



Mytholmroyd Flood Alleviation Scheme Mytholmroyd, West Yorkshire

Archaeological Watching Brief: River Calder



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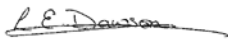
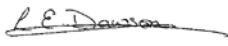
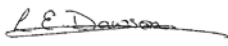
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Summary

Wessex Archaeology were commissioned by Atkins, on behalf of VBA Joint Venture Ltd, to carry out an archaeological watching brief in advance of a Flood Alleviation Scheme along the line of the River Calder in Mytholmroyd, West Yorkshire, centred on National Grid Reference (NGR) 400900, 426230.

The stated aims and objectives of the project have been met. No significant archaeological features or deposits were encountered. The artefact assemblage was not informative; nothing pre-dating the 18th century was recovered and the majority of material was likely redeposited as a result of river dredging.

The base of the foundation of the upstanding multiphase flood wall was reached in few locations. Test pit 18 (TP025), the most westerly intervention, uniquely targeted an older portion of the flood wall, which extended to 0.85 m below ground level (BGL) with no real foundation in this location. Test pit 44 (TH1) demonstrated three phases of foundation for the flood wall in this location, extending to 1.25 m BGL. Approximately between the confluence with Cragg Brook in the east to close to the 'White Houses' in the west (test pits 13–17), a stone wall supplemented the concrete wall. Phasing of these two walls is not conclusive. In the area of the 'White Houses', a narrow back lane divides the properties from the flood wall. The terraced houses close to test pit 20 have no separate flood defences but are built as part of a continuous wall that rises above the level of the river.

Natural alluvial deposits were seen in test pits 45–49 (TH2–6), from depths of 1.1 m to 1.7 m BGL. Some deposits represent periods of natural silting (*eg* 4904) and it is possible that further deposits fall into this category. The majority of deposits recorded represent anthropogenic redeposition of river-deposited material, likely through dredging or similar processes. This interpretation is supported by the abraded condition of recovered pottery. A well-made former pavement was seen to extend along the south side of the flood wall, buried typically below a thin layer of topsoil. This may have been designed to assist the flow of flood water. Building debris and made ground were encountered in some locations, particularly within 24 Burnley Road (test pits 40–43).

The presence of dredged material on the river bank, supported somewhat by the presence of the pavement, confirms a history of active river management in the area.

The archive is currently held at the offices of Wessex Archaeology in Sheffield, under the project code 114021 and will be transferred to Calderdale Museum in due course under accession number 2016:73. An OASIS record, wessexar1-262905, has been completed for this work and will be finalised at the time of deposition.



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Acknowledgements

The project was commissioned by Atkins on behalf of VBA Joint Venture Ltd and Wessex Archaeology is grateful to Fiona Deaton in this regard. The assistance of project manager Donald Murray and senior engineer James Melody are acknowledged. Adam Dargan, Adam Foden and Craig Parry maintained on-site monitoring for Atkins.

The watching brief was carried out by Andy Swann on seven non-consecutive days between the 14th September 2016 and the 26th January 2017.

This report was compiled by Ashley Tuck and Andy Swann. The finds were assessed by Lorraine Mepham. The project was managed for Wessex Archaeology by Lucy Dawson.



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1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by Atkins, on behalf of VBA Joint Venture Ltd, (hereafter 'the Client'), to carry out an archaeological watching brief on test pitting associated with a proposed flood alleviation scheme along the River Calder at Mytholmroyd, West Yorkshire (hereafter 'the Site'), centred on National Grid Reference (NGR) 400900, 426230 (Figure 1).
- 1.1.2 A scope of works was agreed following discussions between Atkins and the Environment Agency. Wessex Archaeology produced a Written Scheme of Investigation (WSI, Wessex Archaeology 2016a) outlining how the requirements of the work would be met. The WSI was modified by two addenda (Wessex Archaeology 2016b and 2017a). The format and content of the WSI and the addenda are based on current Chartered Institute for Archaeologists and Historic England guidance (ClfA 2014a-d; Historic England 2015). The WSI and addenda were approved by Atkins and the Environment Agency prior to the commencement of work.
- 1.1.3 Two further watching briefs reported on separately were undertaken as part of the same general flood alleviation scheme: a watching brief at the church of St. Michael, Mytholmroyd (Wessex Archaeology 2016c) and a watching brief at Cragg Brook, Mytholmroyd (Wessex Archaeology 2017b).

1.2 Site location and topography

- 1.2.1 The Site is located along the left bank (north bank) of the River Calder, located between Burnley Road and the river. An existing flood wall divides the site, with most of the work occurring on the river side (south side) of the flood wall. Four interventions were located within the dwelling at 24 Burnley Road. The Site runs from the west end of the 'White Houses' row of dwellings on Burnley Road (A646) to a point approximately 150 m to the east of the confluence of Cragg Brook and the River Calder. The area falls within the Mytholmroyd Conservation Area. Mytholmroyd is a small urban centre with open fields and moorland beyond (Figure 1).
- 1.2.2 The underlying solid geology comprises mudstone, siltstone, and sandstone of the Millstone Grit Group, comprising sedimentary bedrock formed approximately 313 to 326 million years ago in the Carboniferous Period. Superficial deposits of clay, silt, sand, and gravel alluvium are recorded (British Geological Survey).
- 1.2.3 The site lies at approximately 90 m above Ordnance Datum and slopes down from Burnley Road in the north to the River Calder in the south. The site does not slope significantly from west to east.



2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following information is summarised from the WSI (Wessex Archaeology 2016a) and includes information ultimately derived from a conservation area appraisal supplied by Calderdale Council (Calderdale Council 2000).

2.2 Summary

2.2.1 A Bronze Age burial ground with cremation urns is located on the moor to the north of Mytholmroyd. This burial ground is dated to a period between the 16th and 11th centuries BC and is of national importance. The peat moorlands surrounding Mytholmroyd attest to pre-historic land clearance for pasture.

2.2.2 Iron Age settlements within the area are generally located on hillside terraces, away from the valley floor, which is prone to flooding. This produces a pattern of scattered farmsteads with a network of trackways.

2.2.3 The name Mytholmroyd is derived from the Old English *mýthe* and *rodu* 'clearing at the river mouths' and it first appears in written sources in the 13th century.

