong grey LIMESTONE with subhorizontal very closely and closely spaced undulating rough discontinuities. 3.20-3.23m: Firm orangish brown silty clay infill. 3.45-3.50m: Firm orangish brown mottled grey slightly sandy slightly gravelly clay infill. Gravel is subangular fine limestone.	(0.95)		
		CS	3.58 - 3.80		C						
4								3.50-4.00m: Discontinuities are closely and medium spaced.	4.00	80.88	4
		C	4.00 - 5.00	C*91							
		CPT	4.00 - 4.26					3.80-3.82m: Firm orangish brown slightly gravelly clay infill. Gravel is subangular fine limestone.	4.27	80.61	
		CS	4.27 - 4.45		C						
								Stiff grey mottled orangish brown slightly sandy slightly gravel CLAY. Gravel is subangular fine calcareous mudstone.			
								Strong grey LIMESTONE with subhorizontal very closely spaced undulating rough discontinuities. Frequent randomly orientated 2-5mm thick calcite veins and occasional 20mm diameter calcite inclusions. 4.44-4.65m: 4 no. 60° subparallel undulating rough discontinuities with <10mm firm orangish brown slightly sandy clay infill.	(1.33)		
5		C	5.00 - 6.00	C*107							5
		CPT	5.00 - 5.26								
					C						
								4.70-4.78m: Firm orangish brown slightly sandy slightly gravelly clay infill. Gravel is subangular fine limestone.	5.60	79.28	
								5.00-5.15m: Firm orangish brown mottled grey slightly sandy slightly gravelly clay. Gravel is subangular fine limestone.	5.82	79.06	
		CS	5.82 - 6.00								
6											6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-2.40m. Waterflush rotary core drilled (116mm) 1.40-6.00m.
CASING: 150mm diameter to 1.40m. 140mm diameter to 3.00m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 3.00-6.00m. 50mm ID HDPE plain pipe: 0.00-3.00m Washed gravel response zone: 2.50-6.00m. Bentonite pellet seal: 0.20-2.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
19/11/2014	6.00	3.30	1.60

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ROTARY BOREHOLE LOG

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Borehole No. **BH103**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308026 N 171581	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 84.88mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 17/11/2014 End: 19/11/2014	Logged By PF/RS

(m)	Water Levels	Core Run, Samples & Testing			Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		No/Type	Depth (m)	Result							
		CPT	6.00 - 6.08	C**							
								5.15-5.60m: Discontinuities are closely and medium spaced. 5.16-5.40m: Subvertical to 80° undulating rough discontinuity. 5.43-5.50m: Weak thinly and thickly laminated orangish brown and grey calcareous mudstone. 5.40-5.60m: Discontinuities are closely spaced. 3-10mm wide calcite vein.	6.00	78.88	
7								Extremely weak dark grey calcareous MUDSTONE locally tending to very stiff to hard clay, with randomly orientated extremely closely spaced undulating rough discontinuities.			
								Strong grey LIMESTONE with subhorizontal to 10° undulating rough discontinuities.			
								Borehole completed at 6.00m			
8											
9											
10											
11											
12											
13											

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH104**

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308095 N 170839	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 79.73mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 20/11/2014 End: 02/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		D ES B	0.30 0.40 - 0.60					Soft greyish brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).	0.20	79.53	
								Orangish brown and grey slightly clayey slightly sandy GRAVEL. Gravel is very angular to subangular fine to coarse mudstone and limestone.	(0.60)		
		B	0.80 - 1.00						0.80	78.93	
1		SPT	1.00 - 1.04	S*349				Dark grey LIMESTONE, recovered as very clayey gravel and cobbles. Gravel is very angular to subangular medium to coarse limestone. Cobbles are limestone.	(0.60)		1
		C CPT	1.40 - 2.50 1.40 - 1.43	C*441		100% 52% 39%		Very stiff orangish brown slightly sandy silty CLAY.	1.40	78.33	
								Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough.	1.50 (0.34)	78.23	
2		CS	1.98 - 2.20		C			1.58-1.65m: Very stiff friable orangish brown slightly sandy silty CLAY with occasional subangular fine gravel sized mudstone lithorelicts.	1.84 1.98	77.89 77.75	2
								Firm dark grey calcareous CLAY with occasional subangular fine gravel sized mudstone lithorelicts.	2.20	77.53	
								Strong grey LIMESTONE. Discontinuities are subhorizontal medium spaced undulating rough.	2.31 (0.34)	77.42	
		C CPT	2.50 - 3.00 2.50 - 2.58		C	64% 44% 26%		Extremely weak dark grey calcareous MUDSTONE. Discontinuities are randomly orientated extremely closely spaced undulating rough.	2.65 2.80	77.08 76.93	
3		C CPT CS	3.00 - 4.00 3.00 - 3.08 3.22 - 3.36		C	100% 70% 50%		Strong grey LIMESTONE. Discontinuities are subhorizontal very closely spaced undulating rough.			3
								Extremely weak dark grey calcareous MUDSTONE. Discontinuities are randomly orientated extremely closely spaced undulating rough.	(0.80)		
								Strong grey LIMESTONE. Discontinuities are subhorizontal very closely spaced undulating rough.	3.60	76.13	
								3.13-3.22m: Very weak dark grey calcareous mudstone. Discontinuities are subhorizontal closely spaced undulating rough.	3.88	75.85	
4		C CPT	4.00 - 5.00 4.00 - 4.06		C	75% 44% 0%		3.36-3.45m: Weak dark grey calcareous mudstone. Discontinuities are subhorizontal very closely to closely spaced undulating rough and 1 no. 70° undulating rough discontinuity.	(0.52)		4
								Very weak to weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal extremely to very closely spaced undulating rough.	4.40 (0.45)	75.33	
		CS	4.63 - 4.68		C			3.73-3.76m: Very stiff dark grey calcareous clay. 3.84-3.88m: Very stiff dark grey calcareous clay.	4.85	74.88	
5		C CPT CS	5.00 - 6.00 5.00 - 5.05 5.15 - 5.25		C	100% 65% 50%		Strong grey LIMESTONE. Discontinuities are subhorizontal very closely spaced undulating rough. 4.00-4.25m: No recovery. 4.25-4.30m: Non intact, recovered as angular to subangular fine to coarse gravel.	(1.15)		5
								Very weak to weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough.			
6								Strong grey LIMESTONE. Discontinuities are			6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-1.40m. Waterflush rotary core drilled (116mm) 1.40-6.00m.
CASING: . 140mm diameter to m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 3.00-6.00m. 50mm ID HDPE plain pipe: 0.00-3.00m Washed gravel response zone: 2.50-6.00m. Bentonite pellet seal: 0.20-2.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
20/11/2014	1.40	Nil	Dry
01/12/2014	1.40	Nil	0.40
01/12/2014	4.00	2.50	1.60
02/12/2014	4.00	2.50	1.10
02/12/2014	6.00	2.50	1.40

