Drainage Repairs Old Abingdon Road **Oxford**



Archaeological Watching Brief Report



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Drainage Repairs, Old Abingdon Road, Oxford

Archaeological Watching Brief Report

Written by Mike Sims

and illustrated by Julia Collins

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Summary

During November and December 2013 OA conducted a watching brief during drainage repairs adjacent to Old Abingdon Road, Oxford (NGR: Centred at SP 5167 0372). These works included excavations to expose existing drains together with excavations for a new inspection chamber and drainage run.

The excavations exposed a previously unknown stone constructed culvert running under the Old Abingdon Road, together with details of the roadway make-up. The exposed section had been heavily disturbed by a series of modern services including water, gas and storm drains, causing it to collapse in places.

Although no dating evidence was recovered, its location and details of its construction suggests that it may be associated with the construction of the approaches to the railway bridge in the 1840s.

1 INTRODUCTION

1.1 Scope of work

- 1.1.1 As part of its responsibility for the maintenance of storm drains within the city, Oxford City Council started work on exposing and repairing a collapsed and blocked drain at the eastern end of Old Abingdon Road, Oxford (NGR: SP 5189 0389).
- 1.1.2 Whilst exposing the existing services the contractors impacted upon a previously unknown stone built culvert which appeared to run across the line of Old Abingdon Road. Following discussions with Richard Oram, of Oxfordshire County Archaeological Services (OCAS), it was decided to divert the existing drain southwards to discharge into one of the tributaries of the River Thames.
- 1.1.3 As part of the discussion it was agreed that an archaeological watching brief would be undertaken during these works, in order to access their impact upon any potential archaeological deposits. In response to the discovery of the culvert a Written Scheme of Investigation was prepared for an archaeological watching brief (OA 2013). The watching brief adhered to the criteria detailed therein.
- 1.1.4 The proposed works involved the excavation of approximately 8m of new trenching, up to 1.2m in depth, and the excavation of a pit 1.7m deep, to house an inspection chamber at the point of the service diversion.

1.2 Location, geology and topography

- 1.2.1 The Abingdon Road originally ran south-east from Oxford, turning sharply to the southwest to the south of Coldharbour, crossing the Hinksey Stream and the railway line. The new alignment of the Abingdon Road continues on its southeastern alignment at this point, leaving the original south-western branch as the Old Abingdon Road.
- 1.2.2 The new works were located in the pavement running along the southern edge of Old Abingdon Road, approximately 50m west of Abingdon Road (Fig. 1). The location of the works appears to have been raised by approximately 1.5m above the surrounding area, with the ground sloping away to the south, down to a stream channel.



- 1.2.3 The site lies within the flood plain of the River Thames, in an area to the east of the main Thames channel, where the Thames braids into a number of smaller streams. The land is relatively flat and marshy, where it has not been raised. The topography has been influenced by the substantial post-medieval and modern development of the rail and road systems.
- 1.2.4 The underlying natural geology is Oxford Clay and Kellaway Beds overlain by River Terrace deposits. Overlying the geology are soils and river alluviums of the Thames association (British Geological Survey: Sheet 236).

1.3 Archaeological and historical background

1.3.1 The English Heritage List entry for the nearby medieval culverts outlines the historical background of the area:

Abingdon Road (A4144) runs south from Folly Bridge, on the southern edge of Oxford, to Redbridge further south. The road originally turned west to cross the Hinksey stream. This part of the Abingdon Road is now known as Old Abingdon Road, while Abingdon Road continues south. For 650m south of Folly Bridge Abingdon Road was built on top of a Norman causeway with more than 30 arches or culverts, called the Grandpont. The Grandpont is believed to be part of the 'Great Bridge' built by Robert d'Oilly who also built Oxford Castle in 1071, and the Old Abingdon Road, 1.4km to the south, is considered to be a continuation of this causeway and has seven culverts.

