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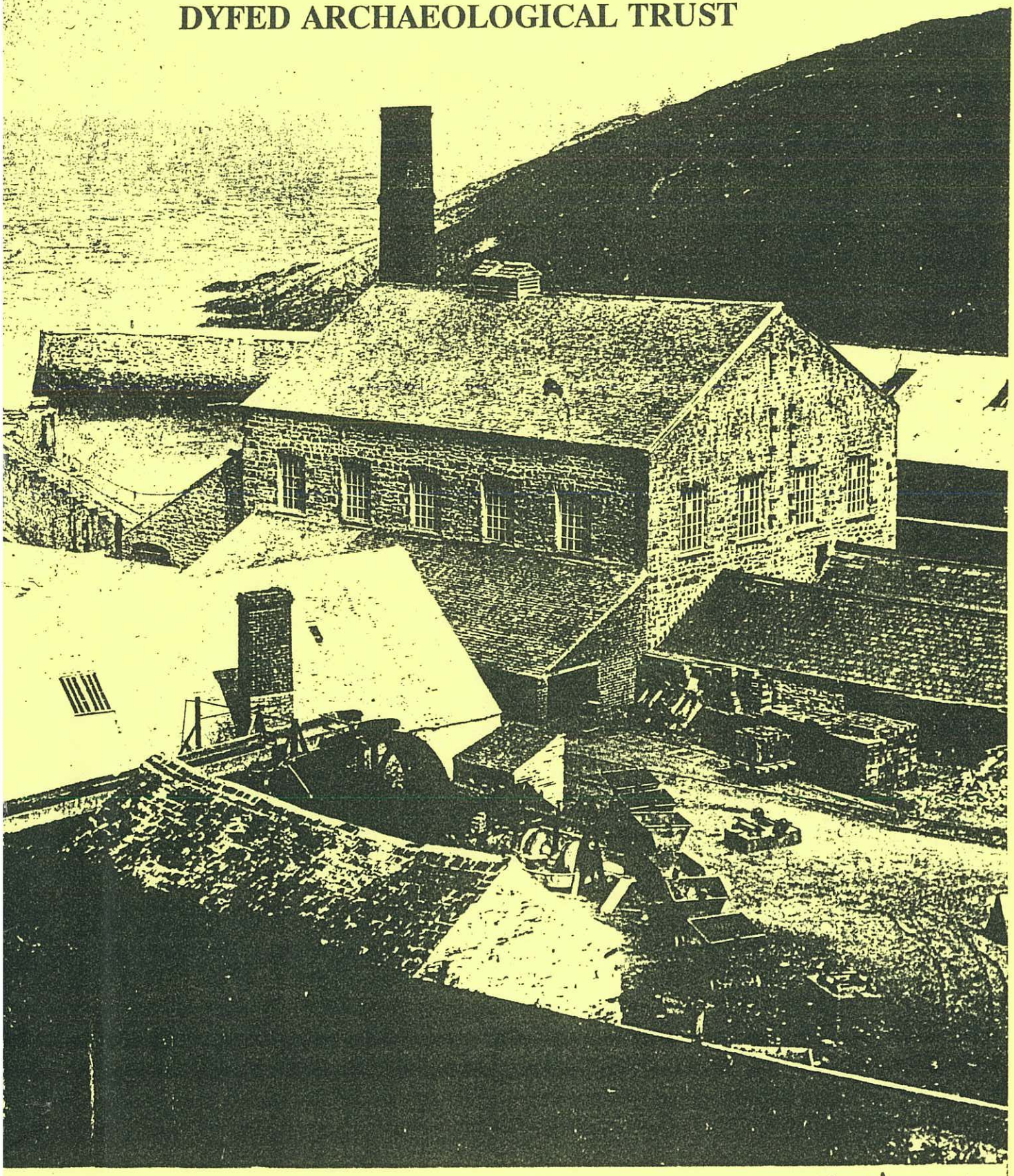
TY MAWR PORTHGAIN