2.2.4 The modern road pattern is probably influenced by packhorse routes that existed between Mytholmroyd and the nearby hamlets of Sowerby and Heptonsall. In 1684, a stone bridge was built over the River Calder at Mytholmroyd, and was widened in 1823-4. Archaeological evidence uncovered during a flood alleviation scheme in the 1960s included heavy socketed timbers thought to relate to an earlier wooden bridge. A turnpike road for the Calder Valley came to Mytholmroyd in 1760 and the Rochdale Canal in 1804. The railway was built in the 1840s but there was no station at Mytholmroyd until the 1850s or 1860s.

2.2.5 The textile industry came to the area during the post-medieval period. Elphaborough Hall, dated to the mid-17th century, displays evidence of textile manufacturing and storage whilst the Mytholmroyd Mill was built in 1794.

3 METHODOLOGY

3.1 Introduction

3.1.1 The work comprised the monitoring of the excavation of 20 geotechnical test pits and trial holes, designed to investigate the nature of the underlying deposits and the foundations of the existing flood wall (Figure 1). The works are part of the Mytholmroyd Flood Alleviation Scheme that aims to prevent/reduce flooding in Mytholmroyd and the Calder Valley. The outline plan produced by the Environment Agency for the scheme (2016) includes proposals:

- *to construct new and raise existing walls on both banks of the River Calder and Cragg Brook to up to maximum height of approximately 1.8 m;*
- *to strengthen buildings on both banks of the River Calder and Cragg Brook;*
- *to make improvements to the culvert on White Lee Clough; and*
- *to widen the channel on the River Calder including improvements to bridge structures.*



3.2 Aims and objectives

3.2.1 The aims of the watching brief were:

- to identify and record any archaeological features exposed during the excavation of the geotechnical test pits, boreholes and window samples;
- to recover any artefact evidence during groundworks;
- to make available the results of the investigation;
- to identify any previously unknown archaeological remains and define their location, extent, date, function and form; and,
- to investigate the depth and nature of the foundations of the flood wall to inform further groundworks as part of the Mytholmroyd Flood Alleviation Scheme.

3.3 Fieldwork methodology

3.3.1 Wessex Archaeology monitored the excavation of 20 trial pits and trial holes. Two of the trial pits were on the north (road side) of the flood wall, 14 of the interventions were on the south (river side) of the flood wall and the remaining four trial pits were within the dwelling of 24 Burnley Road.

3.3.2 All interventions were allocated a sequential Wessex Archaeology test pit number that is used throughout this report. Interventions are also known by TP and TH numbers assigned to them by the Client. Table 1 shows the equivalency of these numbers.

Table 1: Trial pit number equivalency table

Wessex Archaeology test pit number	Client identification	Location
8	TP011	North of flood wall
12	TP013	North of flood wall
13	TP014	South of flood wall
14	TP012	South of flood wall
15	TP016	South of flood wall
16	TP018	West of 'White Houses'
17	TP020	South of flood wall
18	TP025	South of flood wall
19	TP08	East of Cragg Brook confluence
20	TP06	East of Cragg Brook confluence
40	TP04	24 Burnley Road
41	TP02	24 Burnley Road
42	TP01	24 Burnley Road
43	TP03	24 Burnley Road
44	TH1	South of flood wall
45	TH3	South of flood wall
46	TH2	South of flood wall
47	TH4	South of flood wall
48	TH5	South of flood wall
49	TH6	South of flood wall

3.3.3 All work was carried out in accordance with the approved WSI and addenda (Wessex Archaeology 2016a, 2016b and 2017a) and industry standards and guidelines (ClfA 2014a-d).



- 3.3.4 The Client removed topsoil and overburden, both by machine and manually, working alongside a suitably experienced archaeologist. Deposits were removed in a series of level spits down to the level of the test pit extent.
- 3.3.5 All spoil was scanned for artefacts, which were recorded and retained unless of clearly modern (i.e. late 20th- or early 21st-century) origin.
- 3.3.6 No deposits suitable for environmental sampling were encountered.

3.4 Recording

- 3.4.1 Written and drawn records were made of the stratigraphy, even where no archaeological deposits were identified. Full written and drawn records of all excavated contexts were made in accordance with best archaeological practice.
- 3.4.2 Records included overall Site plans. All test pits were related to the Ordnance Survey datum and to the National Grid.
- 3.4.3 All deposits were recorded using Wessex Archaeology's *pro forma* recording system. This written record is hierarchically based and centred on the context record. Each context record fully described the location, extent, composition and relationship of the subject and was cross-referenced to all other assigned records. Context numbers used in the watching brief were not repeated.
- 3.4.4 A full photographic record was maintained consisting of digital images.

4 ARCHAEOLOGICAL RESULTS

4.1 Introduction

- 4.1.1 The following section provides a summary of the information held in the Site archive, with a full list of context numbers and context descriptions contained in Appendix 1. Trial pit locations can be seen on Figure 1.

4.2 North of the flood wall

Test pit 8 (TP 011)

- 4.2.1 Test pit 8 was located on the north side of the flood wall a short distance to the south-west of the B6138 road bridge, at the rear of a short terrace of stone buildings. At this point, the flood wall was constructed of reinforced concrete and was 0.3 m wide. After first removing a thin layer of tarmac (801), a layer of dark brown sandy loam (802) was excavated to a depth of 0.52 m below ground level (BGL). At this point, the test pit came down onto the top of the concrete foundations of the flood wall and the test pit was abandoned.

Test pit 12 (TP 013)

- 4.2.2 Test pit 12 (Plate 1) was positioned adjacent to the north face of the flood wall, between the wall and a stone outbuilding, towards the south-east end of the stone terrace. The visible flood wall was similar to that at test pit 8. A small hole was opened up and excavated through homogeneous topsoil (1201) to a depth of 1 m. At 0.85 m, concrete foundations were located projecting from the flood wall horizontally for 0.55m before stepping down beyond the limit of the excavation.



4.3 'White Houses' to Cragg Brook confluence, south of the flood wall

Test pit 13 (TP 014)

- 4.3.1 Test pit 13 was located to investigate the south face of the flood wall. The height of the wall was greater on the south side of the wall than on the north: 2.7 m in this location. The foundation of the flood wall was overlain by sandstone rubble (1302) over which a well-made paved sandstone surface (1303, Plate 2) had been laid. The test pit was sealed by topsoil (1301).