Single and multi-span culverts are structures of one or more arches supported on footings and abutments. They were constructed throughout the medieval period to carry a causeway allowing water to pass beneath, for the use of pedestrians and pack horses or vehicular traffic, crossing smaller rivers, streams and marshy areas, often replacing or supplementing earlier fords. During the early medieval period timber was used for such bridging structures, but from the C11 stone culverts became more common. Culvert arches may be pointed, semicircular or segmental. Where medieval culverts have been altered in later centuries, original features may be concealed behind later stonework, and timber structures may be preserved below the culverts. The causeway above the culverts may be of stone or earth.

Old Abingdon Road approached Oxford from the south and provided a causeway over the Hinksey stream, a group of channels which are a tributary of the Thames. During the Iron Age and Romano British periods alluvial deposits formed a series of islands in the floodplain in the area of South Hinksey now occupied by Hinksey stream which is thought to have been traversed by bridges and fords in the mid Saxon period.

It is possible that the causeway on the line of the Old Abingdon Road may have its origins in the Saxon period since a Saxon crossing of the river in the South Hinksey area by way of two fords is referenced in charter evidence. Evidence for Saxon structures on the route of the Grandpont are also found north of Folly Bridge where a stone structure thought to be of mid-Saxon date has been interpreted as metalling of a crossing of the alluvial islands. Also north of Folly Bridge the timbers of a bridge were excavated and dated to between the mid-C7 and the early C10.

The Norman and medieval parts of the Old Abingdon Road culverts are, by comparison of materials and construction, contemporary with the Grandpont.

These culverts with Norman and medieval phases have been extended and modified over time.

Cartographic evidence, from the New College Map of the Land in South Hinksey, a C16-C17 document, depicts the Old Abingdon Road with three round headed arches, and a road surface without a parapet. The road is labelled 'The Bridge or Horse way from Oxford to Abingdon'. The round headed arches are thought to be the Stanford, Mayweed and Lesser Mayweed bridges. Thus these bridges, in their original state, probably date from the C16 or C17, but have been much repaired and modified. The Inclosure map of 1814 suggests two flood relief arches at Mayweed Bridge, and possibly a similar arrangement at Stanford Bridge. In addition another channel depicted is probably one of the Redbridge culverts.

The Great Western Railway Oxford to Didcot Branch Line was completed in 1844. The construction of a railway bridge which carries the Old Abingdon Road over the railway line involved building an embankment between the Mayweed and Stanford Bridges, and necessitated extensions to the Redbridge culverts, which lie just to the west of the railway bridge (EH, 2012).

- 1.3.2 At the Redbridge East, culvert investigations carried out by Jacobs identified five phases of construction representing four phases of widening. One section has been positively identified as of Norman period construction as it is characterised by large ashlar masonry blocks with diagnostic diagonal striated tooling and fine joints of approximately 10mm. The arch follows a shallow arc form a low spring point and terminates in a round head arch of rubblestone construction. The Norman section is 3.8 metres wide and with a span of 1.75 metres. The remaining four sections are of rubblestone construction (Jacobs, 2009).
- 1.3.3 At the Redbridge West culvert, six phases of construction representing five phases of widening were identified. The two sections flanking the narrow central section have been identified as the earliest elements of the culvert. The construction details of one of these flanking sections included two courses of ashlar masonry with vertical striated tooling above the stone footings. Above the ashlar blocks were two courses of rubblestone masonry from which the springing for the barrel arched head of the culvert started. The face of this section of culvert was dressed with limestone voussoirs. The head of the arch consisted of longer, narrower blocks. The earliest section was 3.98 metres wide (Jacobs, 2009).
- 1.3.4 A radar survey of the Old Abingdon Road in 2008 failed to produce any significant results (Waterman CPM, 2008).
- 1.3.5 A watching brief in 2011 during the replacement of the rail bridge 100m to the west, showed that the road levels had been markedly raised during the 19th and 20th centuries, presumably to allow the road to cross the rail line, with at least 1.2m of made ground overlying the medieval causeway and associated culverts (OA, 2011).
- 2 PROJECT AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The aim of the below ground investigation was to record the extent, date, character, quality, significance and state of preservation of the archaeological remains within the areas of the site affected by the proposed works. In particular, to determine if features and deposits associated with the Norman, and later, causeway were present.



