

CONWY WEST SEWAGE DISPOSAL
& QUAY PIPELINES - 1993

ARCHAEOLOGICAL MONITORING
AND RECORDING

REPORT NO. 73

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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& QUAY PIPELINES - 1993

ARCHAEOLOGICAL MONITORING
AND RECORDING

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prepared for Welsh Water/Dwr Cymru

Gwynedd Archaeological Trust Report No. 73

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CONWY WEST SEWAGE DISPOSAL & QUAY PIPELINES - 1993 DEVELOPMENT ARCHAEOLOGICAL MONITORING AND RECORDING - Phase 1 (G1154)

1. INTRODUCTION

As part of Welsh Water's long term scheme to improve sewage disposal in Conwy, work has commenced on preparation for the construction of a new sewage pumping station and associated wide bore pipework at Lowergate Street, Conwy. Following the identification of the archaeological implications of the work by the Gwynedd Sites and Monuments Record and the production of a specification for a programme of investigation and recording, the Gwynedd Archaeological Trust (contracts) (GAT) was asked by Welsh Water to prepare a project design and costings to satisfy the archaeological response to the work.

Subsequently GAT was contracted in November of 1993 to carry out this archaeological work programme. This report presents the results of this work.

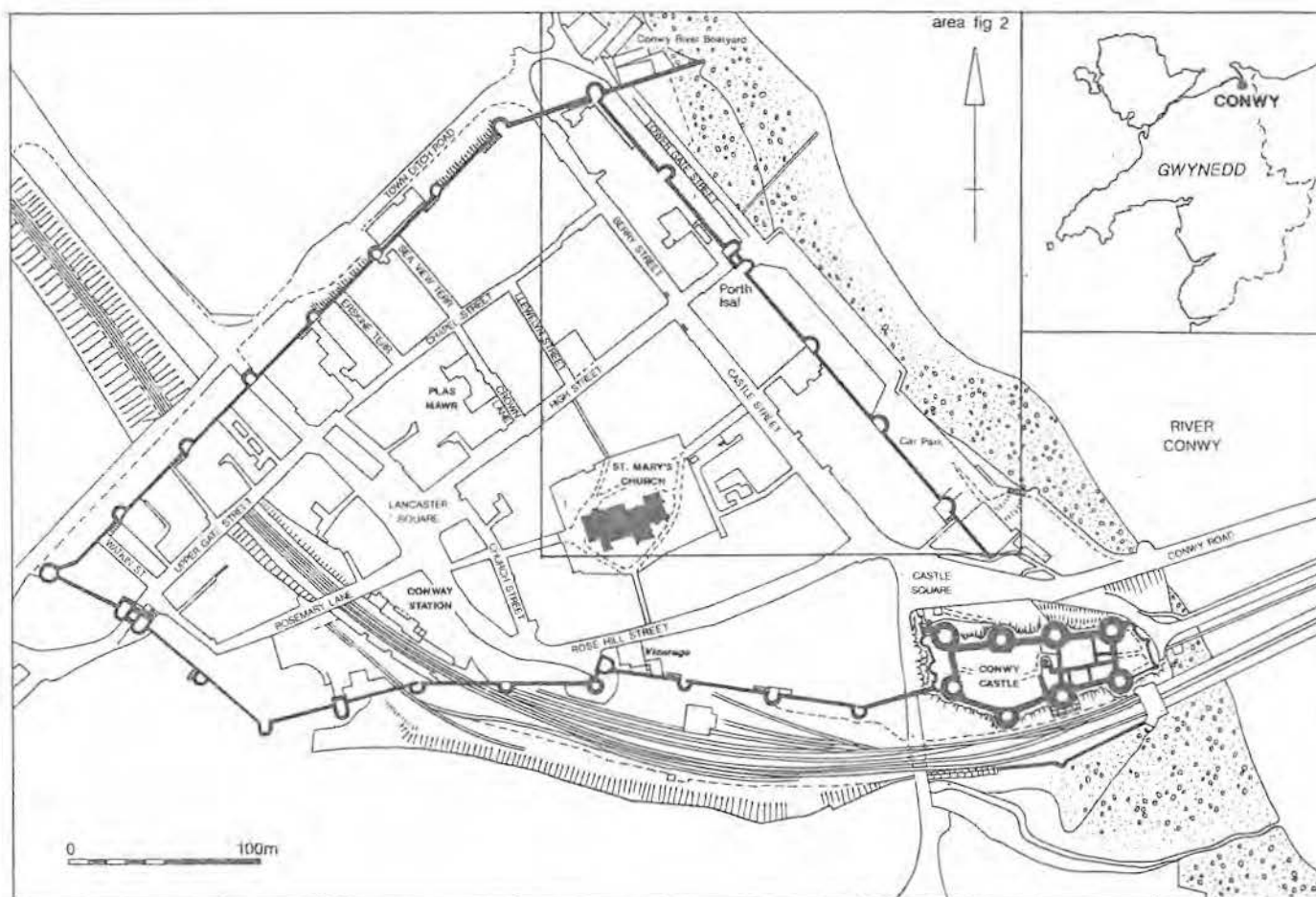


Fig. 1 Conwy and the area of the development

2. PROJECT BACKGROUND

Previous investigations in connection with the project were conducted by GAT in November 1991, May 1992, and most recently in February 1993. A series of trial pit excavations either side of the town curtain wall and within the area of Conwy River Boatyard were dug to establish the geological implications for Welsh Water. GAT was afforded the opportunity to assess the archaeological implications during the work. See GAT reports number 34, 34a, and 63. The results of these investigations are briefly outlined here. (see fig. 2)