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Borehole No. **BH104**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308095 N 170839	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 79.73mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 20/11/2014 End: 02/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		CPT	6.00 - 6.07					subhorizontal very closely spaced undulating rough. 4.90-5.00m: Non intact, recovered as angular to subangular fine to coarse gravel. 5.00-5.03m: Soft clay infill. 5.00-5.10m: Subvertical undulating rough discontinuity. 5.03-5.25m: Subvertical undulating rough orangish brown stained discontinuity. 5.25-5.32m: Non intact, recovered as subangular fine to medium gravel. 5.32-5.41m: Subvertical orangish brown stained discontinuity. 5.41-5.47m: Very weak grey mudstone. 5.52-5.62m: 70°-80° undulating rough orangish brown stained discontinuity. 5.62-5.67m: Very weak dark grey calcareous mudstone. Discontinuities are subhorizontal-30° undulating rough discontinuity. 5.73-6.00m: Weak grey calcareous MUDSTONE. Discontinuities are subhorizontal-30° undulating rough. Borehole completed at 6.00m	6.00	73.73	

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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ROTARY BOREHOLE LOG

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Borehole No. **BH105**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308091 N 170141	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: 72.10mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 26/11/2014 End: 27/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.30					Very soft greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular fine to medium limestone. (TOPSOIL)	0.20	71.90	
		B CPT C CS	0.50 0.50 - 0.95 0.60 - 1.50 0.68 - 0.78	C 15	C	100% 51% 38%		Very soft orangish brown and grey slightly sandy gravelly CLAY with a high cobble content. Gravel is angular to subangular fine to coarse limestone. Cobbles are limestone. 0.40-0.50m: High boulder content. Boulders are limestone. 0.50-0.60m: Limestone cobble.	(0.40) 0.60 0.68 0.78	71.50 71.42 71.32	
1					C			Extremely weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal closely spaced planar smooth.	(0.29) 1.07	71.03	1
		C CPT	1.50 - 2.50 1.50 - 1.70	C*200		90% 45% 16%		Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	(0.98)		
								Firm orangish brown mottled grey calcareous silty CLAY. 0.95-1.07m: Slightly gravelly. Gravel is subangular fine to medium mudstone.			
2					C			Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough and sub-vertical undulating rough. Frequent bands of weak orangish brown and dark grey calcareous mudstone <200mm.	2.05	70.05	2
		CS	2.25 - 2.41						(0.38)		
		C CPT CS	2.50 - 3.50 2.50 - 2.62 2.73 - 2.86	C*500		90% 85% 62%		1.50-1.75m: Drilling disturbed, recovered as clayey gravel. Gravel is angular to subangular fine to coarse limestone.	2.43 (0.72)	69.67	
3					C			Medium strong thinly laminated dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 2.05-2.26m: Subvertical undulating rough discontinuity.	3.15	68.95	3
								Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough and sub-vertical undulating rough. Frequent bands of weak orangish brown and dark grey calcareous mudstone <200mm. 2.58-2.72m: Subvertical undulating rough orangish brown stained discontinuity. 2.86-3.06m: Subvertical undulating rough orangish brown stained discontinuity.	(0.35) 3.50	68.60	
		C CPT CS	3.50 - 4.50 3.50 - 3.58 3.60 - 3.82	C*600	C	100% 74% 55%					
4								Hard dark grey calcareous CLAY.			4
		C CPT	4.50 - 5.50 4.50 - 4.62	C*500		92% 62% 55%		Medium strong locally weak grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough and sub-vertical undulating rough. 300-900mm spaced bands of weak orangish brown and dark grey calcareous mudstone <200mm. 3.88-4.14m: Very stiff to hard dark grey calcareous clay with occasional fine gravel sized mudstone lithorelicts. 4.22-4.26m: 40° undulating rough discontinuity. 5.03-5.10m: Very weak dark grey calcareous mudstone.			
5					C						5
		CS	5.28 - 5.50					5.29-5.50m: Subvertical undulating rough discontinuity.			
		C CPT	5.50 - 7.00 5.50 - 5.58	C*500	C	90% 80% 50%		5.72-5.80m: Subvertical undulating rough discontinuities. 5.89-5.92m: Subhorizontal-30° undulating rough orangish			
6											6

REMARKS:

EQUIPMENT: Hand digging tools. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-0.50m. Dynamic sampling using 113mm sample barrel: 0.50-0.60m. Waterflush rotary core drilled (116mm) 0.60-10.00m.
CASING: 140mm diameter to 1.50m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 4.00-10.00m. 50mm ID HDPE plain pipe: 0.00-4.00m Washed gravel response zone: 3.50-10.00m. Bentonite pellet seal: 0.20-3.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
26/11/2014	2.50	1.50	1.40
27/11/2014	2.50	1.50	1.40