ARCHAEOLOGICAL ASSESSMENT MAY 1992

DYFED ARCHAEOLOGICAL TRUST



K. MURPHY

AN ARCHAEOLOGICAL ASSESSMENT WITHIN THE OLD BRICKWORKS BUILDING KNOWN AS TY MAWR, PORTHGAIN, DYFED, MAY 1992

INTRODUCTION

Ty Mawr, Porthgain is a Scheduled Ancient Monument. The archaeological assessment excavation within the building was carried out at the request of the Pembrokeshire Coast National Park in advance of proposals to re-roof the structure and floor it using an internal steel frame.

Ty Mawr was the machinery shed for a brickmaking works. The kilns lay immediately to the east of the building. Drying sheds were attached to its southern gable end. A boiler house and possibly an engine house were in a lean-to at the northern end. Further buildings lay to the west. Brickmaking at Porthgain began in 1878. The industry went into decline in the 1920s and closed down in 1931 at the same time that stone quarrying ceased. The brick kilns may have been demolished in the 1930's; the brick kilns and boiler house chimneys were demolished in 1954.

The raw material for making Porthgain bricks was decomposed granite. This was extracted from a small quarry to the west of the harbour. To render it suitable for brickmaking it first had to be 'floated' to remove impurities and then mixed or 'pugged' with lime. These processes seem to have taken place outside Ty Mawr - a pugging mill can be seen by a water wheel to the west of the building in Illus. 3. After these processes the bricks would have been manufactured in Ty Mawr, then transferred to the drying sheds and finally to the kilns.

Only published or easily accessible historical material was examined for the purpose of this short report. But extensive primary historical records of Porthgain brickworks, slateworks, quarries and harbour are lodged with Pembrokeshire Record Office and with Scolton Manor Museum, Haverfordwest.

TY MAWR

Ty Mawr is a two storey, stone-built structure with internal dimensions 16 m by 11.6 m. The walls are 0.6 m thick. Two of the three 3 m wide doorways on the western side of the building have been partially blocked and turned into window openings. The third has been slightly moved from its original position and heightened. The external ground surface to the west of the building is now considerably higher than the original floor surfaces within the building. One of the two 3 m wide doorways on the east side has been turned into a window opening. There are steps down to the outside in these doorways. There are two windows in the east wall (not shown on the plans). Three large joists ran across the building 2.9 m above the ground floor surface and two ran from the north end wall to the northernmost of these (Fig 2, main beams).

A stone-built lean-to is attached to the northern side of the building. This was an original feature and may have been the engine house as well as the boiler house. A blocked doorway in the northern wall of Ty Mawr allowed access into this lean-to. A small blocked opening at floor height in the north wall was probably for a drive shaft or drive belt. Above the blocked door in the north wall at 3.5 m above the original ground floor is a hole for a drive shaft, belt or pipe system. This hole is matched by a similar one in the south gable end indicating that a drive or pipe system passed from the boiler/engine house, straight through Ty Mawr and out to the drying sheds located to the

south. The drive system would have passed over the main joists in the building. This suggests that there was no first floor, the windows in the upper storey being designed to light the ground floor working area. This suggestion is supported by old photographs which show these windows covered in dust and often broken and by the presence of a ventilation housing on the roof (see Illustrations).

The same photographs show a single storey lean-to on the western side of the building. A narrow-gauge railway may be seen entering this lean-to and running alongside Ty Mawr.

According to oral testimony, towards the end of its working life Ty Mawr contained two brick stamping machines. It is also recalled that a compressor stood in the north-west corner of the building.

THE EXCAVATIONS

The assessment excavation was undertaken in the first two weeks of May 1992. Two people were employed to carry out the excavation. After the abandonment of the building, soil and other debris had been dumped within Ty Mawr raising the floor levels by 0.3 - 0.5m. All this soil was removed by machine under archaeological supervision down to the latest floor surface. This floor surface was cleaned up, planned, described and photographed. Six trenches were then dug through the floor surface to investigate earlier deposits.