Test pit 14 (TP 012)

- 4.3.2 Test pit 14 was located close to test pit 8, but on the south side of the flood wall. The concrete wall at this point stands 1.7 m high. A stone wall abuts the face of the concrete wall, and is a further 1.7 m high. The bases of each wall were not seen. Phasing of the walls was not conclusive. The test pit was abandoned at a depth of 0.65 m when it began to fill with groundwater. From 0.3 m to 0.65 m, mid-brown sandy loam with fragments of stone (1404) was seen. A thin layer (0.05 m) of bedding sand (1403) was overlain by a well-made sandstone block pavement. A thin layer (0.05 m) of topsoil sealed the test pit.

Test pit 15 (TP 016)

- 4.3.3 Test pit 15 was located south of the flood wall opposite the junction of Longfellow Court with Burnley Road. The results from this test pit were similar to those from test pit 14. The concrete flood wall was visible for 1.58 m above the top of the stone wall abutting it to the south. The top of the stone wall was 0.4 m wide and extended 2.1 m down to ground level. The stone wall had a considerable batter stepping out at least 0.5 m. The test pit was excavated to a depth of 0.85 m where it began to fill with groundwater. Brown loam with stones (1503) was overlain by a well-made stone pavement (1502) and sealed by topsoil (1501).

Test pit 16 (TP 018)

- 4.3.4 Test pit 16 was located opposite the junction of Westfield Terrace with Burnley Road, adjacent to the south face of the flood wall. The concrete flood wall extended 1.60 m above the adjacent stone wall. A visible foundation platform at the top of the stone wall has a width of 0.25 m. The stone wall extends for a further 1.95 m above ground level, and has a considerable batter. The wall continues for a further 0.90 m BGL to the point where the test pit was terminated. Brown loam with stones and 19th century pottery (1603) was overlaid by a well-made paved surface (1602) sealed by topsoil (1601).

Test pit 17 (TP 020)

- 4.3.12 Test pit 17 was located south of the flood wall opposite the petrol station on Burnley Road. The concrete flood wall was 1.55 m high above the stone wall, which was 0.5 m high above ground level. The test pit was excavated to a depth of 1.4 m BGL. A large concrete foundation (1704) was seen from 0.6 m BGL. If foundation 1704 is the foundation of the main flood wall, this suggests the concrete wall predates the stone wall. Most of the excavated material comprises brown loam with sandstone (1703), which was overlain by a well-made sandstone pavement (1702) sealed by topsoil (1701).

Test pit 44 (TH1)

- 4.3.5 Test pit 44 was situated adjacent to the concrete flood wall behind the 'White Houses', approximately behind number 27 White Houses. The test pit was excavated to a depth of 1.25 m BGL. Three layers of concrete foundation (4407, 4406, and 4403) were seen, each extending 0.8 m horizontally from the flood wall. The lower foundation layer (4407) was possibly stone instead of concrete. The base of the lowest foundation was at 1.25 m BGL but it was not possible to determine safely what lay beneath it. Below 0.85 m BGL there



was dark grey silt with sand and gravel and brick fragments (4405). From 0.35 m BGL to 0.85 m BGL, there was dark brown silt loam with pebbles, sandstone fragments and blocks, possibly representing backfill of a construction trench (4404). From 0.25 m BGL to 0.35 m BGL, there was similar material to 4404, but with a high proportion of fragmented stone (4402). The trench was sealed with laid sandstone blocks, some of which disturbed and some were roughly cut (4401). The repeated layers of foundation suggest phases of reconstruction of the flood wall, which may have disturbed a former pavement in this location.

Test pit 45 (TH3)

- 4.3.6 Test pit 45 was situated adjacent to the concrete flood wall behind the 'White Houses', approximately behind numbers 7 and 9 White Houses. The flood wall was continuous with foundation 4502, which lay over concrete foundation 4506. The trench was excavated to a depth of 1.2 m but the base of the foundation was not seen. Below 1.1 m BGL was natural undisturbed mid-brown river gravel with sand and cobbles alluvium. From 0.75 m BGL to 1.1 m BGL, there was mixed river gravel and dark sandy silt with brick fragments (4504). From 0.3 m BGL to 0.75 m BGL was loose rubble and gravel with building debris including a mullioned windowsill (4403). The test pit was sealed by 0.3 m of building rubble (4501).

Test pit 46 (TH2)

- 4.3.7 Test pit 44 was situated 1.5 m south of the concrete flood wall behind the 'White Houses', approximately behind numbers 15 and 17 Burnley Road. The test pit was 1.8 m deep. Below 1.25 m BGL, natural mid-brown sand and river gravel alluvium was present (4603). From 0.7 m BGL to 1.35 m BGL there was dark grey/black sand silt with river pebbles, brick fragments, pottery and glass (4602). Above 0.7 m BGL, dark brown sandy silt loam with disturbed stone sets and broken sandstone was seen (4601).

Test pit 47 (TH4)

- 4.3.8 Test pit 47 was situated 1.3 m south of the concrete flood wall behind the 'White Houses', approximately behind number 1 White Houses. The test pit was dug to 1.55 m BGL. Natural alluvium was seen below 1.25 m BGL, consisting of brown sand and gravel (4705). From 0.7 m BGL to 1.25 m BGL there was dark grey silt with pebbles (4704). From 0.45 m BGL to 0.7 m BGL there was dark brown sand silt loam with stone, brick fragments and pebbles (4703). From 0.15 m BGL to 0.45 m BGL a layer of sandstone sets had been laid (4702). The test pit was sealed by a layer of dark brown sand silt which may represent recent silting, possibly from the Boxing Day flood of 2015 (4701).

Test pit 48 (TH1)

- 4.3.9 Test pit 48 (Plate 3) was located adjacent to the concrete flood wall to the east of the 'White Houses' on Burnley Road, just west of the petrol station. The concrete flood wall stepped out 0.6 m forming a foundation. The test pit was 1.6 m deep but the base of the foundation was not reached. Below 1.15 m BGL, natural brown sand and gravel alluvium is recorded (4803, Plate 3) although no construction cut for the flood wall was noted. From 0.7 m BGL to 1.15 m BGL, there was dark grey/black silt with gravel (4802). The test pit was sealed by made ground comprising dark brown loam with displaced sets, blocks of sandstone, brick fragments and pebbles (4801).