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Borehole No. **BH105**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308091 N 170141	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: 72.10mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 26/11/2014 End: 27/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		CS	6.35 - 6.48		C			brown stained discontinuity. 5.98-6.14m: Subvertical undulating rough orangish brown stained discontinuity. Medium strong locally weak grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough and sub-vertical undulating rough. 300-900mm spaced bands of weak orangish brown and dark grey calcareous mudstone <200mm.	(6.50)		
7		C CPT CS	7.00 - 8.50 7.00 - 7.05 7.30 - 7.37	C*429	C	94% 63% 25%		*(continued from previous sheet)* 6.14-6.25m: Stiff dark grey calcareous clay. 6.25-6.66m: Subhorizontal discontinuities are very closely to closely spaced. Subvertical undulating rough orangish brown stained discontinuity. 6.93-7.00m: Weak. Discontinuities are randomly orientated extremely to very closely spaced undulating rough. 7.00-7.20m: Non intact, recovered as subangular medium to coarse gravel. 7.45-7.54m: Subvertical undulating rough orangish brown stained discontinuity. 7.60-7.67m: Subvertical very closely spaced undulating rough discontinuities. 7.71-7.90m: Subvertical undulating rough orangish brown stained discontinuity. 7.90-8.02m: Subvertical undulating rough discontinuity. 8.26-8.40m: Limestone, thinly interbedded with dark grey medium strong calcareous mudstone. 8.50-8.53m: Non intact, recovered as angular to subangular fine to medium gravel. 8.72-8.94m: Subvertical undulating rough orangish brown stained discontinuity. 9.14-9.17m: 30° planar rough discontinuity. 9.21-9.25m: Soft gravelly clay infill. Gravel is subangular fine to medium limestone. 9.24-9.26m: 30° undulating rough discontinuity. 9.47-9.60m: Subvertical undulating rough discontinuity. 9.76-10.00m: Subvertical undulating rough discontinuity.			7
8		CS	8.12 - 8.28		C						8
9		C CPT CS	8.50 - 10.00 8.50 - 8.57 8.76 - 9.04	C*375	C	100% 79% 58%					9
		CS	9.61 - 9.79								
10		CPT	10.00 - 10.06	C*429				Borehole completed at 10.00m	10.00	62.10	10
11											11
12											12
13											13

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
17/11/2014	10.00	1.50	5.40
27/11/2014	10.00	1.50	5.40

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Borehole No. **BH106**

Sheet 1 of 3

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308145 N 169996	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: 65.40mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 27/11/2014 End: 01/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.30					Very soft greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular fine to medium limestone. (TOPSOIL)	0.20 (0.30)	65.20	
		B C	0.50 0.50 - 1.50			71% 2% 0%		Soft orangish brown mottled grey slightly sandy gravelly CLAY with a low cobble content. Gravel is angular to subangular fine to coarse limestone. Cobbles are limestone.	0.50 (0.30)	64.90	
								No Recovery.	0.80	64.60	
1					C			Firm orangish brown mottled light grey silty CLAY. 0.90-0.95m: Strong grey Limestone. 0.96-1.02m: Strong grey Limestone. 1.07-1.12m: Strong grey Limestone. 1.20-1.25m: Strong grey Limestone. 1.35-1.50m: Stiff.	(0.90)		1
		C CPT CS	1.50 - 2.50 1.50 - 1.61 1.70 - 1.78	C*208		100% 45% 10%			1.70	63.70	
2					C			Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough. 1.85-2.15m: Locally with soft orangish brown slightly gravelly clay infill. Gravel is subangular fine to medium limestone. 1.90-1.96m: Subvertical undulating rough discontinuity. 2.15-2.26m: Subvertical undulating rough orangish brown stained discontinuity. 2.26-2.33m: Extremely weak to very weak dark grey calcareous mudstone.	(0.68) 2.38 2.46 2.60	63.02 62.94 62.80	2
		C CPT	2.50 - 3.50 2.50 - 2.65	C*333		98% 48% 15%		Extremely weak to very weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal extremely closely to closely spaced undulating rough.	(0.47) 3.07	62.33	
3					C			Weak orangish brown calcareous SILTSTONE. Discontinuities are subhorizontal very closely spaced undulating rough. 2.50-2.60m: Non intact.	3.22	62.18	3
		CS	3.35 - 3.50								
		C CPT CS	3.50 - 4.50 3.50 - 3.56 3.60 - 3.79	C*429		100% 70% 31%		Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough. 2.74-2.87m: Subvertical undulating rough orangish brown stained discontinuity. 2.87m: Very stiff friable dark grey calcareous clay. 2.98-3.07m: Subvertical undulating rough orangish brown stained discontinuity.	(0.70) 3.92	61.48	
4					C						4
		C CPT	4.50 - 6.00 4.50 - 4.56	C*429		100% 62% 58%		Medium strong dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 3.15m: Soft to firm dark grey calcareous clay with occasional fine gravel sized mudstone lithorelicts.			
5								Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 3.22-3.29m: Subvertical undulating rough orangish brown stained discontinuity. 3.50-3.60m: Stiff thinly laminated dark grey calcareous clay. 3.60-4.30m: Subvertical undulating rough orangish brown stained discontinuity. 3.81m: Medium strong dark grey calcareous mudstone. 4.06-4.12m: Weak dark grey calcareous mudstone.	(2.18)		5
		CS	5.16 - 5.34		C						
		CS	5.85 - 6.00								
6								*(continued on next sheet)*			6

REMARKS:

EQUIPMENT: Hand digging tools. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-0.50m. Waterflush rotary core drilled (116mm) 0.50-10.00m.
CASING: 140mm diameter to 1.50m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 4.00-10.00m. 50mm ID HDPE plain pipe: 0.00-4.00m Washed gravel response zone: 3.50-10.00m. Bentonite pellet seal: 0.20-3.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
27/11/2014	0.00		
27/11/2014	0.50	Nil	Dry
28/11/2014	0.50	Nil	Dry