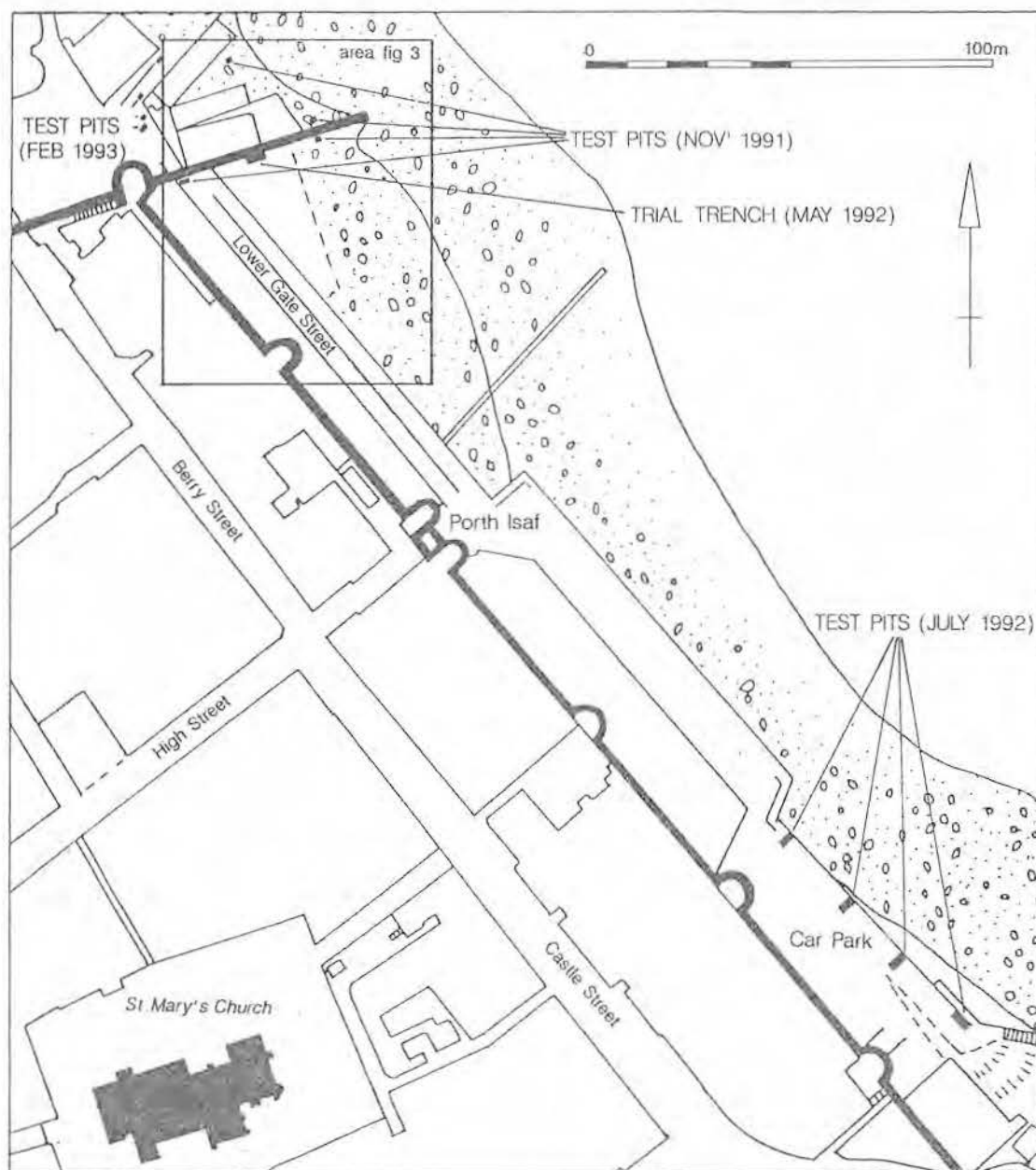


Fig. 2 Previous Excavations in the Area

A trial pit (T2) excavated in 1991 just to the north of the town wall revealed a structured timber platform preserved in layers of silty clay and organic debris. The feature was at a depth of c. 1.5m below the present ground level and provided strong evidence that important archaeological remains might possibly be under threat from the proposed scheme.

A further trial trench excavated in May 1992 revealed a further deep layer of silty clay interspersed with much organic debris from occupational activity at some time in Conwy's history. The date of these layers and the extent of possible further deposits of archaeological significance remained unknown because of the limited scope of the investigations.

In February 1993, four trial pits were excavated at the north east end of Lowergate Street on the north and west sides of the boatyard. The purpose of these was to establish the location of existing service pipes and cables. Their depths was not sufficient to penetrate beyond modern deposits, however, they did reveal evidence of earlier road surfaces and the extent to which the area has been subjected to modern makeup.

Additional trial pits investigated during unrelated works for Project Conwy were recorded in July 1992. The results of these investigations proved inconclusive due to the presence of modern services.

The aim of the present response was to fully record the results of the most recent phase of work which was carried out in November to December 1993, and to answer some broader questions raised by the previous three years excavations in the area.

3. THE PROJECT BRIEF

The project brief sought to identify specific areas of potential archaeological impact and the necessary response in terms of the archaeological input. These are briefly described as follows. (See appendix I for the full specification).

1. To compile a photographic record of the exterior and interior of Conwy river Boatyard before its demolition and to carry out a watching brief during the removal of the building foundations.
2. A survey and record to be made of visible timbers on the tidal foreshore in the vicinity of the area proposed for the Temporary Causeway.
3. The archaeological excavation of two service trenches either side of the town wall prior to the start of the development.
4. The archaeological evaluation of the route of the main storage/pumping pipe by way of two trial trenches 3m x 2m in size, located at the specified points.
5. To carry out a watching brief on the excavation of the trench housing a new rising main along the present quayside from Porth Isaf to Conwy Road.
6. A photographic survey of an area to be disturbed by the construction of a temporary access road from Conwy Road to the Quay car park before work starts. A watching brief carried out on the construction of the road itself.
7. The level of response required for the construction of the new pumping station on the site of the Conwy River Boatyard is to be decided upon the completion of the aforementioned work stages to take into account the results obtained.