2.1.2 The other principal aim was to signal, before the destruction of the material in question, the discovery of a significant archaeological find, for which the resources allocated were not sufficient to support a treatment to a satisfactory and proper standard.

2.2 Methodology

- 2.2.1 A detailed watching brief was undertaken during all groundworks that have the potential to impact on the stone causeway and associated structures such as the culverts and was maintained throughout the period of intrusive groundworks. The excavations were undertaken using a tracked excavator fitted with a toothless bucket together with hand digging around the existing services.
- 2.2.2 Excavation of archaeological features was undertaken to fulfil the basic objective of retrieval of archaeological data affected by the works.
- 2.2.3 All features and deposits were issued with unique context numbers, and context recording will be in accordance with the established OA Field Manual (OAU 1992). All contexts, and any small finds and samples from them were allocated unique numbers. Bulk finds were collected by context. Colour digital photographs and black-and-white negative photographs were taken of all trenches and archaeological features. A general photographic record of the works was also made.
- 2.2.4 Provisions were made for taking environmental/organic samples in accordance with OA Environmental procedures (OA 2000).
- 2.2.5 Site plans were drawn at an appropriate scale (normally 1:50 or 1:100) with larger scale plans of features as necessary. Section drawings of features and sample sections of trenches were drawn at a scale of 1:20.
- 2.2.6 The watching brief was monitored by Richard Oram, Planning Archaeologist for OCAS.
- 3 RESULTS

3.1 Description of deposits

- 3.1.1 The initial works were suspended following the exposure of the stone constructed culvert. Although these excavations were recorded at the time, before a mitigation strategy was agreed with Richard Oram, they will not be described separately as the later works exposed the same stratigraphy.
- 3.1.2 At the deepest point of the excavations, 1.7m below the level of the pavement, a layer of fine dark grey clayey silts was encountered (15) (Fig. 2 and Fig. 3, Sections 1 and 2). Observed within this deposit were a number of irregular blocks of ragstone up to 0.3m x 0.2m x 0.15m in size. The placing of these stones appeared to be random with no obvious structure. This layer had been cut by the construction trench for the standing culvert (19). The limited depth of excavation did not exposure the full extent of this feature, but it is probable that the cut was in excess of 0.5m in depth and measured 2m wide.
- 3.1.3 Built within the construction cut was a barrel arched stone culvert or covered channel. The pink tinged limestone blocks forming the arch had been well dressed, but had no surface marks evident. These stones measured up to 0.4m x 0.25m x 0.18m in size. The stones had been tapered forming a semi-circular arch bonded with an orangebrown lime mortar. Similarly dressed and sized stones had been used to construct the interior faces of the channel. The remainder of the construction cut had been filled with bulk masonry formed using roughly dressed/ irregular blocks bonded with a coarse



orange-brown lime mortar. The depth of excavation was insufficient to exposure the full depth or base of the structure.