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Borehole No. **BH106**

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308145 N 169996	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: 65.40mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 27/11/2014 End: 01/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		C CPT CS	6.00 - 7.50 6.00 - 6.06 6.23 - 6.32	C*429		100% 67% 33%		4.30-4.36m: Firm thinly laminated dark grey calcareous clay. 4.50-4.70m: Non intact. 4.70-5.13m: Subvertical undulating rough orangish brown stained discontinuity. 5.43m: Stiff thinly laminated dark grey calcareous clay. 5.65-5.85m: Subvertical undulating rough orangish brown stained discontinuity. 5.81-5.88m: Medium strong dark grey calcareous mudstone. 5.85-6.00m: Subvertical undulating rough discontinuity. Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. *(continued from previous sheet)*	6.10 (0.63) 6.73	59.30 58.67	
7		CS	7.25 - 7.39								7
		C	7.50 - 9.00			100% 53% 28%		Weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating and planar smooth. 6.20-6.23m: Soft dark grey slightly gravelly clay infill. Gravel is subangular fine mudstone. 6.53-6.66m: Hard dark grey calcareous clay.	(1.65)		
8								Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough. 6.87-6.90m: Extremely weak dark grey calcareous mudstone. 7.06-7.10m: Extremely weak orangish brown siltstone. Discontinuities are extremely closely spaced undulating rough.	8.38 (0.42) 8.80	57.02 56.60	8
		CS C CPT CS	8.90 - 9.00 9.00 - 10.00 9.00 - 9.07 9.22 - 9.37	C*429		97% 49% 18%		7.10-7.45m: Discontinuities are very closely to closely spaced. 7.14-7.24m: Subvertical undulating rough orangish brown stained discontinuity. 7.45-7.50m: Very weak dark grey calcareous mudstone. 7.55-7.58m: Subvertical undulating rough discontinuity. 7.58-7.70m: Limestone thinly interbedded with medium strong dark grey calcareous mudstone. 4.70-5.43m: Limestone is locally medium strong. Discontinuities are subhorizontal closely to medium spaced planar and undulating rough.	(1.20)		
9											9
		CPT	10.00 - 10.06	C*500				7.72-7.84m: 70° undulating rough orangish brown stained discontinuity. 7.84-7.97m: Very weak dark grey calcareous mudstone. 8.15-8.18m: Subhorizontal-60° undulating rough discontinuity. 8.18-8.24m: Stained orangish brown.	10.00	55.40	
10								Medium strong dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 8.50-8.54m: Strong grey limestone. 8.62-8.65m: Strong grey limestone. 8.68-8.80m: 2 no. subvertical undulating rough discontinuities.			10
								Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough. 8.80-9.00m: Medium strong. 9.00-9.20m: Weak dark grey calcareous mudstone. Discontinuities are extremely closely to closely spaced planar and undulating smooth. 9.05-9.20m: Subvertical-80° undulating smooth discontinuity. 9.22-9.37m: Subvertical closely spaced incipient discontinuity. 9.43-9.60m: Weak to medium strong dark grey calcareous mudstone. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 9.51-9.60m: Subvertical undulating rough discontinuity. 9.60-9.69m: 2 no. subparallel subvertical-70° undulating rough discontinuities. 9.69-9.75m: Weak dark grey calcareous mudstone. 9.75-9.95m: 3 no. subvertical-70° undulating rough			
11											11
12											12
13											13

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
28/11/2014	9.00	Nil	1.20
01/12/2014	9.00	Nil	5.10
01/12/2014	10.00	1.50	2.20

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ROTARY BOREHOLE LOG

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Borehole No. **BH106**

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308145 N 169996	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: 65.40mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 27/11/2014 End: 01/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing			Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		No/Type	Depth (m)	Result							
								discontinuities. 9.95-10.00m: Medium strong dark grey calcareous mudstone. Borehole completed at 10.00m			

14 15 16 17 18 19 20

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)

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Borehole No. **BH107**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308240 N 169874	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 57.33mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 19/11/2014 End: 25/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
								Soft greyish brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	57.13	
		B	0.30 - 0.60					Very soft to soft orangish brown mottled grey slightly sandy slightly gravelly silty CLAY with occasional rootlets. Gravel is subangular fine mudstone.			
		D ES	0.50								
		B	0.80 - 0.90					0.80-2.20m: Gravel is angular to subangular fine to coarse limestone. High cobble content. Cobbles are limestone.			
1		D	0.80								1
		B	1.20 - 1.70	C 34					(2.00)		
		CPT	1.20 - 1.65								
2											2
		B	2.20 - 2.70	C 46				Firm orangish brown and grey slightly sandy gravelly CLAY with a high cobble content. Gravel is angular to subangular fine to coarse limestone. Cobbles are limestone.	2.20	55.13	
		CPT	2.20 - 2.65						(0.60)		
								Dark grey LIMESTONE, recovered as very clayey gravel and cobbles. Gravel is angular to subangular medium to coarse limestone. Cobbles are limestone.	2.80	54.53	
3		C	2.90 - 3.20	C*429	C	0% 0% 0%			2.90	54.43	3
		CPT	2.90					No recovery.	(0.60)		
		C	3.20 - 3.50		C	0% 0% 0%					
		C	3.50 - 4.00			100% 20% 20%		Medium strong dark grey calcareous MUDSTONE. Discontinuities are subhorizontal-20° closely spaced undulating rough.	3.50	53.83	
		CS	3.65 - 3.75		C				(0.40)		
								3.50-3.60m: Drilling disturbed, recovered as very soft dark grey gravelly clay. Gravel is angular to subangular fine to coarse calcareous mudstone.	3.90	53.43	
4		C	4.00 - 4.80	C*100		100% 20% 20%		3.65-3.75m: Subvertical undulating rough discontinuity.	4.10	53.23	4
		CPT	4.00 - 4.30						4.17	53.16	
		CS	4.17 - 4.25		C			Firm grey mottled orangish brown silty calcareous CLAY.	4.30	53.03	
								Hard indistinctly thinly laminated dark grey calcareous CLAY.	(0.55)		
								Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.			
		C	4.80 - 6.10	C*273		94% 69% 45%		Firm indistinctly thinly laminated dark grey calcareous CLAY with occasional subangular fine gravel sized mudstone lithorelicts.	4.85	52.48	
5		CPT	4.80 - 4.97						(0.32)		5
		CS	5.17 - 5.33		C			Extremely weak thinly laminated dark grey MUDSTONE. Discontinuities are subhorizontal and randomly orientated extremely closely spaced undulating rough.	5.17	52.16	
									(0.55)		
								Strong grey LIMESTONE. Discontinuities are subhorizontal very closely and closely spaced undulating rough.	5.72	51.61	
6								5.17-5.33m: Subvertical undulating rough discontinuity. 5.33-5.48m: 20°-subvertical-subhorizontal curved	(0.31)		6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-0.90m. Cable percussion (150mm) 1.20-2.90m. Waterflush rotary core drilled (116mm) 2.90-10.00m.
CASING: 150mm diameter to 2.80m. 140mm diameter to 4.50m.
GROUNDWATER: Seepage at 0.60m. No rise recorded.
INSTALLATION: 50mm ID HDPE slotted standpipe: 4.00-10.00m. 50mm ID HDPE plain pipe: 0.00-4.00m Washed gravel response zone: 3.50-10.00m. Bentonite pellet seal: 0.20-3.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
19/11/14	0.60	Nil	0.60