Test pit 49 (TH6)

- 4.3.10 Test pit 49 was situated 1.5 m south of the concrete flood wall opposite the petrol station on Burnley Road. The test pit was excavated to a depth of 1.85 m BGL. Natural alluvium was seen below 1.7 m BGL, comprising brown sand and gravel (4905). From 1.45 m BGL to 1.7 m BGL, laminar grey/brown fine silt free from inclusions was present, representing with a small amount of stone inclusions was seen (4903). From 0.15 m BGL to 1.15 m



BGL there was sandstone rubble in brown sandy loam (4902). Finally, dark brown sand with stone and brick fragments had likely been deposited as made ground (4901).

4.4 West of the 'White Houses'

Test pit 18 (TP 025)

- 4.3.15 Test pit 18 (Plate 4) was the most westerly intervention monitored and was located south of the flood wall close to the north-west end of the 'White Houses'. The flood wall in this location was clearly of greater antiquity than that to the south-east. It was comprised entirely of stone and had been built in two phases. The lower part of the wall extended from 0.85 m BGL to around 1.4 m above ground level. The lower part of the wall consisted of large sandstone blocks 0.2 m to 0.3 m in size. The upper part of the wall extended to 2.4 m above ground level (relative to the south side of the wall) and comprised smaller stones with a triangular coping. The test pit determined that the wall had no real foundation and was built directly on to the same apparently homogeneous brown loamy material (1803, Plate 4) seen across the site. No construction cut was seen and the material beneath the wall was indistinguishable from that piled against it. The well-made sandstone pavement (1802) was present and the test pit was sealed with topsoil (1801). The maximum depth excavated was 1.1 m.

4.5 East of Cragg Brook confluence

Test pit 19 (TP 008)

- 4.3.18 This test pit was located south of the flood wall approximately 4 m to the west of Midgley Road. The reinforced concrete flood wall extended above a 0.6 m wide step located 1.75 m above ground level. The test pit was excavated to a depth of 1.15 m where it encountered a cement foundation (1904) that extended across the test pit. The extent of the foundation in plan was not defined. Brown loam (1903) was overlain by a well-made stone pavement (1902) and sealed by topsoil (1901).

Test pit 20 (TP 006)

- 4.3.21 Test pit 20 was located at the foot of the south façade of a terrace of stone buildings on the side of Burnley Road some 50m to the east of the B6138 bridge. The test pit was excavated to a depth of 1.15 m where it was abandoned due to ground water. Below 0.62 m BGL, a mix of grey and brown coarse silt sand (2004) was seen. This was overlain by reddish brown silty gravel with pebbles, sandstone fragments and 18th to 19th century pottery (2003). A well-made sandstone pavement (2002) overlay 2003, and was sealed by topsoil (2001). The wall of the building was of dressed coursed sandstone overlying lower courses of very roughly squared blocks of sandstone, with the mortar likely lost or possibly never present. The wall foundation continued beyond the limit of excavation.

4.6 24 Burnley Road

- 4.4.1 Four test pits were located in the ground floor of number 24 Burnley Road, two in the former living room and two in the former kitchen. The house was constructed of stone over two floors with a north-facing door and mullioned windows. A central wooden stair gives access to the first floor. The eastern wall has blocked openings to either side of a wide central fireplace. Beyond the western external wall of the kitchen were the remains of a single-storey lean-to structure that had been destroyed in the Boxing Day 2015 floods.

Test pit 40 (TP 04)

- 4.6.1 The test pit was located under the wooden stair close to the opening from the living room into the kitchen, opposite the external door to Burnley Road. The test pit was excavated to

a depth of 0.7 m. Recent building rubble made ground (4002) was overlain by stone flags (4001).

Test pit 41 (TP 02)

- 4.6.2 Test pit 41 was located at the centre of the floor of the former kitchen. The test pit was excavated to a depth of 0.45 m. Recent building rubble (4102) was overlain by a sandstone floor (4101) covered by modern composite flooring.

Test pit 42 (TP 01)

- 4.6.3 Test pit 42 (Plate 5) was situated close to the north-east corner of the living room, nearly forward of the side of the fireplace and adjacent to the northern external wall of the house. The test pit was excavated to a depth of 0.8 m BGL. Below 0.5 m BGL, there was dirty grey/brown sand silt with stones and animal bone (4203). Above this was a dark brown/black loam with frequent sandstone and building debris and pottery (4202). The test pit was sealed by a modern composite floor (4101).

Test pit 43 (TP 03)

- 4.6.4 Test pit 43 was located close to the south-east corner of the former kitchen, a short distance to the west of the cross wall and adjacent to the river-side south wall. The test pit was excavated to 0.6 m BGL. Below 0.35 m BGL was a deposit of light brown sand containing pottery and somewhat bioturbated by rats (4304). Overlying 4304 was mid-brown sandy loam with sandstone, building debris and pottery. Overlying these deposits was a broken flagstone floor (4302) sealed by composite flooring (4301).

5 ARTEFACTUAL EVIDENCE

5.1 Introduction

- 5.1.1 A small quantity of finds was recovered during the watching brief, consisting largely of post-medieval/modern pottery, and deriving from layers in test pits 13, 16, 20, and 44–48. Quantities of finds by material type and by context are given in Table 2.

5.2 Pottery

- 5.2.1 All of the pottery recovered (58 sherds) is of post-medieval/modern date, and includes redwares, tinglazed earthenware, stonewares and refined wares, with a probable date range of 18th to 20th century (see Table 2). Sherds from layers 1301, 1603, 2003, 4704, 4801 and 4802 are heavily water-worn, consistent with incorporation in river-dredged material, and cannot therefore provide accurate dating for these layers. The same applies to the two 18th/19th century sherds from made ground 4002.

5.3 Other Finds

- 5.3.1 Other finds comprise a thin leather offcut strip from layer 1301; a metal bar of unknown function with two rivet holes from layer 2003; four pieces of animal bone, including cattle pelvis, from layer 4203; five fragments of bottle/jar glass from layer 4303 and two more from 4704, and a wine glass base from 4602, all of 19th/20th century date; a clay pipe stem from 4602; and a cockle shell from layer 4304. Apart from the glass and clay pipe, none of these finds are datable.