The latest floor surface (Fig. 1)

This was a complex surface, composed of many different materials and comprising several elements. For ease of description it has been divided into several elements - see Fig. 1 for their location. Some features are only shown on the plan and not described as their function is clear.

A) The whole of the eastern side of the building was taken up by a concrete and slate slab floor. It would appear that the concrete was a replacement for the slate; the slabs having been lifted and concrete laid in their place.

B) A machine base measuring 1.2 m by 0.75 m sat on the concrete floor on the southern side of the building. The machine may have been surrounded by a partition. Iron pipes in channels cut into the floor led to this machine. A holdfast set in the adjacent wall may have been associated with this machine.

C) A machine base represented by two timber sill beams 1.35 m long set 0.6 m apart between their centres.

D) A machine base >2.1 m in length and 1.4 m wide represented by iron staining on the concrete floor.

E) A machine base with two sets of holdfasts set on a low concrete plinth 1.25 m by 0.8 m.

F) Wheelpit. This stone and slate-lined pit was partly emptied of its soil and crushed stone fill (see Fig. 4, Section 2). A blocked opening at floor height in the wall adjacent to this feature leads into the boiler/engine house suggesting that the pit accommodated a flywheel or large pulleys for belt drives. The pit was later modified and narrowed by the addition of brickwork. It is possible that the engine house became redundant and was replaced by an internal combustion motor sitting on the concrete plinth, G, to the south.

G) Concrete plinth built over the blocking brickwork of the pit F. A machine base 1.7 m by 1.1 m and other machine holdfasts sit on the concrete. A resident of the village remembers a compressor on this plinth. An earlier, smaller concrete plinth protrudes from the southern side of the main plinth.

H) Infill of crushed stone and gravel, contemporaneous with the partial blocking of the two doors on the western side of the building. It is assumed that the floor surface over this infilling was at a higher level and has now been lost. The infill covered sunken brick floors and walls (revealed in trenches 1, 5 and 6). These brick floors and walls appear to have formed at least three storage tanks (see Fig 2), the bases of which were between 0.25 m and 0.6m below the concrete-slate floor to the south. The infilling may have taken place at the same time as the modification to the pit F. Some of the brickwork of the tanks had been robbed prior to infilling.

I) Infill within a brick and stone wall. This was not examined but may have been another storage tank, similar to those described above. The surrounding stone wall was contemporaneous with the external walls of the building.

The excavation trenches

Trench 1. Dug in the area of infilling H (Fig. 4, Section 1). The partially robbed brick floor was 0.6 m below the concrete-slate floor and at a lower level than those revealed in Trenches 5 and 6. Two machine holdfasts protruded through the brick floor.

Trench 2. Excavated through the concrete floor to 0.6 m below the floor's surface. The concrete was bedded on an homogeneous layer of silty clay with stones. There was no evidence for earlier floor deposits. On the western side of the trench was a north-south brick sub-floor wall; on the northern side was an east-west wall of similar construction.

Trench 3. Slate slabs were lifted, and the underlying deposits excavated to a depth of 0.6m. The slab floor was bedded on a thin layer of silty clay below which was infill of shattered rock. On the northern side of the trench was a sub-floor masonry wall; this was also seen in Trench 4.

Trench 4. Similar stratigraphic sequence to Trench 3 except that an iron pipe ran beneath the slate slabs. The sub-floor masonry wall seemed to form a massive foundation just inside a door. Presumably heavy weights were intended to be stored on this area of flooring.

Trench 5. Dug through the area of infill H. On the northern side of this trench was a wide stone wall: this seemed to continue right across the building beneath the concrete floor. On the eastern side of the trench was the same brick wall found in Trench 2. The brick wall butted the stone wall. Constructed against the walls, 0.3 m below the concrete floor was a brick floor. This floor was also found in a small trench dug against the west wall of the building.