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
19/11/2014	2.90	2.80	2.60
21/11/2014	2.90	Nil	2.60
21/11/2014	4.00	2.90	1.20
24/11/2014	4.00	2.90	2.60

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ROTARY BOREHOLE LOG

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Borehole No. **BH107**

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308240 N 169874	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 57.33mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 19/11/2014 End: 25/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
		CS C CPT	6.03 - 6.10 6.10 - 7.10 6.10 - 6.21	C*600	C	100% 68% 19%		undulating rough discontinuity, forming boundary with extremely weak orangish brown mudstone. 5.48-5.62m: Weak dark grey calcareous mudstone. 5.62-5.71m: Subvertical undulating rough discontinuity.	6.03 6.10	51.30 51.23	
					C			Extremely weak thinly laminated dark grey calcareous MUDSTONE. Discontinuities are subhorizontal extremely closely spaced undulating rough. *(continued from previous sheet)*	6.35	50.98	
7		CS	6.84 - 6.95					Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	(1.15)		7
		C CPT	7.10 - 7.50 7.10 - 7.22	C*426	C	100% 63% 63%		Extremely weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely spaced undulating rough.			
		CS C	7.38 - 7.50 7.50 - 8.50			86% 51% 10%		Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 6.40-6.57m: Subvertical undulating rough orangish brown stained discontinuity. 6.64-6.69m: Medium strong grey calcareous mudstone. 6.75-7.04m: Weak dark grey calcareous mudstone. 7.10-7.18m: Extremely weak dark grey calcareous mudstone. Discontinuities are randomly orientated extremely closely spaced undulating rough. 7.18-7.26m: Subvertical undulating rough discontinuity. 7.26-7.38m: Extremely weak dark grey calcareous mudstone. Discontinuities are subhorizontal extremely closely to very closely spaced undulating rough.	7.50 (0.45) 7.95 8.22	49.83 49.38 49.11	
8					C						8
		CS C CPT	8.41 - 8.50 8.50 - 8.90 8.50 - 8.61	C*600	C	83% 55% 0%					
9		C	8.90 - 10.00			91% 86% 51%		Weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal extremely to very closely spaced undulating rough.	(1.78)		9
		CS	9.25 - 9.39		C			Strong grey LIMESTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 8.03-8.14m: Very weak dark grey calcareous mudstone. Discontinuities are randomly orientated extremely closely spaced undulating rough. 8.14-8.22m: Subvertical undulating rough orangish brown stained discontinuity.			
10		CS CPT	9.92 - 10.00 10.00 - 10.18	C*500					10.00	47.33	10
								Weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 8.41-8.50m: Strong grey limestone. 8.72-8.73m: Soft orangish brown clay infill. 8.80-8.90m: Medium strong. 8.90-9.07m: Non intact, recovered as angular to subangular fine to coarse gravel. 9.23-9.25m: Soft orangish brown clay infill. 9.50-9.60m: Medium strong. 9.66-9.77m: Subvertical undulating rough orangish brown stained discontinuity. 9.80-9.90m: Subvertical undulating rough orangish brown stained discontinuity. 9.90-9.92m: Soft orangish brown clay infill.			
11											11
								Borehole completed at 10.00m			
12											12
13											13

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
24/11/2014	8.90	4.50	7.00
25/11/2014	8.90	4.50	7.90
25/11/2014	10.00	4.50	8.10

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ROTARY BOREHOLE LOG

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Borehole No. **BH108**

Sheet 1 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308330 N 169776	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 44.21mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 18/11/2014 End: 26/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
								Soft greyish brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)	0.20	44.01	
		B D ES	0.30 - 0.70 0.40 0.50					Soft orangish brown mottled grey silty CLAY with occasional rootlets.	(0.40)		
									0.60	43.61	
1		B D	0.80 - 1.20 0.80					Firm orangish brown and grey slightly sandy slightly gravelly CLAY with a low cobble content. Gravel is angular to subangular fine to coarse limestone. Cobbles are limestone.			1
		B SPT	1.20 - 1.70 1.20 - 1.65	S 18					(2.20)		
2											2
	1	B SPT	2.20 - 2.70 2.20 - 2.65	C 30				2.20-2.80m: High cobble content. Cobbles are limestone.			
		B SPT	2.80 - 3.20 2.80 - 3.25	S*53				Extremely weak to very weak grey calcareous MUDSTONE, recovered as slightly sandy clayey angular to subangular fine to coarse gravel.	2.80	41.41	
3	1	B	3.20 - 3.70						(0.90)		3
		SPT C	3.70 3.80 - 5.00	S*273		100% 32% 0%		Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	3.70 3.88	40.51 40.33	
4					C			Extremely weak to very weak orangish brown SILTSTONE. Discontinuities are subhorizontal and randomly orientated extremely closely spaced undulating rough with a little clay smear on discontinuity surfaces. 4.08-4.66m: Grey. 4.38-4.52m: Subvertical undulating smooth discontinuity. 4.44-4.49m: Strong grey limestone.	(0.78)		4
		CS	4.66 - 4.75					Strong grey LIMESTONE. Discontinuities are subhorizontal extremely closely spaced undulating smooth.	4.66 4.88	39.55 39.33	
5		C CPT	5.00 - 6.20 5.00 - 5.14	C*273		92% 22% 0%		4.66-4.88m: Subvertical undulating rough discontinuity. 4.76-4.79m: Discontinuity infilled with soft clayey gravel. Gravel is subangular fine to medium limestone.	(0.37)		5
		CS	5.44 - 5.49		C			Extremely weak grey calcareous MUDSTONE. Discontinuities are randomly orientated extremely closely spaced undulating rough. 5.00-5.25m: Drilling disturbed, recovered as soft slightly gravelly clay. Gravel is angular to subangular fine to medium mudstone.	5.25 (0.95)	38.96	
6											6