8. It is proposed that the level of response to the construction of the new sea outfall pipe be decided following the results of the initial fieldwork and documentary study.

4. METHODS AND TECHNIQUES

STAGE 1 - Desk based assessment

Available early estate, tithe and O.S maps, other documents and early photographs were consulted at the Gwynedd County Sites and Monuments Record (SMR) and the University archive at the University of North Wales (Bangor) (UCNW). Selected reference works were also consulted. Oral evidence was received from local sources.

List of Maps Consulted

1748 - 'A plan of Bay and Harbour of Conway', by L Morris
1776 - 'Map of Conway Town', prepared by A Bowdler for the estate of Owen Holland
1795 - 'Conway Town and Castle', Pennants Tour of Wales Vol II p.331
1840's - Tithe Map
1898 - Ordnance Survey 1:2500
1915 - Ordnance Survey 6" to the mile

Other texts and Documents

File 8257 UCNW Archive
File 8258 UCNW Archive
File 8258A UCNW Archive
File 8260 UCNW Archive
DAVIES H.R., 'The Conwy and Menai Ferries', *Board of Celtic Studies, University of Wales History and Law series No.VIII*
Conwy Town File - SMR
HEMP W.J., 'Conway Castle', *Arch. Camb. Vol. XCVI, part 2*
DODD A.H., *History of Caernarfonshire*
SOULSBY I., *The Towns of Medieval Wales*
KELLY R.S., 1977, *Conwys' Past in Future*

STAGE 2 - Fieldwork

1) Demolition of the Boatyard Buildings

i) A photographic survey of both the exterior and interior of the boatyard buildings was carried out using 35mm format black and white print and colour slide film to produce a series of scaled photographs recording general views and specific features of interest. Photographic record of the site was also achieved from vantage points on the town wall.

Site notes were also made on specific features and processes in use at the yard and are summarised in the results.

ii) A watching brief was carried out during the demolition of the boatyard buildings to record any earlier features which may have become apparent during this operation. A two man team from GAT worked closely with the site contractors to ensure that an acceptable level of recording could be achieved.

Building remains uncovered during the work were rapidly exposed by hand and recorded by black and white photography, colour photography, written descriptions on standard GAT site forms and surveyed with the use of Electronic Distance Measuring equipment (EDM).

2) The Temporary Causeway

Welsh Water proposes to construct a temporary access from the foreshore south of the town wall to the site of former Conwy River Boatyard across tidal mud flats and around the end of the town wall. GAT carried out a rapid survey of visible timbers present within the corridor of this disturbance. A photographic survey using black and white and colour 35mm film, a written description of each timber and a survey using EDM was carried out. In addition several timber samples were obtained for the purpose of dendrochronological examination.

3) Evaluation Excavation

Excavation was carried out in four locations in advance of the construction of the storage/pumping pipe. All trenches were located using EDM and are illustrated on the area plan (fig. 3)

i) Trench A

A trench 6m x 6m was excavated 4m south of the town wall. The trench was excavated by machine to a depth 1.3m below the present ground surface at which point the work was continued by hand. All features and deposits exposed during the work were recorded by the use of scaled photography, scaled plans and section drawings and written descriptions. Finds were recovered by context location for general assemblages and 3D plotting for specific small finds. Timber samples were recovered for analysis and dating purposes and are currently in wet storage at GAT.

A diesel engined water pump was used to remove the daily tidal flood waters from the trench.

ii) Trench B and C

Two smaller evaluation trenches were located on the foreshore opposite the bandstand and the Liverpool Arms pub respectively. Each measured 3m x 2m and they were excavated by machine to ascertain the existence and/or survival of archaeological deposits to be affected by the storage/pumping pipe.

Both trenches were recorded with black and white and colour photography written descriptions and section drawing where possible.

iii) Trench D

Following the removal of the boatyard buildings and foundations, an evaluation trench measuring 4m x 4m was excavated on the north side of the town wall on the location of the proposed reception pit. The trench was excavated by machine (under supervision of GAT staff) to a depth of 3m below ground level. The trench was recorded using black and white and colour photography, written description, and scaled section drawing.

4) Watching Brief - Rising Main

Observations were carried out by GAT during the excavation of a 1m wide c.240m long trench for a new 300mm rising main pipe between a point on the quayside opposite Porth Isaf to Conwy Road. Periodic site visits were made to check on each stage of the excavation as it proceeded. The stratigraphic make up exposed in the trench was recorded by photograph and written description. Provision was agreed with the contractor for GAT to carry out an adequate response should the need for detailed recording become necessary.

5) Watching Brief - Temporary Access Road

A brief photographic record of the area to be disturbed during construction of a temporary site access road linking the quay with Conwy Road was made before work began. A watching brief was carried out during topsoil stripping of the route to record any features of archaeological interest that might have become apparent.

5. RESULTS

STAGE 1 - Desk based study

The study was concentrated on locating through documentary search features of all periods associated with the foreshore and in particular any earlier 'quay' or 'wharf' structures located within the area of development. The present wharf was constructed in 1833 by the Town Corporation in response to increased shipping. The construction has almost certainly buried the original levels to a significant depth and only deep disturbance seems likely to endanger any earlier features.