Table 2: All finds by context (number / weight in grammes)

Context	Pottery	Pottery wares	Other Finds
1301	2/53	Black-glazed redware (18th/19th C)	1 leather
1603	5/158	Stoneware; refined whiteware (18th-20th C)	
2003	15/270	Stoneware; black-glazed redware; refined whiteware (18th-20th C)	1 metal
4002	2/7	Black-glazed redware; creamware (18th-19th C)	
4202	1/15	Creamware (18th C)	
4203			4 cattle bone
4303			5 glass
4304	2/63	Black-glazed redware (18th/19th C)	1 shell
4404	2/34	Stoneware (feldspathic glazed) (19th/20th C)	
4503	3/43	Redware; stoneware; refined whiteware (18th-20th C)	
4602	5/175	Black-glazed redware; refined whiteware (18th-19th C)	1 clay pipe; 1 glass
4704	6/60	Tinglazed earthenware; refined whiteware (18th-20th C)	2 glass
4801	5/90	Redware (white-slipped); refined whiteware (19th/20th C)	
4802	6/66	Black-glazed redware; tinglazed earthenware; stoneware; refined whiteware (18th-20th C)	
Total	54/1034		

6 DISCUSSION

6.1 Conclusions

- 6.1.1 The stated aims and objectives of the project have been met. No significant archaeological features or deposits were encountered. The artefact assemblage was not informative; nothing pre-dating the 18th century was recovered and the majority of material was likely redeposited as a result of river dredging.
- 6.1.2 The base of the foundation of the upstanding multiphase flood wall was reached in few locations. Test pit 18 (TP025), the most westerly intervention, uniquely targeted an older portion of the flood wall, which extended to 0.85 m below ground level (BGL) with no real foundation in this location. Test pit 44 (TH1) demonstrated three phases of foundation for the flood wall in this location, extending to 1.25 m BGL. Approximately between the confluence with Cragg Brook in the east to close to the 'White Houses' in the west (test pits 13–17), a stone wall supplemented the concrete wall. Phasing of these two walls is not conclusive. In the area of the 'White Houses', a narrow back lane divides the properties from the flood wall. The terraced houses close to test pit 20 have no separate flood defences but are built as part of a continuous wall that rises above the level of the river.



- 6.1.3 Natural alluvial deposits were seen in test pits 45–49 (TH2–6), from depths of 1.1 m to 1.7 m BGL. Some deposits represent periods of natural silting (eg 4904) and it is possible that further deposits fall into this category. The majority of deposits recorded represent anthropogenic redeposition of river-deposited material, likely through dredging or similar processes. This interpretation is supported by the abraded condition of recovered pottery. A well-made former pavement was seen to extend along the south side of the flood wall, buried typically below a thin layer of topsoil. This may have been designed to assist the flow of flood water. Building debris and made ground were encountered in some locations, particularly within 24 Burnley Road (test pits 40-43).
- 6.1.4 The presence of dredged material on the river bank, supported somewhat by the presence of the pavement, confirms a history of active river management in the area.

7 STORAGE AND CURATION

7.1 Museum

- 7.1.1 The archive is currently held at the offices of Wessex Archaeology in Sheffield, under the project code 114021 and will be transferred to Calderdale Museum in due course under accession number 2016:73. An OASIS record, wessexar1-262905, has been completed for this work and will be finalised at the time of deposition. The OASIS form covers all three phases of work to date, including works at St Michael's church (Wessex Archaeology 2016c) and works at Cragg Brook (Wessex Archaeology 2017b).

7.2 Preparation of archive

- 7.2.1 The complete site archive, which will include paper records, photographic records, graphics and digital data, will be prepared following the standard conditions for the acceptance of archaeological records by Calderdale Museum, and in general following nationally recommended guidelines (SMA 1995; ClfA 2014c; Brown 2011; ADS 2013).
- 7.2.2 All archive elements will be marked with the accession code (2016.73), and a full index will be prepared.

7.3 Discard policy

- 7.3.1 Wessex Archaeology follows the guidelines set out in *Selection, Retention and Dispersal of Archaeological Collections* (SMA 1993), which allows for the discard of selected artefact and ecofact categories which are not considered to warrant any future analysis. Any discard of artefacts will be fully documented in the project archive.

7.4 Security copy

- 7.4.1 In line with current best practice (e.g. Brown 2011); on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.



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- Chartered Institute for Archaeologists (CIfA), 2014c *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*
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- Wessex Archaeology 2016c *Mytholmroyd Flood Alleviation Scheme: Church of St. Michael, Mytholmroyd, West Yorkshire: Archaeological Watching Brief*, unpublished client report 114020.04



Wessex Archaeology 2017a *Mytholmroyd Flood Alleviation Scheme: Mytholmroyd, West Yorkshire: Addendum to Written Scheme of Investigation for Archaeological Watching Brief*, unpublished client report ref. T22343.03

Wessex Archaeology 2017b *Mytholmroyd Flood Alleviation Scheme, Mytholmroyd, West Yorkshire: Archaeological Watching Brief: Cragg Brook*, unpublished client report ref. 114022.02

8.2 Consulted online sources

British Geological Survey <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> (accessed 12/07/2016)



9 APPENDICES

Appendix 1: Context descriptions

Test pit TR08			
Test pit dimensions: L: 0.85m, W: 0.30m, D: 0.52m			
Context	Type	Description	Depth (m)
801	Layer	Topsoil. Dark brown to grey very sandy loam. Much stone, pebbles, CBM. Possibly redeposited construction test pit fill.	0.00-0.52
802	Structure	Base of concrete foundation. Stone flood wall appears to sit on the foundation.	0.52-

Test pit TR12			
Test pit dimensions: L: 0.75m, W: 0.35m, D: 1.00m			
Context	Type	Description	Depth (m)
1201	Layer	Topsoil. Dark brown sandy loam with stone debris. May be construction test pit backfill.	0.00-1.00
1202	Structure	Concrete wall footings. Slopes gently in the direction of the river.	0.85-

Test pit TR13			
Test pit dimensions: L: 1.20m, W: 0.60m, D: 0.85m			
Context	Type	Description	Depth (m)
1301	Layer	Mid brown sandy silty loam with fragments of sandstone and occasional gravel.	0.00-0.45
1302	Structure	Large pieces of roughly dressed sandstone forming a paved surface on the river bank.	0.35-0.55
1303	Layer	Mixture of dark brown sandy loam with abundant stone rubble.	0.55-0.85
1304	Structure	Hard grey concrete laid as a foundation for the flood wall. Steps down towards the south.	0.85-