- 3.1.4 The structure was aligned roughly north-south, running under the present course of Old Abingdon Road. The southern extent of the structure had collapsed forming an irregular mass of loose masonry which had apparently been used as the foundations for the corner of the boundary wall along the eastern edge of Red Cottage. It was unclear if the end of the structure had been decoratively finished or if there had been any abutments present. Completely filling the interior of the culvert was a friable very dark grey/black silt (14). This deposit contained some organic debris such as twigs. Some plastic was observed within the top of the context, but this was probably deposited by later, modern, intrusions. It is probable that the silting occurred following the collapse/blocking of the end of the culvert.
- 3.1.5 Butting up to the exterior of the culvert was a sequence of deposits of made ground (Section 2). The earliest deposit consisted of a compacted layer of medium sized ragstone blocks within a greyish orange-brown clayey silt matrix (18). This measured approximately 0.3m in depth. Above 18 was a 0.4m deep layer of grey-brown sandy clay silt (17). This also appeared to have been compacted and contained sand and gravels as well as medium sized stones.
- 3.1.6 Finishing level with the top of the culvert was a layer of orange brown clayey silt mixed with sands, gravel and small to medium sized stones and measuring up to 0.4m in depth (16).
- 3.1.7 Above 16, and sealing the top of the culvert, was a layer of reddish brown silty clay (2). This were more friable in nature and contained smaller stones and gravel. Measuring on average 0.2m in depth this deposit tapered away at the southern end of the trench disappearing into the collapsed section of the culvert. None of this sequence of deposits produced any dating evidence.
- 3.1.8 Truncating the made ground and the structure of the culvert were a number of modern service trenches. The deepest of these was the trench for the storm water drain (8). This ran parallel to Old Abingdon Road and measured 1.5m in depth and 0.6m wide. This had been excavated through the western side of the culvert severely damaging/truncating the fabric of the culvert. It was unclear if the drain continued thought the eastern side of the culvert or if it had originally discharged into it. The storm drain consisted of a 0.3m diameter salt glazed pipe laid on a concrete bed. The trench had been backfilled with a mixture of redeposited materials including stone blocks (7).
- 3.1.9 South of the storm drain and also running parallel to Old Abingdon Road was a 1m deep and 0.55m wide trench containing a gas main (10). This had truncated the top 0.8m depth of the culvert and again had been backfilled with redeposited material (9).
- 3.1.10 South of the gas main and running along the edge of the pavement was a water main. This had been laid within a 0.6m deep and 0.5m wide trench (12). The trench had truncated the top of the arching within the culvert. Backfilling the trench was a greybrown silty clay (11).
- 3.1.11 Along the northern edge of the verge, layer 2 and the fill of the storm water drain, 7, was covered by a 0.2m deep layer of light grey-brown clayey silts (6). This was overlaid by a 0.15m deep landscaping layer of dark grey-brown silty loam, the present day topsoil and turf (5).
- 3.1.12 Overlying layer 2 at the southern end of the excavation and sloping down towards the water course was a deposit of dark grey-brown silty loam (1), up to 0.5m in depth. This



was very loose in structure and contained numerous modern artefacts such as glass bottles, frogged bricks and metal objects.

3.1.13 Laid into the surface of layers 1 and 5 was a concrete edged pavement. This was constructed using a hardcore base of crushed stone (4) and a tarmac surface (3) contained within concrete edging. Weathering of layer 1 had caused it to spill over the edge of the pavement.

3.2 Finds

3.2.1 All the dating evidence recovered was provisionally dated to the 19th century or later. These finds included frogged bricks, bottle glass and tin cans. These were evaluated on site but were not retained.

3.3 Environmental remains

3.3.1 No deposits containing material suitable for palaeo-environmental sampling were encountered during the course of the watching brief.

4 DISCUSSION AND CONCLUSIONS

- 4.1.1 It is probable that layer 15 represents the top of the natural deposits within the area of the excavations. Its composition and waterlogged nature suggests that it was an alluvium or flood deposit and may have formed the upper part of the marshland lying within the flood plain. The number of stones observed within this deposit may have been deliberately placed, possibly in an attempt to stabilise the ground to allow passage, but it is more likely that they represent construction debris that has sunk into the deposit. The absence of any topsoil deposits may indicate that the area was marshland at the time of construction.
- 4.1.2 The stratigraphy suggests that the construction cut for the culvert (19) had been cut at this level, although the fluid nature of layer 15 meant that the edges were unclear.
- 4.1.3 The bottom part of the stone culvert appears to have been trench built with the upper half standing proud. This would suggest that it was intended that the ground level (causeway) would be built up around and over it, rather than it being inserted into an existing causeway.
- 4.1.4 The stonework exhibited a good degree of workmanship with larger, well dressed stones forming the springing of the arch and the side walls of the channel, with rubblestone coursing and mortar infill used to provide the bulk masonry strengthening the arch and sidewalls. The stone is similar to that used in other culverts within the causeway, possibly indicating a similar source such as the Headington Quarries, north of the city. The mortar used is again of good quality with none of the lumpier lime flecking or charcoal inclusions observed within poorer constructions. The absence of charcoal flecking may indicate that the lime used is of late, 18th century onwards, manufacture. The presence of the mortar itself may also suggest that it is relatively recent with little evidence of it having been eroded or weathered out.
- 4.1.5 The deposits of made ground, 16, 17 and 18, all appear to be contemporary with the construction of the culvert and where presumably deposited as part of the same phase of work as the culvert.
- 4.1.6 Layer 2 appears to be a leveling layer although it may have also been intended as a road surface.