The stretch of waterfront to the south of the wharf, presently the quay car park, remained as an open foreshore for some time after 1833 and appears to have gradually been built up to the same level as the main wharf towards the end of the 19th century - perhaps as the demand for accessible mooring for shipping grew. Photographs of the area from the 19th century and map evidence clearly show the sloping beach of the foreshore almost reaching Custom House terrace.

Recent disturbance to original levels has also occurred between the castle and the Quay car park when a large embankment of made ground was created to accommodate the construction of the Conwy Bridge. This area, much of it tidal foreshore until early this century, may also conceal archaeological levels preserved at some depth below the present ground surface.

W. J. Hemp describes the location of the Castle Quay, following his investigation and excavation of 1939, in *Archaeologia Cambrensis* Vol. XCVI, Part 2. The quay was sited below the eastern terrace of the castle which Hemp undoubtedly proved following excavation of two bastion footings and quay foundations on the foreshore below the old access road leading to the suspension bridge. This area was subsequently buried under the embankment for the new Conwy Bridge. Hemp also refers to the position of the 'Town Quay' as depicted in various plans and prints of the 17th and 18th century as, "shewn with reasonable accuracy". That location being the area between the town curtain wall and Porth Isaf.

The main area of activity associated with earlier quaysides is, as indicated above, the stretch

of foreshore fronting Lowergate Street. Numerous references from the 18th century cite this stretch of the waterfront as being the location of the 'strand' or 'quay' and is identified on available maps and plans of the time as coinciding with the line of the present Lowergate Street. A 17th century sketch of Conwy (anon.) *Arch. Camb. XCVI part 2, p168* shows a stone built quay wall slightly to the east of this line and also a further row of buildings on the east side of Lowergate Street. Although of possible limited accuracy, this reference has important implications since the aforementioned features would appear to lie directly in the line of the proposed storage /pumping pipe trench and archaeological evaluation may well identify their location.

Reference to the site of the Conwy River Boatyard identified the location of a group of 18th century 'pigsties' butting the north side of the town wall and covering a small area in the south west corner of the site (see Fig. 3)

Further 19th century features identified during the study were located at the north end of the waterfront on the south side of the town curtain wall (Fig. 3). The 1898 O.S 1:2500 edition shows what is possibly a large boathouse 26m x 14m parallel to the town wall. Also present is a landing stage projecting past the end of the town wall, and a small building located against the town wall a short distance from the arch.

The present extent of the town curtain wall projecting from the shoreline at the north end of Lowergate Street is approximately 44m from the archway. A town plan from Pennant's Tour of Wales in 1783 shows the wall to have originally extended some way further and to have been completed with a round tower. Further to this Mr G.A Humphreys of Llandudno annotates a 1901 map of Conwy held in UCNW archive with reference to the curtain wall: "70 yards of wall and ruins of a large tower....visible in 1835" (see Fig. 3). Reference has also been identified as to the existence of a now demolished stairway leading to the final tower and possibly contemporary with the construction of the town walls in the 13th century. The stairway was located approximately 30m east of the arch. Excavation within the area may locate features associated with the stairway or its access.

A Cistercian abbey was founded at Conwy in c.1192. Due to the English invasion and subsequent construction of the castle and planted borough by Edward the first in 1282, the abbey was relocated to Maenan further upstream. The association of religious institutions of the time with fishing and the building and managing of fish weirs, as identified at Rhos on Sea and Bangor for example, implies that similar features may exist at Conwy. Documentary sources identified two known fish weir sites in the Conwy estuary. In 1988 GAT investigated a fish weir on the Deganwy shoreline of probable 16th century date. Lewis Morris' coastal plan of the Conwy estuary, published in 1748, shows a weir, 'Cored Faelgwn', a short distance north of Deganwy. Similar structures on the Conwy side may well remain undiscovered.