Trench 6. Similar to Trench 5, except that the brick floor had been robbed out to the north-west. The stone wall to the south had been lined with a brick skin suggesting liquids were stored or used in this sunken floor area.

Recording work outside Ty Mawr

At the time of the archaeological excavation, repair work to a culvert involving contractor's trenches to a depth of at least 3m, provided an opportunity to record features associated with Ty Mawr. The foundations of

the latter exceed the 3 m depth exposed in the trenches. To the east, the trench cut through the site of the brick kilns; these are well-preserved archaeologically, with foundations and working floor levels surviving beneath the modern surface.

Against the south wall of Ty Mawr, the trench cut through the remains of the drying sheds, clearly exposing the floor construction with its brick piers and air channels (Fig 4, section 3). Again, it is plain that the archaeological remains of the sheds are well-preserved.

Summary

The building had one major phase of use, though it had undergone modifications; some of these were quite extensive. It is clear from the limited area of the excavations that sub-floor walls and foundations had been designed as an integral part of the structure; these are shown on Fig. 3. The purpose of some of these sub-floor features is unclear.

The biggest modifications to the internal layout occurred on the western side of the building. Here, what may have been a series of shallow, brick-lined storage tanks for pugged clay were infilled. The function of this part of the building after the infilling is unknown. In the north-west corner of the building a large machine base on a concrete plinth may represent the replacement of a steam engine and boiler in the lean-to to the north by an internal combustion engine.

The function of all the machinery and the processes that took place within the building is not known. The position of the two brick stamping machines cannot at present be located with certainty.

RECOMMENDATIONS

1) The surfaces revealed in the archaeological assessment should be preserved <u>in situ</u> beneath the proposed new floors. Some form of impermeable membrane could be employed to protect and demarcate the existing surfaces. It is recognised that loss of part of the original floor area will occur, particularly in the north-west corner of the building where the concrete plinth is some 0.3m higher than the average levels.

2) The area of disturbance during the excavation of any stanchion holes for an internal steel frame should be kept to a minimum. The holes should preferably be hand-dug, but a very small mechanical digger might be employed.

3) The digging of any stanchion holes should be subject to an archaeological watching brief.

4) Any ground disturbance around the outside of the building should be similarly subject to an archaeological watching brief.

5) Should (and subject to Scheduled Monument Consent) it be considered necessary to reduce the existing floor levels over the whole or parts of the building, further archaeological excavation would be required in order to record the full plan and details of the sub-floor features. Such a more extensive archaeological investigation should also provide for research into the archive material held in Haverfordwest Record Office and Scolton Manor Museum, in order to maximise the interpretation of the archaeological remains.

Remains outside the Ty Mawr building

6) From observations made during repair work on the culvert, it is evident that the area outside the building contains archaeological remains of high quality. These include those of the drying shed and kilns. Whilst the former, and probably the latter are covered by c 1m of soil and rubble, the importance of these remains should be recognised and efforts made to secure their long-term protection. It is therefore recommended that consideration be given to extending the scheduled area to encompass the adjacent and associated below ground remains of the brickworks.

ACKNOWLEDGEMENTS

Dyfed Archaeological Trust is grateful to Roger Worsley for information on the history of Porthgain brickworks and also for his kind permission to reproduce the five photographs included in this report.

REFERENCES

Latham, J. and Plunkett Dillon, E., 1989 The National Trust Archaeological Survey: Ynys Barri (Barry Island Farm), South Wales t/s report.

Roberts, T., 1991 About Porthgain.

FIGURES AND ILLUSTRATIONS

Fig. 1. Location plan showing latest floor surface and position of excavation trenches.

Fig. 2. Interpretive plan of latest floor surface.

Fig. 3. Location plan showing position of sub-floor walls.

Fig. 4. Sections.