- 4.1.7 Examination of the stone culvert showed it to be of a single phase of construction. This possibly suggests that it was a later extension of an existing culvert, built when the causeway was widened, rather than part of the original Saxon or Norman Grand Pont.
- 4.1.8 The absence of any earlier road surface exposed within Section 2 would also suggest that the culvert exposed was outside the line of the existing causeway.
- 4.1.9 It is possible that the culvert exposed during this phase of work may have been constructed when the embankments and approaches between Mayweed Bridge and Stanford Bridge were raised and widened as part of the construction of the railway bridge by the Great Western Railway in the 1840s. This is similar to that observed within both the Redbridge Culverts and the Mayweed Bridge culverts where the earliest phases of construction are to the north with later extensions to the south.

Context	Туре	Depth	Width	Comments	Finds	Date
1	Layer	Up to 0.6m	> 4m	Accumulation of modern topsoil	Brick, stone, iron, glass	C19th/ C20th
2	Layer	0.15 m	> 4m	Made ground, part of road make-up	-	-
3	Surface	0.12 m	2.2m	Tarmac pavement	-	C20th
4	Layer	0.12 m	2.2m	Hardcore base for tarmac surface	-	C20th
5	Layer	0.15 m	> 2m	Topsoil, grass verge alongside Old Abingdon Road	-	C20th
6	Layer	0.18m	> 2m	Made ground below layer 5	-	C20th
7	Fill	1.3m	0.8m	Backfill of storm water pipe trench	-	C20th
8	Cut	1.3m	0.8m	Trench for storm water drain	-	C20th
9	Fill	1m	0.8m	Backfill of gas main trench	-	C20th
10	Cut	1m	0.8m	Trench for Gas Main		C20th
11	Fill	0.65m	0.5m	Backfill of water main trench	-	C20th
12	Cut	0.65m	0.5m	Trench for water main	-	C20th
13	Structure	1.2m	2m	Stone constructed culvert	-	-
14	Fill	> 0.7m	1.3m	Silting within stone culvert	-	-
15	Layer	> 0.2m	> 1 m	Alluvium/ flood deposits	-	-
16	Layer	Up to 0.4m	> 1.2m	Made ground. Part of causeway	-	-
17	Layer	0.3m	> 1.2m	Made ground. Part of causeway	-	-
18	Layer	0.3m	> 1.2m	Made ground. Part of causeway	-	-
19	Cut	> 0.2m	2m	Construction trench for Culvert 13	-	-