Test pit TR14			
Test pit dimensions: L: 1.30m, W: 0.50m, D: 0.65m			
Context	Type	Description	Depth (m)
1401	Layer	Mid brown sandy silty loam. Some small stones and occasional gravel. Silt and wash over riverside pavement.	0.00-0.05
1402	Structure	Large sandstone blocks laid as riverside pavement. Stones typically 0.60x0.30x0.20m.	0.05-0.30
1403	Layer	Pale brown silty sand bedding below the stone pavement.	0./30-0.35
1404	Layer	Mid brown sandy loam with frequent small fragments of sandstone, some small gravel and occasional large pebbles.	0.35-0.65+

Test pit TR15			
Test pit dimensions: L: 0.60m, W: 0.40m, D: 0.85m			
Context	Type	Description	Depth (m)
1501	Layer	Turf and vegetation including Himalayan Balsam	0.00-0.05



Test pit TR15	Test pit dimensions: L: 0.60m, W: 0.40m, D: 0.85m		
Context	Type	Description	Depth (m)
1502	Structure	Sandstone pavement over the bank of the river. Stones are roughly squared.	0.05-0.25
1503	Layer	Mid to dark brown sandy silty loam with high quantities of small and large pebbles and sandstone rubble. Wall foundation not reached.	0.25-0.85

Test pit TR16	Test pit dimensions: L: 0.60m, W: 0.20m, D: 0.60m		
Context	Type	Description	Depth (m)
1601	Layer	Dark silty loam supporting plant growth including Balsam, Nettles, Grasses and Brambles.	0.00-0.10
1602	Structure	Sandstone pavement over the side of the river bank. Stones of various sizes.	0.10-0.35
1603	Layer	Dark brown silty sandy loam. Possibly made ground. River worn sandstone, pebbles and some abraded pottery.	0.35-0.60

Test pit TR17	Test pit dimensions: L: 1.20m, W: 0.40m, D: 1.40m		
Context	Type	Description	Depth (m)
1701	Layer	Turf and topsoil. Mid to dark brown silty sandy loam with fragments of sandstone.	0.00-0.12
1702	Structure	Sandstone pavement over the side of the river bank. Individual stones generally smaller than to the east; 0.20x0.20x0.18m.	0.12-0.30
1703	Layer	Mid to dark brown sandy loam with large amounts of broken sandstone rubble, some CBM and a few pebbles. Occasional large blocks of sandstone rubble. Probably redeposited following the construction of the flood wall.	0.30-0.60
1704	Structure	Extensive area of poured concrete providing a foundation for the flood wall. Slopes down towards the river and steps deeply down at over 1.00m.	0.60-1.40

Test pit TR18	Test pit dimensions: L: 0.40m, W: 0.40m, D: 1.10m		
Context	Type	Description	Depth (m)
1801	Layer	Vegetation and dark brown topsoil. Sandy loam with fragmented sandstone.	0.00-0.10
1802	Structure	Sandstone pavement over the river bank; slopes gently towards the river. Large blocks of poorly cut stone.	0.10-0.35
1803	Layer	Dark brown sandy loam with a high percentage of sandstone rubble.	0.35-1.10



Test pit TR19			
Test pit dimensions: L: 0.50m, W: 0.50m, D: 1.15m			
Context	Type	Description	Depth (m)
1901	Layer	Dark brown to black silty loam with infrequent small pieces of sandstone.	0.00-0.20
1902	Structure	Sandstone pavement on the side of the river bank comprising large blocks of roughly cut stone.	0.20-0.50
1903	Layer	Dark brown silty sandy loam with frequent large fragments of sandstone rubble. Became waterlogged.	0.50-1.15
1904	Structure	Grey cement foundation for the wall. Extent continues beyond the test pit towards the river.	1.15-+

Test pit TR20			
Test pit dimensions: L: 0.50m, W: 0.40m, D: 1.15m			
Context	Type	Description	Depth (m)
2001	Layer	Topsoil and vegetation. Dark brown silty loam with small fragments of sandstone.	0.00-0.10
2002	Structure	Large semi-dressed blocks of sandstone forming a paved area over the river bank.	0.10-0.32
2003	Layer	Mid to dark brownish red sandy silty gravel with large quantities of pebbles, broken sandstone and abraded pottery.	0.32-0.62
2004	Layer	Mixture of mid grey and brown coarse silty sand. Foundation of wall not reached.	0.62-1.15

Test pit TR40			
Test pit dimensions: L: 0.65m, W: 0.55m, D: 0.70m			
Context	Type	Description	Depth (m)
4001	Structure	Stone flag. Part of an early floor of the house. May not be original.	0.00-0.06
4002	Layer	Dirty mid brown clayey silty loam with an abundance of sandstone pieces and fragments, building rubble including fragments of slate, mortar, stone roof slabs and pottery. Made ground which may represent a re-levelling of the original floor.	0.06-0.70

Test pit TR41			
Test pit dimensions: L: 0.70m, W: 0.60m, D: 0.45m			
Context	Type	Description	Depth (m)
4101	Structure	Stone flag. Broken. Part of an early floor of the house. Probably not original.	0.00-0.06
4102	Layer	Dirty mid brown coarse sandy silt with an abundance of fragmented sandstone and occasional pieces of building rubble including broken roofing slabs, mortar and brick. Re-deposited levelling material.	0.06-0.45



Test pit TR42			
Test pit dimensions: L: 0.75m, W: 0.60m, D: 0.80m			
Context	Type	Description	Depth (m)
4201	Structure	Pale to mid grey cement based concrete with sandstone rubble inclusions. Later floor surface.	0.00-0.10
4202	Layer	Dark brown to black sandy silty loam with frequent fragments of sandstone, broken sandstone floor and roofing slabs, broken brick, fragments of lime-based mortar, finishing plaster and pottery.	0.10-0.50
4203	Layer	Dirty mid grey to brown sandy silt with occasional small stones, animal bone and coarse grit. Relatively clean. Probably dredged material or silting.	0.50-0.80+