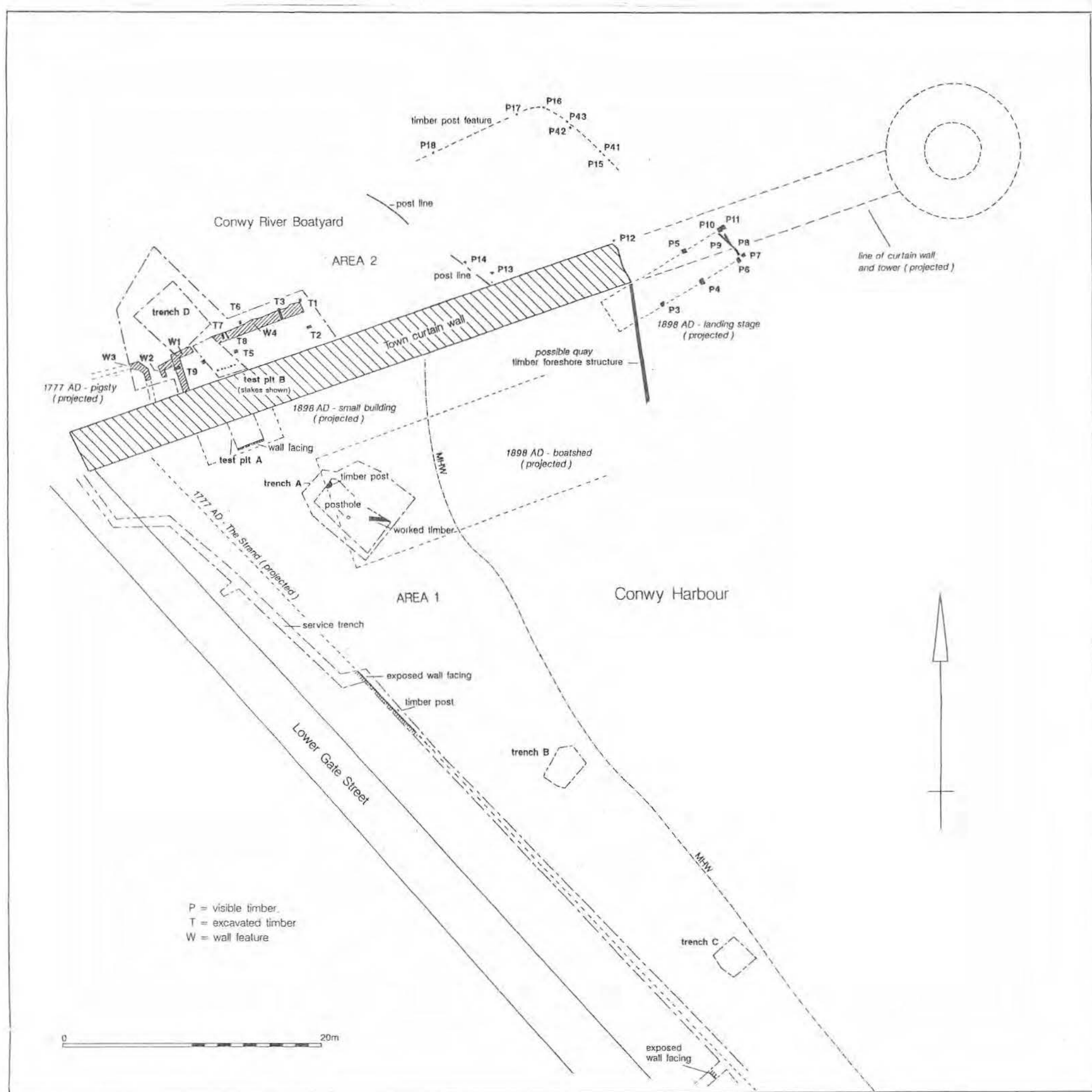


Fig. 3 Plan of excavated trenches and features

STAGE 2 - Fieldwork

1) Demolition of the Conwy River Boatyard Buildings

i) Rapid survey in advance of demolition

Conwy River Boatyard was established in 1904 by Cumberland boatbuilder John Crossfield.

In advance of the demolition of the boatyard buildings GAT carried out a photographic survey and rapid field survey to record their present layout and condition and to identify any features of the yard of particular historical interest.

The boatyard buildings comprised three separate boathouses/workshops constructed of timber framing clad with a variety of materials including plywood and corrugated iron. Roofing was of corrugated iron sheeting on timber frames (Fig. 1). The timber floors were raised from beach level by c. 0.40m. Internally two of the houses included brick and concrete constructed tidal docks for the siting of craft under repair while the third was fully floored for construction and repair of smaller craft. Access to the docks was achieved either by high tides or the rapidly disappearing method of hauling craft up the beach on wooden 'skids'.

Included among a large collection of machine and hand bench tools remaining in the workshops was a couple of old 'steam boxes' for the preparation of shaped timbers.

The record archive generated during the work is presently in store at GAT.

ii) Watching Brief

A watching brief carried out during the demolition of the boatyard buildings and removal of their foundations revealed at least two earlier structures on the site. The presence of a stone-built structure was first inferred during the excavation of test pit B (see fig. 3) during which large amounts of stone with mortar traces were removed from the northern edge of the pit.

Following the clearance of the boatyard building remains at ground level a tracked Hymac fitted with 3 foot scraper bucket was used under the supervision of GAT to carefully remove c.0.50m of the recent rubble overburden within Area 1 (see fig. 3). Once the location of features had been established during this operation the remains were rapidly hand-cleaned to provide adequate definition for the recording of their position and constructional detail (see plate 2.)

Structure 1

Defined by the positions of W4 and W1 was a large rectangular lean-to 'shed'. The stone built walls of this building survived to a maximum height of 1.0m and a minimum of 0.20m. W4 was built with a neat internal face of large regularly coursed blocks while the external face appeared to have been revetted into the surrounding made ground. W1 was of less substantial build of smaller well faced stones. Butted to the west side of the structure was a small extension W2. Several vertical in-situ timbers were exposed possibly relating to a timber framed roof construction. T1, T2, T5 and T8 varied in their state of preservation but generally appeared to be sawn timbers of rectangular section remaining to an average height of 0.30m above the excavated ground level. The remains of four horizontal wall timbers T3, T6, T7, and T9 were positioned within the wall build possibly representing the remains of an elevated floor construction.

In line with remains identified as Structure 1 is a series of beam slots measuring c. 0.30m x 0.30m approximately 3.0m high on the north facing side of the town wall. It appears reasonable to suggest that they represent evidence for roofing associated with Structure 1.

No documentary evidence has been located to confirm the origin of Structure 1 although the evidence points to the remains representing a former boat shed constructed against the town wall and probably of the 19th or early part of the 20th century.

Structure 2

Structure 2 was defined by a curved stretch of walling (W3) located to the west of Structure 1. Roughly constructed with large cobbles and sub-angular stones bonded with a reddish brown clay, the wall remained to a height of 0.5m and was 0.45m in width. Only a small part of the structure was exposed during the work which only partially underlay ground occupied by the boatyard buildings and it was therefore not fully established what the possible function of the feature was. Documentary map evidence has established the presence of pigsties at this location in the late 18th century. It is suggested that further ground disturbance during subsequent development of the site may allow further information to be retrieved about the feature.

2) The Temporary Causeway Area

Visible timbers surveyed on the tidal foreshore within the area of the proposed causeway are illustrated on fig. 3. The large horizontal timber on the south of the town wall and extending south from it was located and recorded in 1991 during earlier investigation by GAT. The feature was interpreted as a possible quay structure and is of unknown date. (see GAT report no.34)

The Old Landing Stage

A further feature recorded during the investigations in this area was the remains of the old landing stage constructed in the last century and utilised by the former Conwy river steamers. Projecting beyond the extent of the town wall the remains consist of 9 large timbers forming the outline of the feature. (see fig. 3) Documentary map evidence confirms the position of the stage on O.S 1:2500 1898.