APPENDIX A. ARCHAEOLOGICAL CONTEXT INVENTORY



Archaeological Watching Brief Report Drainage Repairs, Old Abingdon Road

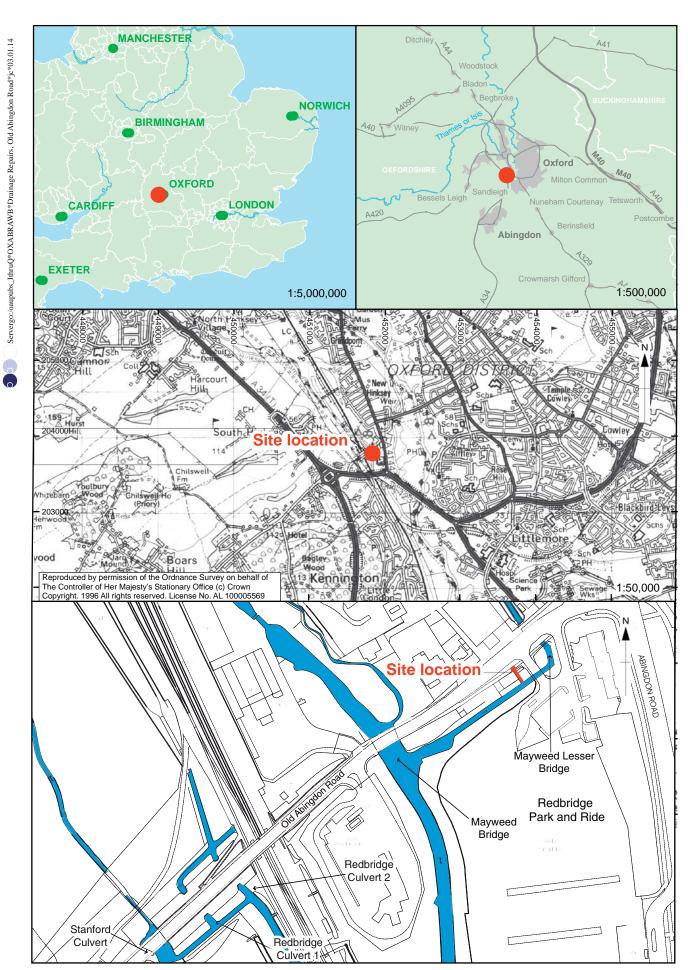
APPENDIX B. BIBLIOGRAPHY AND REFERENCES

Communities and Local Government, 2010	Planning Policy Statement 5: Planning and the Historic Environment
English Heritage, 2012	The National Heritage List for England, Entry 1408790: Old Abingdon Road Culverts
IFA, 2008	Standard and Guidance for archaeological watching briefs.
Jacobs, 2009	Old Abingdon Road Culverts Archaeological Investigations: Summary Report.
OA, 2011	Network Rail Replacement Bridge, Old Abingdon Road, Oxford: Archaeological Watching Brief Report
OA, 2013	Drainage Works, Old Abingdon Road, Oxford. Written Scheme of Investigation for a Watching Brief.
OAU,1992	Field Manual (1st Edition, edited Wilkinson D)
Watermans C P M, 2008	Old Abingdon Road Bridge, Oxford. Archaeology and Architectural Assessment (client report)



Archaeological Watching Brief Report

Appendix C. Summary of Site Details			
Site name:	Drainage Repairs, Old Abingdon Road, Oxford		
Site code:	OXOAR 13		
Grid reference:	Centred at SP 5189 0389		
Type of watching brief:	Excavation of new service trenching together with an inspection chamber		
Date and duration of project:	November and December 2013, 3 site visits		
Area of site:	Approximately 30m ²		
Summary of results:	During November and December 2013 OA conducted a watching brief during drainage repairs adjacent to Old Abingdon Road, Oxford (NGR: Centred at SP 5167 0372). These works included excavations to expose existing drains together with excavations for a new inspection chamber and drainage run.		
	The excavations exposed a previously unknown stone constructed culvert running under the Old Abingdon Road together with details of the roadways make-up. The exposed section had been heavily disturbed by a series of modern services including water, gas and storm drains causing it to collapse in places.		
	Although no dating evidence was recovered, its location and details of its construction suggests that it may be associated with the construction of the approaches to the railway bridge in the 1840s.		
Location of archive:	To be deposited with Oxfordshire County Museum Service under the Accession Number OXCMS:2013.152		



Taken from drawing 3129/01 by Waterman CPM, Environmental Planning and Design (not to scale)