Test pit TR43			
Test pit dimensions: L: 0.70m, W: 0.55m, D: 0.60m			
Context	Type	Description	Depth (m)
4301	Structure	Dark grey and brownish grey two-phase composite flooring.	0.00-0.025
4302	Structure	Broken stone flagged floor.	0.025-0.09
4303	Layer	Mid brown very sandy silty loam. Relatively clean. Frequent sandstone rubble, fragments of mortar and shards of bottle glass. Rat-run in the south-east corner may explain the presence of late finds.	0.09-0.35
4304	Layer	Light to dark brown sandy loam, similar to 4102. Many fragments of sandstone. Some glazed pottery. Rat-run continues in the south-east corner.	0.35-0.60

Test pit TR44			
Test pit dimensions: L: 3.70m, W: 1.75m, D: 1.25m			
Context	Type	Description	Depth (m)
4401	Structure	Riverside pavement. Laid and disturbed blocks of sandstone and gritstone	0.00-0.25
4402	Layer	Dark brown silty sandy loam with fragments and pieces of stone.	0.25-0.35
4403	Structure	Concrete foundation for the standing flood wall. Projects 0.80m towards the river.	0.35-0.75
4404	Layer	Dark brown silty loam with abundant river gravel and blocks and pieces of sandstone. Possibly part of the wall foundation backfill.	0.75-0.85
4405	Layer	Dark grey silt with sand and abundant gravel. Traces of CBM.	0.85-1.25
4406	Structure	Earlier phase of concrete wall foundation.	0.75-1.10
4407	Structure	Earlier phase of concrete wall foundation.	1.10-1.25



Test pit TR45			
Test pit dimensions: L: 2.90m, W: 1.50m, D: 1.20m			
Context	Type	Description	Depth (m)
4501	Layer	Dark brown silty sandy loam with abundant heavy rubble, fragmented sandstone and gravel.	0.00-0.30
4502	Structure	Concrete wall foundation. Extends 0.60 from the wall face towards the river.	0.30-0.85
4503	Layer	Loose mixture of rubble and gravel with architectural fragments (18 th century window sills). Made ground.	0.30-0.75
4504	Layer	Dark sandy silt and abundant river gravel with sparse CBM.	0.75-1.10
4505	Layer	Mid brown to grey and brown river gravel and sand with some large pebbles. Natural.	1.10-1.20
4506	Structure	Early concrete foundation.	0.85-1.20

Test pit TR46			
Test pit dimensions: L: 1.90m, W: 1.40m, D: 1.80m			
Context	Type	Description	Depth (m)
4601	Layer	Dark brown sandy silty loam with disturbed stone setts. Some broken sandstone and occasional sandstone fragments.	0.00-0.70
4602	Layer	Dark brown sandy silty loam with small and medium sized pebbles. Occasional CBM, pottery and glass, some has been river eroded. Dredged material?	0.70-1.35
4603	Layer	Mid brown and brown river gravel and sand. Natural.	1.35-1.80

Test pit TR47			
Test pit dimensions: L: 1.60m, W: 0.80m, D: 1.55m			
Context	Type	Description	Depth (m)
4701	Layer	Mid to dark brown sandy silt. Recent (2015) silt deposit over setts.	0.00-0.15
4702	Structure	Sandstone setts laid as part of the wide river channel pavement. Generally 0.30-0.40m sq. but some, further towards the river are very large, 0.80 x 1.45 x 0.30m.	0.15-0.45
4703	Layer	Dark brown sandy silty loam with broken sandstone, pebbles and occasional CBM.	0.45-0.70
4704	Layer	Dirty dark grey granular silt with abundant small and medium pebbles. Dredging?	0.70-1.25
4705	Layer	Mid brown to brown sand and gravel. Natural river gravel.	1.25-1.55



Test pit TR48		Test pit dimensions: L: 2.15m, W: 0.85m, D: 1.60m	
Context	Type	Description	Depth (m)
4801	Layer	Dark brown sandy silty loam with large amounts of displaced setts, blocks and fragments of sandstone , pebbles and occasional CBM. Made ground.	0.00-0.70
4802	Layer	Dark grey to black sandy silt with abundant river gravel. Dredging.	0.70-1.15
4803	Layer	Mid brown to brown sand and gravel. Natural.	1.15-1.60

Test pit TR49		Test pit dimensions: L:2.20m, W: 0.90m, D: 1.85m	
Context	Type	Description	Depth (m)
4901	Layer	Dark brown sandy loam with large quantities of fragments and blocks of sandstone, pot and a brick marked 'HARRATT'. Made ground.	0.00-0.75
4902	Layer	Mid brown sandy loam with fragments and blocks of sandstone.	0.75-1.15
4903	Layer	Pale to mid brown sandy silt with occasional fragments of sandstone. Flooding or dredging.	1.15-1.45
4904	Layer	Pale grey to brown laminated fine silt with no inclusions. Flood deposits.	1.45-1.70
4905	Layer	Mid brown and brown sand and gravel. Natural.	1.70-1.85



Appendix 2: OASIS form

OASIS ID: wessexar1-262905

Project details

Project name	Mytholmroyd Flood Alleviation Scheme, Mytholmroyd, West Yorkshire
Short description of the project	Wessex Archaeology were commissioned by Atkins, on behalf of VBA Joint Venture Ltd, to carry out an Archaeological Watching Brief in advance of a Flood Alleviation Scheme. Three phases of similar work were undertaken centred on National Grid Reference (NGR) 401341 425976. Phase 1 was based at St Michael's Church, Church Street, Mytholmroyd and Phases 2 and 3 occurred at the River Calder and Cragg Brook. A total of twenty-five small geotechnical test pits and five window samples were excavated across the three phases. Test pits adjacent to the outer and inner faces of the Church attempted to ascertain the depth of foundations in advance of widening the channel of the River Calder which passes some 7 m to the north of the building. Following the removal of overburden, a consistent deep layer of silty sandy loam was encountered, interpreted as redeposited dredged material. Excavation depth was limited to 1.20 m, a point at which the foundations of the north wall of the Church were still continuing. Interventions adjacent to the River Calder revealed upcast dredged material. The river bank paving on the north side of the river likely dates from the 19th century. Further away, evidence of seasonal flooding was detected. A large culverted feature runs through the garden of Scar Bottom Cottages.
Project dates	Start: 17-08-2016 End: 19-09-2016
Previous/future work	No / No
Any associated project reference codes	114020 - Contracting Unit No.
Any associated project reference codes	2016.73 - Museum accession ID
Any associated project reference codes	114021 - Contracting Unit No.
Any associated project reference codes	114022 - Contracting Unit No.
Type of project	Recording project
Site status	Listed Building
Current Land use	Other 4 - Churchyard
Current Land use	Other 15 - Other
Monument type	CHURCH Post Medieval
Significant Finds	GLASS Post Medieval
Investigation type	""Watching Brief""
Prompt	Direction from Local Planning Authority - PPG16