Other Features

A series of poorly preserved wooden posts (P15 - 18 and P41 - 43) were located north of the town wall forming a possible arc on the tidal foreshore to the eastern side of the survey area (see fig. 3). It is not certain whether there is a relationship between all the identified examples although it is tentatively suggested they may represent the remains of a foreshore structure, possibly a fish weir. Their relationship to the medieval wall is problematical.

Two well preserved lines of closely spaced vertical timbers were aligned approximately NW/SE to the east of the former boatyard (see Fig.3). The two lines, perhaps formerly joined in the middle appeared to form the eastern boundary of the boatyard linking the town wall with a substantial stone-built groyne which ran east west across the yard.

3. Evaluation Excavations

Trench A (Fig. 4)

A trench 6m x 6m was located 4m to the south of the town curtain wall for the purposes of archaeological evaluation in advance of a thrust pit facilitating the boring of the main pumping pipe below the town wall (Fig. 3) The trench was initially excavated by machine which removed 1.3m of recent land make-up overlying a lens deposit of coarse orange brown sand (002). This was predicted from previous boreholes and test-pits (Welsh Water ref: TP/Q7, TP/Q1) to seal a deposit of dark grey silty clay identified as containing organic material and therefore of archaeological interest. Therefore, at this point excavation was continued by hand to investigate the remaining stratigraphy in detail.

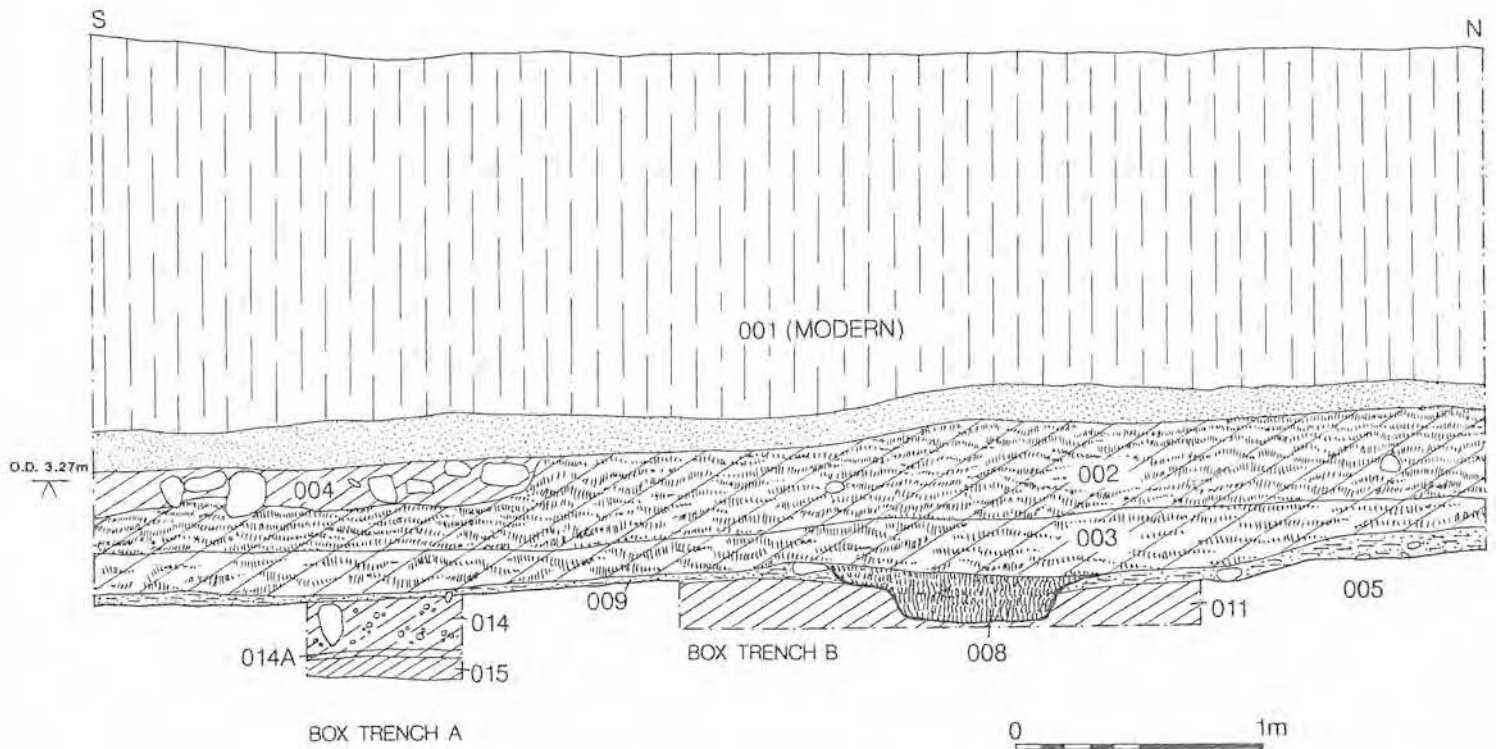


Fig. 4 East facing section of trench A

Due to the depth of the trench, health and safety requirements and time constraints, the western half only was hand excavated for the initial investigation with the option of excavating the entire area of the trench retained should significant archaeological features become apparent. Further to this, investigation of the trench below 2.1m depth was limited to a series of box sections to establish the nature of the natural geology once the overall sequence of significant deposits had been established.