Illus. 1 Porthgain in 1875. Brickworks not yet built. The slateworks (powered by a waterwheel) and the 3'0" gauge railway are shown.

Illus. 2. Porthgain in 1905. The brickworks, slateworks and granite quarry in full production. Note the piles of coal to fuel the brick-kilns and the stacks of finished bricks.

Illus. 3. A fine view of Ty Mawr taken at the end of last century. In the foreground, the machine that looks like a cider press is the pugging mill. The curious protruding stones on the south gable may have provided a means of access for roof maintenance, via a first floor window.

Illus. 4. Porthgain at the turn of the century during rebuilding of the harbour.

Illus. 5. Porthgain; photograph possibly taken in the 1930s during demolition of the slateworks and the brick-kilns.

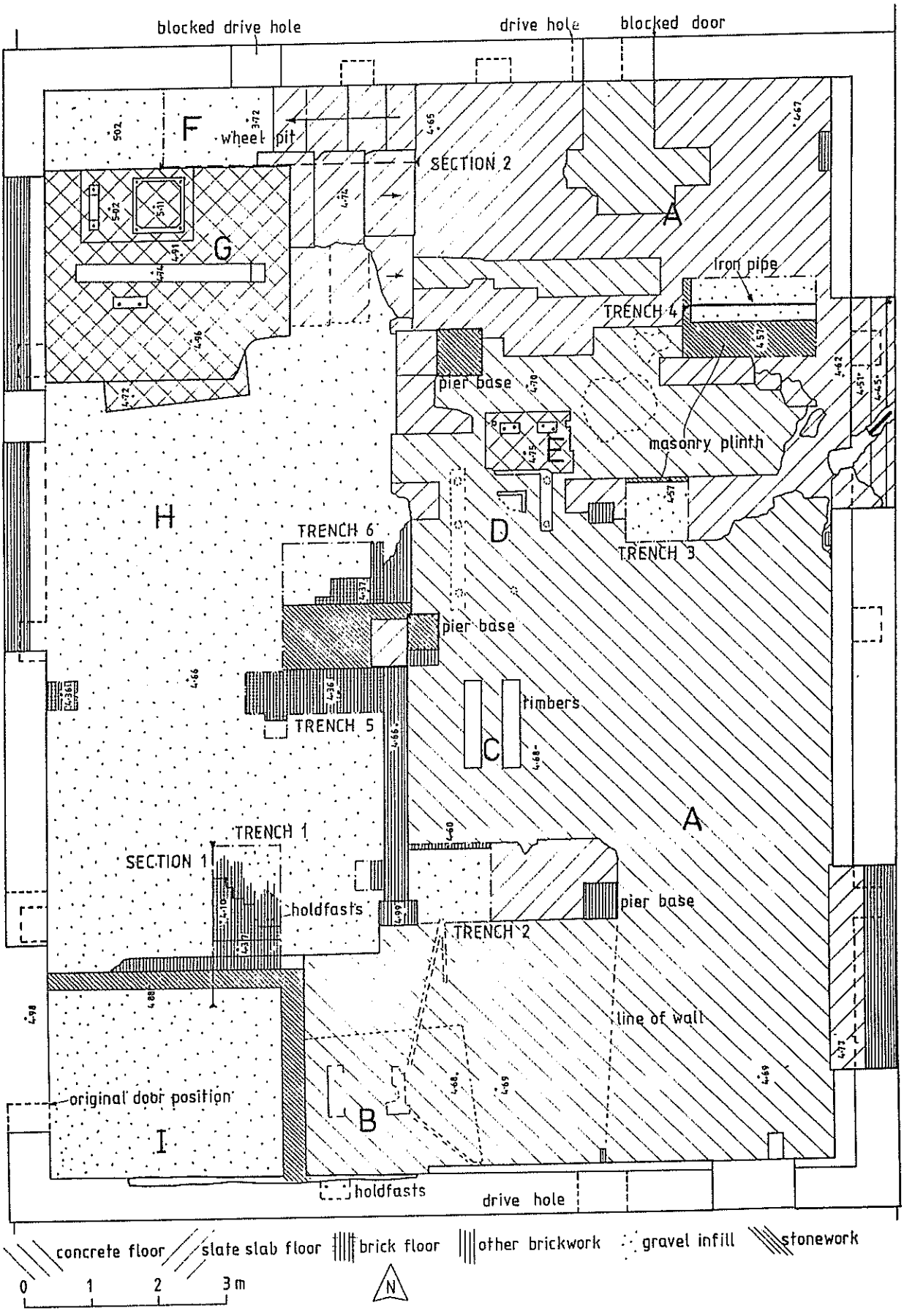


Fig. 1 Plan of latest floor surfaces

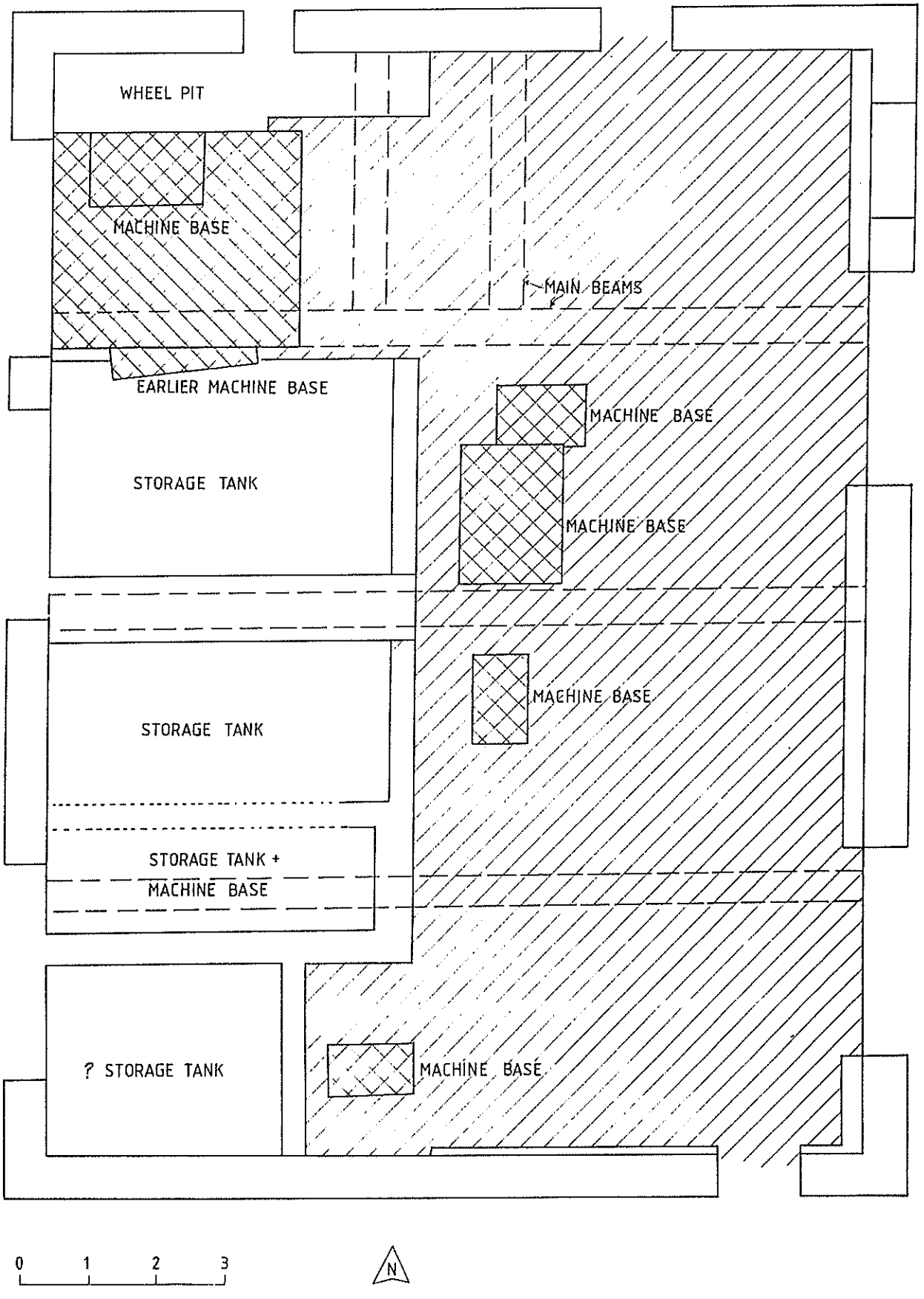


Fig. 2 Interpretative plan of latest floor surfaces

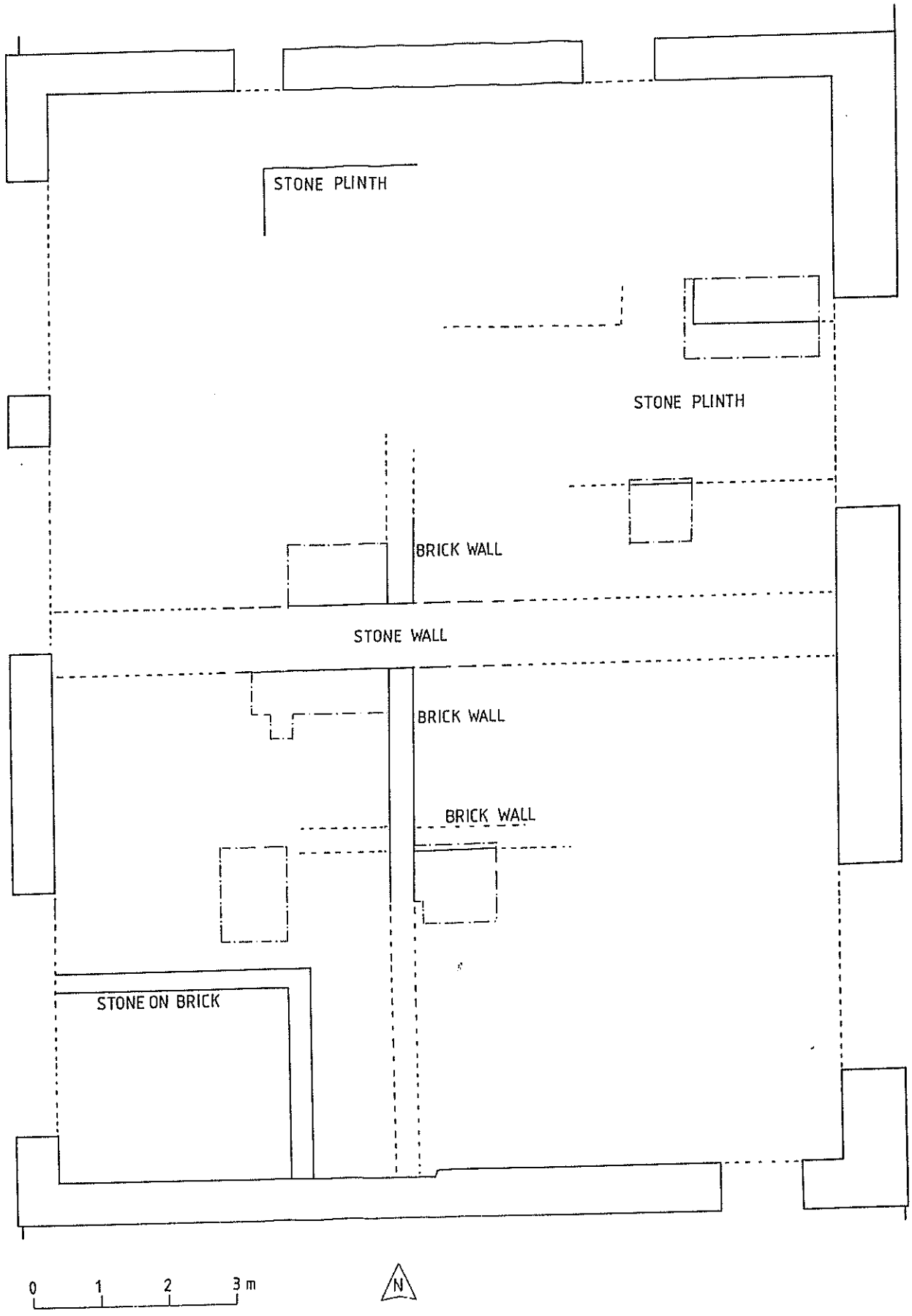
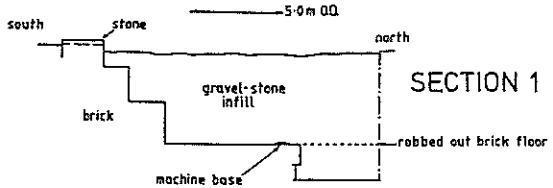
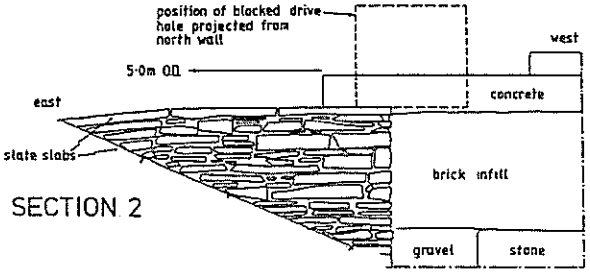