Project location

Country England



Site location	WEST YORKSHIRE CALDERDALE HEBDEN ROYD Mytholmroyd Flood Alleviation Scheme: Church of St. Michael
Study area	0 Hectares
Site coordinates	SE 01341 25976 53.729956074242 -1.979671555929 53 43 47 N 001 58 46 W Point

Project creators

Name of Organisation	Wessex Archaeology
Project brief originator	Wessex Archaeology
Project design originator	Wessex archaeology
Project director/manager	Lucy Dawson
Project supervisor	Andy Swann
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Atkins

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Calderdale Museum
Digital Archive ID	2016.73
Digital Contents	"none"
Digital Media available	"Images raster / digital photography","Text"
Paper Archive recipient	Calderdale Museum
Paper Archive ID	2016.73
Paper Contents	"none"
Paper Media available	"Context sheet","Diary","Drawing","Photograph","Plan","Report","Section"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Mytholmroyd Flood Alleviation Scheme: Church of St. Michael, Mytholmroyd, West Yorkshire: Archaeological Watching Brief
Author(s)/Editor(s)	Swann, A



Author(s)/Editor(s) Dawson, L.
Other bibliographic details 114020.04
Date 2016
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Description A4 laser printed report

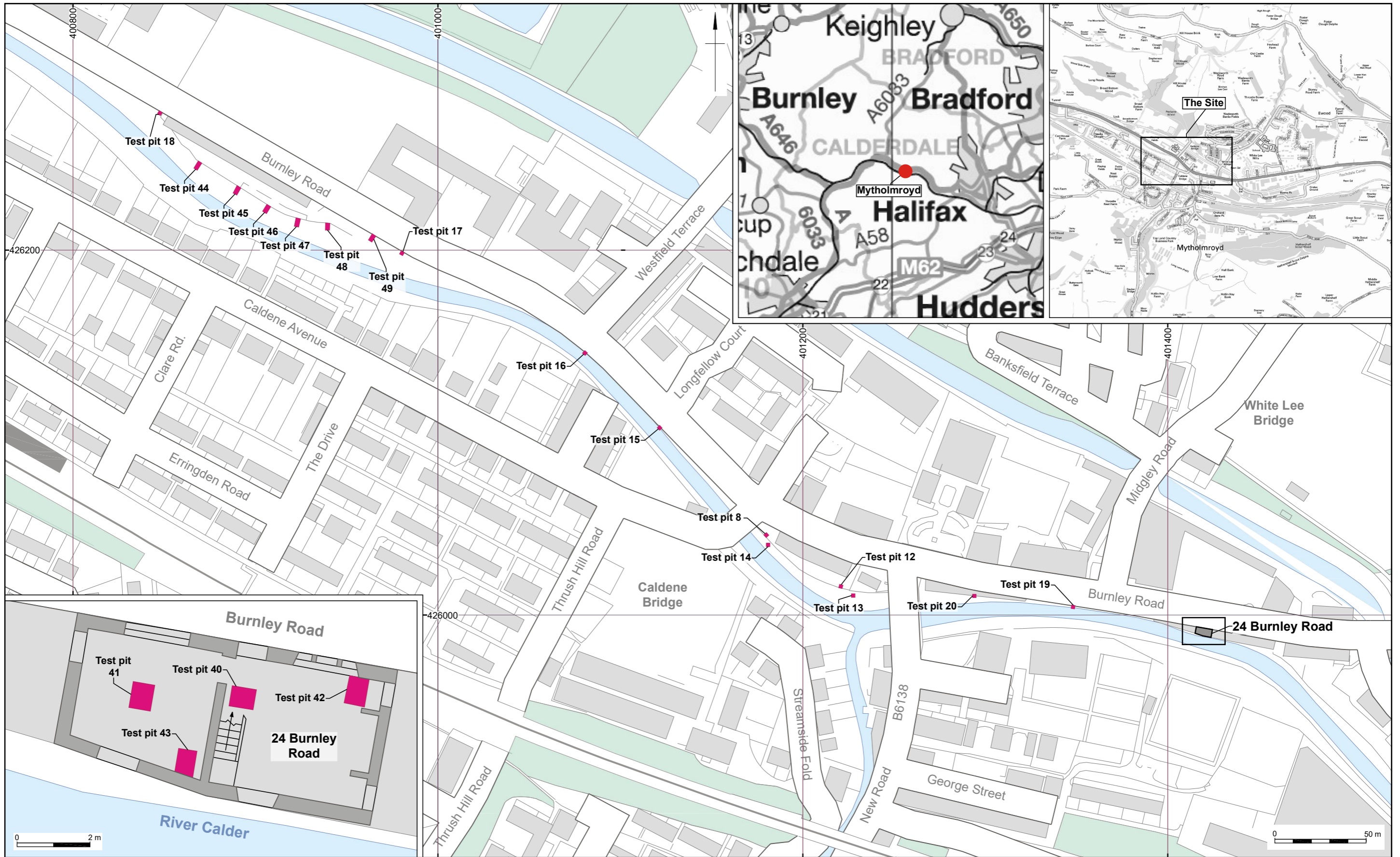
Project bibliography 2

Publication type Grey literature (unpublished document/manuscript)
Title Mytholmroyd Flood Alleviation Project, Mytholmroyd, West Yorkshire:
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Date:	21/03/2017
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Revision Number:	0
Illustrator:	JD/APS

Site and test pit location

Figure 1



Plate 1: Test pit 13 from south



Plate 2: Sandstone pavement in test pit 14 from north


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Plate 3: Test pit 48 from south showing natural sand and gravel alluvium 4803 in base



Plate 4: Test pit 18 showing base of variant flood wall from south



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Plate 5: Test pit 42 excavated inside dwelling at 24 Burnley Road from west

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	Date:	03/04/2017	Revision Number:	0
	Scale:	N/A	Illustrator:	APS
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