The Subsoil

The trench was excavated to the level of the natural geology which was at a maximum depth of 2.5m below ground level. The 'natural' was found to be a glacially laid deposit of concreted pebbles in a matrix of bluish grey clay of unknown depth. This deposit was overlaid by 015, a layer of clean orange brown clay varying in thickness from 0.10m to 0.20m. This deposit is also interpreted as being of likely glacial origin and contained no cultural material.

014a

This was a thin layer of stone free greenish grey clay located at the interface between 014 and 015; possibly part of 014.

014

Overlying this was 014, a layer 0.25m thick of a greenish grey stony clay. highly compacted in

nature also containing no inclusions of cultural origin. Interpreted as an alluvial deposit.

017

Overlying 014 at the north west end of the trench was 017, a dump of wood chips and small timber pieces varying in size from 0.10m to 0.20m. The wood included a number of examples which bore evidence of working and some which were plainly intact twigs occasionally bearing traces of bark. The initial appraisal being that the context represented small offcuts and general waste from some kind of woodworking activity, perhaps involving a product being fashioned from virgin raw material.

The full extent of the deposit was not exposed and it was identified only within the limits of box section B. Due to the nature of the deposit as a non-structural feature it was considered adequate to retain a sampled selection of the context for possible dating and closer examination of the worked examples. Unfortunately, the layer did not extend into the drawn section. Further features on the surface of layer 014 were not evident within the limits of the excavation.

011

011 was a layer of smooth grey clay with occasional organic inclusions located in the northern half of the trench and which overlay 017. It was very similar to 014 and varied from 0.40m to 0.50m in thickness becoming thicker towards the north. 011 may represent tidal deposits drifting against the Medieval wall.

009

A thin (c. 0.05m) layer of grey to dark grey coarse silty sand overlay 011 in the north of the trench and 014 in the remainder. The deposit contained many small stones and rounded pebbles. Finds of animal bone and leather were recovered.

008

Observed in the east facing section of the trench but not identified in plan, was a distinct 'U' profile depression cutting layers 009 and 011. The fill of this consisted of a grey silty clay alternating with compacted lenses of brown 'peat' or partially preserved wood shavings/sawdust. The depth of the feature was 0.20m and measured 1.0m wide at its top reducing evenly to a flat bottom 0.50m wide. Inspection of the west facing section in box-section B revealed a further cut c1.5m to the south of 008.

005

A deposit of light grey silty clay containing occasional lenses of peaty organic material overlay 009. The layer, ranging from 0.20m thick at the north to 0.10m thick at the south, contained numerous finds of bone (animal), leather pieces (including what appeared to be an inner shoe sole) and occasional pottery sherds. Initial appraisal of the pottery would suggest a date no earlier than the 16th century.

A large rectangular timber measuring 90cm x 37cm x 5cm was discovered lying on the surface of 005 in the south-east corner of the excavated area. The timber contained 2 drilled holes along one edge. The find was retained and is presently stored at GAT.

003

Overlying 005 was a thick deposit of grey silty clay interspersed with many thin layers of peaty organic material. Ranging from 0.50m to 0.20m thick from north to south the organic material was concentrated in the northern half of the trench in thicker bands. Finds of bone (animal), leather were common and occasional free floating timber pieces up to 300mm in size were well

preserved within the context.

Cut through layer 003 at the centre of the trench was a rectangular post-hole (fig. 3). Measuring 33 x 23cm and 32cm deep the feature was filled by a mixed deposit of orange brown coarse sand and grey silty sand representing the slumping of layer 002 and 003 presumably as the post originally filling the hole was pulled out.

Perhaps associated with the post-hole was a large squared timber post standing in the south facing section of Trench A (fig. 3). The post, undoubtedly in-situ, remained in a fair condition and included evidence of an iron fitting showing as a stain in the upper half of the post. The post appeared to be stratigraphically contemporary with the empty post-hole and either or both may well be associated with some sort of timber framed structure (shed or jetty?) occupying the site previous to the recent make up.

004

Partially sealing 003 was an intermittent, irregular layer of patches of relatively clean grey clay containing large stones .

002

Overlying 003 was a thin layer of coarse orange brown silty sand containing 19th century cultural material.

001

1.5m of recent made ground overlay 002 containing modern building refuse and finds.

Trench B

Trench B was excavated by machine to a depth of 2.0m. At this point it was seen that a grey silty clay deposit identical in appearance to layer 003 observed in trench A had been exposed below the recent made ground. Due to flooding of the trench, coupled with constraints of spoil location in the immediate area it was decided to abandon this exercise until the nature and importance of layer 003 and underlying stratigraphy had been established in Trench A. The Trench was fenced off and left for possible later investigation following the results in Trench A. Subsequently due to the lack of structural evidence in Trench A at this point on the foreshore and the level of information gained about the depth of stratigraphy in the immediate vicinity it was decided that further excavation within the limited size of the trench would not be practical and that recommendations would be made for archaeological observation during excavation for the storage/pumping pipe.

Trench C

A 3m x 2m evaluation trench was located on the foreshore just north of the beach access ramp. The trench was excavated to a depth of 2.6m by machine. Flooding, the depth of the trench and unstable nature of deposits made close inspection of the trench inadvisable. However observations from above confirmed that lowest deposit of 1.1m was made up of a succession of loose pebble deposits, ranging from a sandy gravel to larger rounded pebbles and clean coarse sand. Overlying these was a layer of dark orange brown sandy clay of 0.60m depth. This was overlain by a succession of recent made ground layers containing modern building rubble and refuse occasionally interspersed with thin lenses of dark brown compacted silty clay horizons presumably representing short lived compacted ground surfaces formed during the operation to build up the foreshore in recent times. These deposits made up the remaining 0.80m to the present ground surface.