Figure 1: Site location

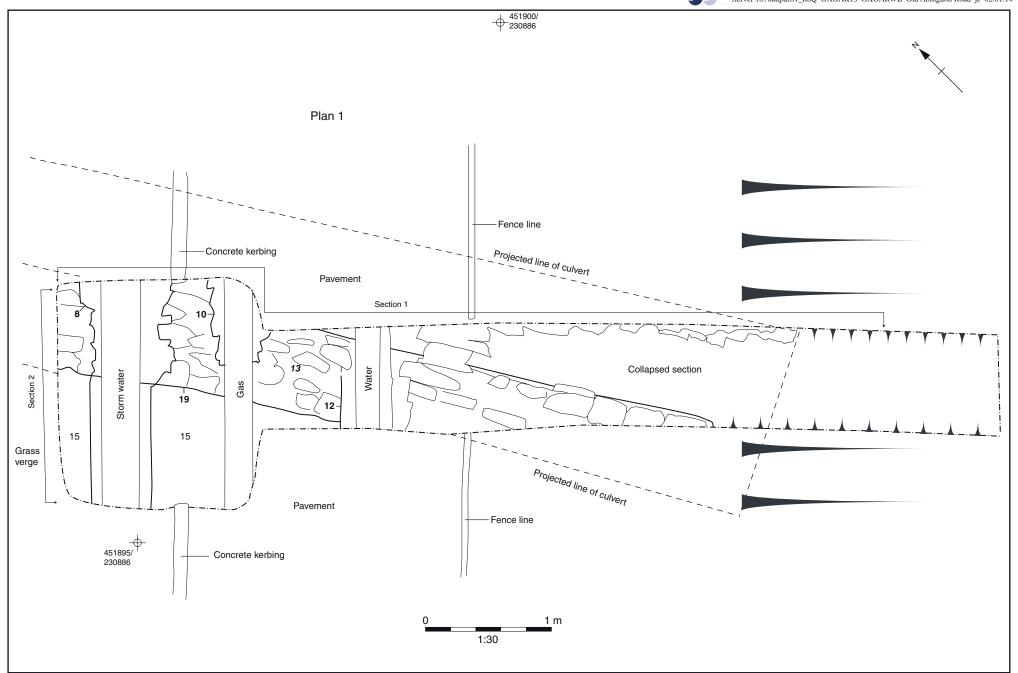


Figure 2: Site plan





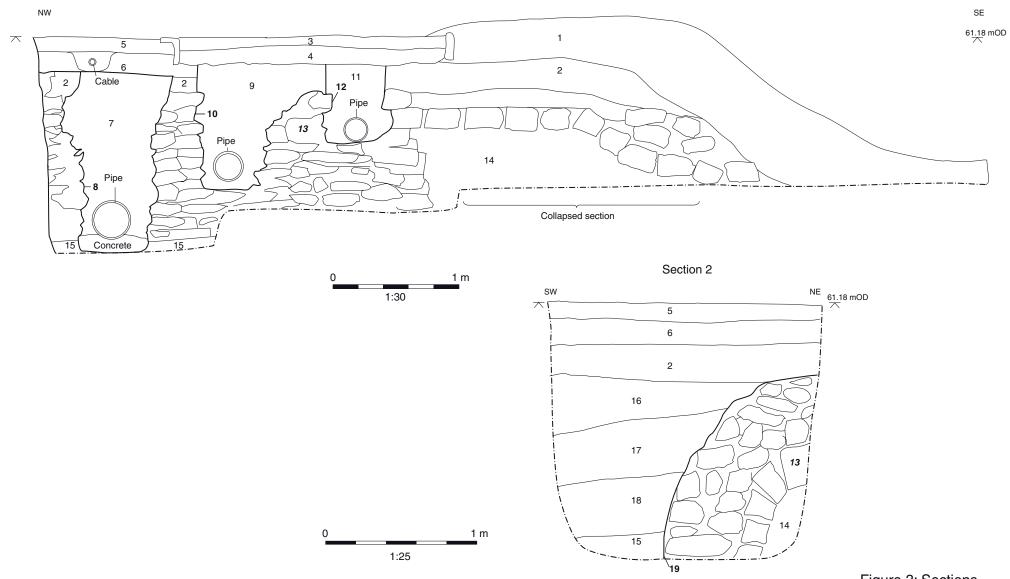


Figure 3: Sections



Plate 1: North end of section 1



Plate 2: Section 2



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