REMARKS:

EQUIPMENT: Hand digging tools. Light cable percussion rig. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (150mm) 1.20-3.70m. Waterflush rotary core drilled (116mm) 3.70-10.00m.
CASING: 150mm diameter to 3.00m. 140mm diameter to m.
GROUNDWATER: Encountered at 3.00m. Rising to 2.45m following twenty minute monitoring period.
INSTALLATION: 50mm ID HDPE slotted standpipe: 4.00-10.00m. 50mm ID HDPE plain pipe: 0.00-4.00m Washed gravel response zone: 3.50-10.00m. Bentonite pellet seal: 0.20-3.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
18/11/14	3.00	2.80	2.45

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
18/11/2014	3.20	3.00	2.60
19/11/2014	3.20	3.00	2.40
19/11/2014	3.70	3.00	2.40
25/11/2014	3.80	Nil	0.70

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ROTARY BOREHOLE LOG

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Borehole No. **BH108**

Sheet 2 of 2

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308330 N 169776	Hole Type CP+RC
Location: Five Mile Lane, Cardiff		Level: 44.21mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 18/11/2014 End: 26/11/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
7		C CPT	6.20 - 7.50 6.20 - 6.41	C*150	C	77% 32% 18%		Very weak to weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal extremely closely to closely spaced undulating rough. Locally planar smooth. With orangish brown staining on discontinuity surfaces. *(continued from previous sheet)* 5.32-5.38m: Strong dark grey mudstone. 5.64-5.68m: 30° undulating rough discontinuity. 5.80-5.88m: Extremely weak, locally tending to clayey gravel. 6.00-6.04m: Extremely weak, locally tending to clayey gravel. 6.05-6.20m: 45° undulating rough discontinuity. 6.11-6.20m: Extremely weak, locally tending to clayey gravel.	6.20	38.01	
8		CS C CPT	7.39 - 7.50 7.50 - 8.50 7.50 - 7.70	C*158	C	100% 42% 15%		Very weak to weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal very closely to closely spaced undulating rough. 6.20-6.65m: Drilling disturbed, recovered as subangular medium to coarse gravel. 6.75-6.83m: Strong grey limestone. 6.83-7.10m: Discontinuities are subhorizontal extremely to very closely spaced undulating rough. 6.95-7.05m: Soft gravelly clay infill. Gravel is subangular fine mudstone. 7.02-7.09m: 2 no. intersecting 45° and 55° undulating rough discontinuities. 7.13-7.30m: Subvertical-80° undulating rough discontinuity. 7.25-7.50m: Medium strong. 7.38-7.39m: Discontinuity infilled with soft gravelly clay. Gravel is subangular fine mudstone. 7.50-7.56m: Strong. 7.77-7.99m: Non intact, recovered as clayey subangular fine to coarse gravel. 8.06-8.13m: 2 no. parallel 60° very closely spaced undulating smooth discontinuities. 8.13-8.23m: Non intact, recovered as clayey subangular fine to coarse gravel.	(3.80)		
9		CS C CPT CS	8.35 - 8.50 8.50 - 9.40 8.50 - 8.65 8.69 - 8.77	C*300	C	83% 37% 11%					
10		C	9.40 - 10.00		C	100% 50% 0%					
11		CS CPT	9.88 - 9.97 10.00 - 10.13	C*333	C			8.30-8.38m: Non intact, recovered as clayey subangular fine to coarse gravel. 8.38-8.50m: Medium strong. 8.50-8.60m: Drilling disturbed, recovered as subangular medium to coarse gravel. 8.83-8.87m: Strong grey limestone. 8.98-9.02m: Discontinuity infilled with soft gravelly clay. Gravel is subangular fine mudstone. 9.70-9.73m: Discontinuity infilled with soft gravelly clay. Gravel is subangular fine mudstone. 9.78-9.88m: Subvertical undulating rough discontinuity. Borehole completed at 10.00m	10.00	34.21	
12											
13											

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
25/11/2014	7.50	3.80	2.40
26/11/2014	7.50	3.80	2.60
26/11/2014	10.00	4.50	2.60

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ROTARY BOREHOLE LOG

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Borehole No. **BH109**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E N	Hole Type DS+RC
Location: Five Mile Lane, Cardiff		Level: mAD	Scale 1 : 37.50
Client: Vale of Glamorgan Council		Dates: Start: 03/12/2014 End: 03/12/2014	Logged By RS

(m)	Water Levels	Core Run, Samples & Testing: No/Type	Depth (m)	Result	Core Run & Sample	TCR SCR RQD	Install	Description	Depth (m)	Level (mAD)	Legend
								Very soft greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is subangular fine to medium limestone. (TOPSOIL)	0.20		
								Soft orangish brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel is subangular fine to medium limestone. High cobble content and low boulder content of limestone.	(0.50) 0.70		
								Firm orangish brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel is subangular fine to medium limestone. Low cobble content of limestone.	(0.30) 1.00		
1						100% 0% 0%		Stiff orangish brown mottled grey slightly sandy slightly gravelly silty CLAY. Gravel is subangular fine to medium limestone.	(1.10)		
								1.80-2.10m: Very stiff to hard.			
2						100% 29% 9%		Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	2.10 2.19		
								Very stiff to hard dark grey calcareous CLAY.	2.43		
								Extremely weak dark grey calcareous MUDSTONE. Discontinuities are subhorizontal and randomly orientated extremely closely spaced undulating rough. 2.66-2.69m: Hard dark grey calcareous clay.	(0.92)		
3								3.20-3.35m: Very stiff dark grey calcareous clay.			
						84% 31% 15%		Strong grey LIMESTONE. Discontinuities are subhorizontal very closely spaced undulating rough.	3.35 (0.66)		
4								Hard thinly laminated dark grey calcareous CLAY.	4.01 (0.29)		
								4.30-4.39m: 45°-subvertical undulating rough discontinuity. Strong grey LIMESTONE. Discontinuities are subhorizontal closely spaced undulating rough.	4.30 (0.53)		
								4.39-4.54m: Extremely weak dark grey calcareous mudstone. Discontinuities are subhorizontal extremely closely spaced undulating rough and smooth. 4.54-4.83m: Limestone thinly interbedded with very weak dark grey calcareous mudstone.	4.83		
5								Very weak dark grey calcareous MUDSTONE. Discontinuities are extremely to very closely spaced subhorizontal planar rough.	5.00		
								Borehole completed at 5.00m			
6											