Fig. 3 Sub-floor walls



SECTION 1



SECTION 2

SECTION 3

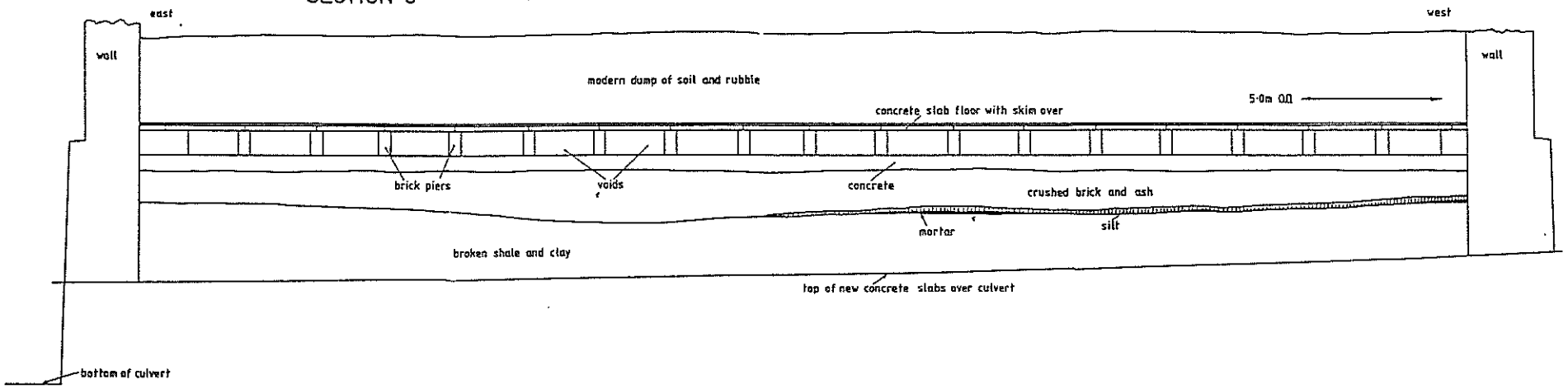


Fig. 4 Sections


Porthgain. No.5.