REMARKS:

EQUIPMENT: Hand digging tools. Comacchio MC305 multi-purpose track mounted drilling rig.
METHOD: Hand dug inspection pit 0.00-0.70m. Dynamic sampling using 113mm sample barrel: 0.70-1.10m. Waterflush rotary core drilled (116mm) 1.10-5.00m.
CASING: 140mm diameter to 2.00m.
GROUNDWATER: Groundwater not encountered prior to use of waterflush.
INSTALLATION: 50mm ID HDPE slotted standpipe: 3.00-5.00m. 50mm ID HDPE plain pipe: 0.00-3.00m Washed gravel response zone: 2.50-5.00m. Bentonite pellet seal: 0.20-2.50m. Concrete and raised cover 0.00-0.20m.

Groundwater:

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

Hole Progress:

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)
03/12/2014	0.00		
03/12/2014	5.00	2.00	1.70

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TRIAL PIT LOG

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Pit No **TP201**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307778 N 172139 Level: 91.43mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 1.30m, 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with low cobble content and frequent rootlets <2mm. Cobbles are sub-angular limestone.	0.15	91.28	
		B ES	0.50		Firm grey, greyish brown slightly sandy slightly gravelly CLAY with high cobble content and frequent rootlets <2mm. Gravel is sub-angular fine to coarse limestone. Cobbles are sub-angular limestone.	(0.45)		
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.60	90.83	
1						(0.70)		1
					Trial pit completed at 1.30m	1.30	90.13	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.30m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP202**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307796 N 172066 Level: 90.04mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.30m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with low cobble content and frequent rootlets <2mm. Cobbles are sub-angular limestone.	(0.30)		
						0.30	89.74	
		B ES	0.50		Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone.	(0.35)		
						0.65	89.39	
1					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	(0.65)		1
					Trial pit completed at 1.30m	1.30	88.74	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.30m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP203**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307811 N 171964 Level: 87.27mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 1.20m 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with low cobble content and frequent rootlets <2mm. Cobbles are sub-angular limestone.	(0.20)		
					Grey and orangish brown slightly clayey slightly gravelly COBBLES with occasional boulders. Gravel is sub-angular fine to coarse limestone, cobbles and boulders are sub-angular limestone.	0.20	87.07	
		B ES	0.50			(1.00)		
1								1
					Trial pit completed at 1.20m	1.20	86.07	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.20m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP204**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307823 N 171866 Level: 85.36mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 2.10m, 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with low cobble content and frequent rootlets <2mm. Cobbles are sub-angular limestone.	(0.30)		
						0.30	85.06	
		B ES	0.50		Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone.	(1.00)		
1		B	1.00					1
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	1.30	84.06	
						(0.80)		
2								2
					Trial pit completed at 2.10m	2.10	83.26	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 2.10m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP205**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307896 N 171792 Level: 84.03mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.60m, 0.70m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with low cobble content and frequent rootlets <2mm. Cobbles are sub-angular limestone.	(0.30)		
						0.30	83.73	
		B	0.50		Soft orangish brown locally greyish brown slightly sandy CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone.	(0.50)		
						0.80	83.23	
1		B	1.00		Grey and orangish brown slightly clayey slightly gravelly COBBLES with occasional boulders. Gravel is sub-angular fine to coarse limestone, cobbles and boulders are sub-angular limestone.	(0.80)		1
					Trial pit completed at 1.60m	1.60	82.43	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.60m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP206**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 307934 N 171698 Level: 81.25mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 1.10m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.30)		
						0.30	80.95	
		B ES	0.50		Soft orangish brown and brown slightly sandy slightly gravelly CLAY. Gravel is sub-angular fine to coarse limestone.	(0.50)		
						0.80	80.45	
1					Grey and orangish brown slightly clayey slightly gravelly COBBLES with occasional boulders. Gravel is sub-angular fine to coarse limestone, cobbles and boulders are sub-angular limestone.	(0.30)		1
					Trial pit completed at 1.10m	1.10	80.15	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.10m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP207**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308011 N 171624 Level: 83.61mAD	Date 18/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.40m, 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	0.15	83.46	
		B	0.40		Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm. Gravel is sub-angular fine limestone.	(0.75)		
		B	0.80					
1					Grey and orangish brown slightly clayey slightly gravelly COBBLES with occasional boulders. Gravel is sub-angular fine to coarse limestone, cobbles and boulders are sub-angular limestone.	0.90	82.71	1
		B	1.20			(0.50)		
					Trial pit completed at 1.40m	1.40	82.21	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.40m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP208**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308054 N 171501 Level: 87.13mAD	Date 19/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.20m, 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.30)		
					Soft orangish brown and greyish brown slightly gravelly CLAY with occasional rootlets <1mm. Gravel is sub angular fine to medium limestone.	0.30	86.83	
		B	0.50			(0.30)		
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.60	86.53	
1						(0.60)		1
					Trial pit completed at 1.20m	1.20	85.93	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.20m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP209**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308096 N 171378 Level: 87.86mAD	Date 19/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.50m Depth 1.90m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.35)		
						0.35	87.51	
		B ES	0.50		Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <2mm and occasional partially decomposed organic material <5mm. Gravel is sub-angular fine limestone.	(0.35)		
						0.70	87.16	
1					Orangish brown and grey slightly gravelly COBBLES and BOULDERS with occasional laminated clay pockets <100mm. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub angular tabular limestone.	(1.20)		
2					Trial pit completed at 1.90m	1.90	85.96	
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.90m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP211**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308106 N 171086 Level: 86.12mAD	Date 19/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 0.90m 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
					Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with medium cobble content and frequent rootlets <2mm. Gravel is sub-angular fine limestone. Cobbles are sub angular limestone.	0.20 (0.40)	85.92	
		B	0.50		Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.60 (0.30)	85.52	
1					Trial pit completed at 0.90m	0.90	85.22	
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 0.90m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP212**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308101 N 170940 Level: 84.26mAD	Date 19/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 0.90m 0.70m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.20		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.25)		
					Soft orangish brown locally greyish brown slightly sandy slightly gravelly CLAY with high cobble content, occasional boulders and frequent rootlets <2mm. Gravel is sub-angular fine limestone. Cobbles and boulders are sub angular limestone.	0.25	84.01	
		B	0.60			(0.65)		
1					Trial pit completed at 0.90m	0.90	83.36	
2								
3								
4								

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 0.90m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP213**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308091 N 170735 Level: 82.24mAD	Date 19/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.40m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
						0.20	82.04	
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	(0.25)		
		B	0.50			0.45	81.79	
					Firm orangish brown and grey slightly sandy slightly gravelly CLAY with a medium cobble content. Gravel is sub-angular fine to coarse limestone. Cobbles are sub-angular limestone.	(0.25)		
						0.70	81.54	
1					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	(0.70)		1
					Trial pit completed at 1.40m	1.40	80.84	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.40m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP214**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308061 N 170550 Level: 82.02mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.50m Depth 1.80m 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
					Soft orangish brown and greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets <1mm and root remnants <3mm. Gravel is sub-angular fine to medium limestone.	0.20	81.82	
		B	0.50		0.60-0.90m: High cobble content with occasional boulders. Cobbles and boulders are sub-rounded to sub-angular limestone.	(1.10)		
1		B	1.00		0.90-1.30m: Locally grey. Medium cobble content.			1
					Orangish brown and grey slightly gravelly COBBLES and BOULDERS with occasional laminated clay pockets <100mm. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub angular tabular limestone.	1.30	80.72	
						(0.50)		
					Trial pit completed at 1.80m	1.80	80.22	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.80m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP215**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308088 N 170430 Level: 79.65mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m Depth 1.60m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
					MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
		B ES	0.30		Firm orangish brown and grey slightly sandy slightly gravelly CLAY with a medium cobble content. Gravel is sub-angular fine to coarse limestone. Cobbles are sub-angular limestone.	0.20 (0.40)	79.45	
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.60 (0.40)	79.05	
1		B	1.10		Orangish brown and grey slightly gravelly COBBLES and BOULDERS with occasional laminated clay pockets <100mm. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub angular tabular limestone.	1.00 (0.60)	78.65	1
					Trial pit completed at 1.60m	1.60	78.05	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.60m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP216**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308122 N 170052 Level: 68.53mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.60m Depth 1.20m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.20	68.33	
					0.50-1.20m: Locally orangish brown and grey gravelly clay with medium cobble content. Gravel is sub-angular to sub-rounded fine to coarse limestone. Cobbles are limestone.	(1.00)		
1								1
					Trial pit completed at 1.20m	1.20	67.33	
2								2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 1.20m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP217**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308184 N 169931 Level: 61.95mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.45m, Depth 2.00m, 0.65m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.25)		
						0.25	61.70	
					Soft brown slightly sandy slightly gravelly CLAY. Gravel is sub-rounded to sub-angular fine to coarse limestone.			
		B ES	0.50			(0.55)		
						0.80	61.15	
1					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.			1
						(1.20)		
		B	1.70		1.60-1.80m: Clay. Locally reddish brown. High cobble content and occasional boulders.			
2					Trial pit completed at 2.00m	2.00	59.95	2
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 2.00m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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Pit No **TP218**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308296 N 169821 Level: 51.05mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.40m Depth 2.20m 0.60m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
					Firm orangish brown and grey slightly sandy slightly gravelly CLAY with a medium cobble content. Gravel is sub-angular fine to coarse limestone. Cobbles are sub-angular limestone.	0.20	50.85	
		B	0.50			(0.40)		
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	0.60	50.45	
1								1
						(1.30)		
					Very stiff orangish brown mottled reddish brown and greyish brown slightly sandy slightly gravelly silty CLAY with locally low cobble content. Gravel is sub-angular fine to coarse mudstone. Cobbles are extremely weak sub angular mudstone.	1.90	49.15	
2		B	2.00			(0.20)		2
					Orangish brown and grey slightly clayey slightly gravelly COBBLES and BOULDERS. Gravel is sub-angular fine to coarse limestone. Cobbles and boulders are sub-angular tabular limestone.	2.10	48.95	
					Trial pit completed at 2.20m	2.20	48.85	
3								3
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 2.20m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

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TRIAL PIT LOG

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Pit No **TP219**

Sheet 1 of 1

Project Name: Five Mile Lane	Project No: **C4414**	Co-ords: E 308407 N 169706 Level: 38.87mAD	Date 20/11/2014
Location: Five Mile Lane, Cardiff		Dimensions: 2.80m, Depth 3.40m, 0.70m	Scale 1 : 25
Client: Vale of Glamorgan Council			Logged By PF

(m)	Water Levels	Samples & In Situ Testing No/Type	Depth (m)	Result	Description	Depth (m)	Level (mAD)	Legend
		B ES	0.10		MADE GROUND: Topsoil of soft dark brown slightly sandy CLAY with frequent rootlets <2mm.	(0.20)		
					Firm orangish brown and grey slightly sandy slightly gravelly CLAY with a medium cobble content with occasional boulders. Gravel is sub-angular fine to coarse limestone. Cobbles are sub-angular limestone.	0.20	38.67	
		B	0.50					
					0.80-1.70m: Cobbles and boulders absent. Laminated.			
1					0.90m: Locally reddish brown.			1
		B	1.00					
					1.70-2.00m: Rare boulders.	(3.20)		
2					2.00-3.40m: Gravelly. High cobble content. Gravel and cobbles are sub angular mudstone.			2
		B	2.10		2.10-3.40m: Occasional cobbles of limestone.			
3		B	3.00					3
					Trial pit completed at 3.40m	3.40	35.47	
4								4

REMARKS:

EQUIPMENT: JCB 3CX Mechanical Excavator.

METHOD: Trial pits excavated using 0.60m wide backactor bucket.

GROUNDWATER: Water seepage at 3.40m.

STABILITY: Trial pit sides remained stable and vertical throughout.

BACKFILL: Trial pit backfilled with arisings

REMARKS: Pit terminated on hard stratum - Limestone.

Archaeology Wales

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