Trench D

A further evaluation trench was excavated on the north side of the town wall on the site of the proposed reception pit (see figs. 3 and 5). The trench was excavated by machine to the level of natural geology at a depth of 3.0m below ground level under the supervision of GAT. No features of archaeological origin were present. The stratigraphic sequence recorded during the operation was of a very similar nature to that recorded on the south side of the town wall in trench A.

The natural geology proved to be a glacial deposit of bright orange highly cemented fragmented stone and small pebbles (027). This was overlain by a discoloured layer of the same context up to 0.20m thick (026). A band of smooth pinkish brown clay (025) partially overlay this layer at the eastern extent of the recorded section, also apparently glacial in origin. Partially overlying this and generally present across the trench was a 0.20m thick layer of rounded pebbles set in a blue-grey clay (024). This probably represents a primary water laid deposit and contained no inclusions of organic or cultural material. Overlying this was a further 0.20m deposit of sticky grey clay (023) which included a moderate amount of marine shell debris. A large amount of shell was present in the overlying layer of grey silty clay which also contained occasional slate fragments (022a). The remaining stratigraphy rising to recent demolition deposits was made up of alternating deposits of grey river silts and organic peaty layers of preserved wood chippings (022). Much cultural and marine material was present throughout the sequence including bone (animal), shell debris, and occasional 18th - 19th century pottery sherds, although markedly less than that observed in trench A. Overlying 022 was up to 1.5m of various layers of mixed clay deposits containing much waste material such as brick, slate, and timber pieces representing modern dumping and makeup. The earliest was 021, a layer of grey silty clay mixed with sub-angular stones, brick and slate debris.

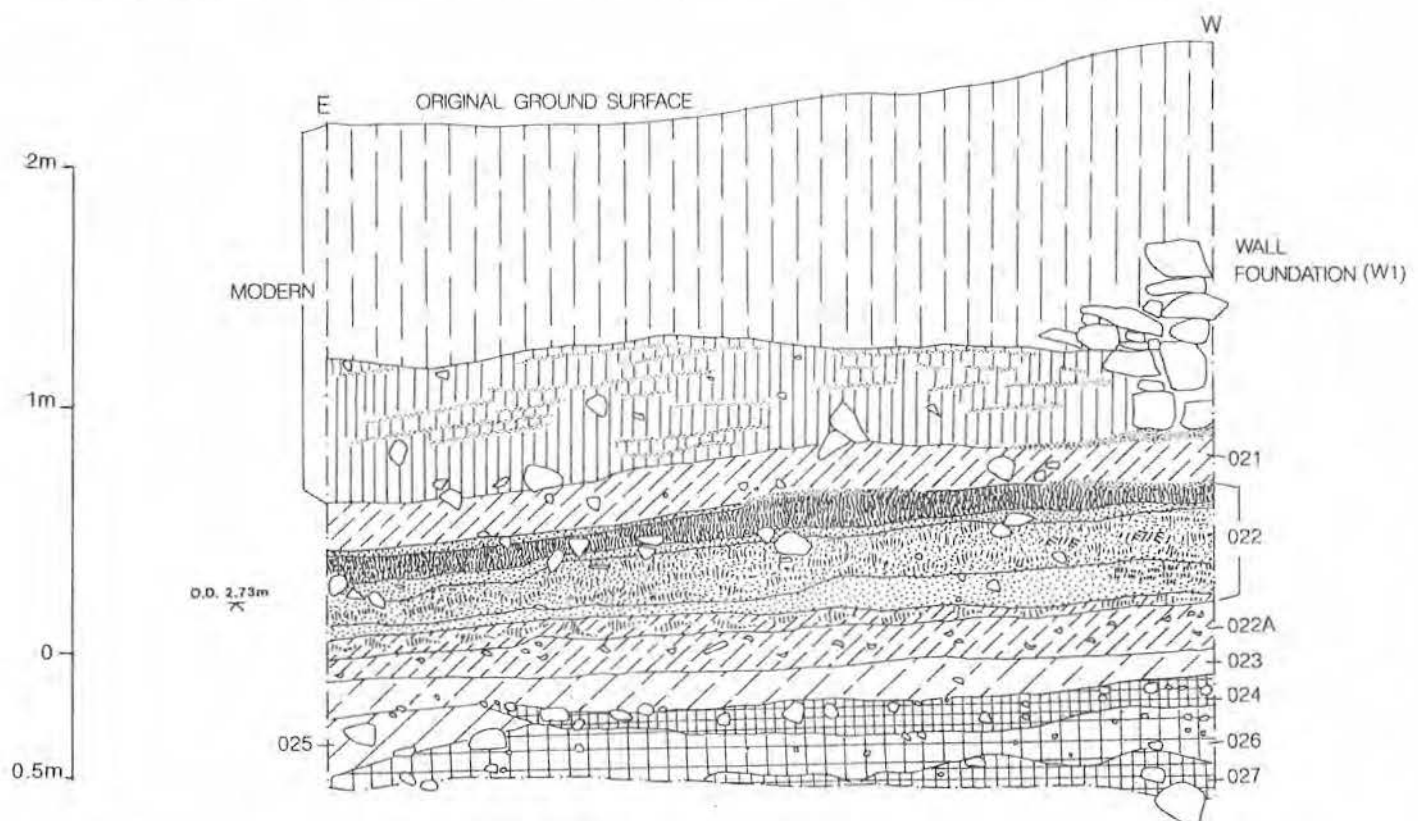


Fig. 5 Trench D north facing section

Wall foundations observed in plan during the removal of the boatyard building foundations were present in the north facing section of trench D. The foundation courses of dry-stone irregular masonry appeared to be constructed directly on context 021. No construction cut was visible within the trench for this feature (see fig.5) and it appeared that the later layers had been dumped against or over these foundations.

4) Watching brief - Rising Main

Deposits excavated during preparation for the laying of the rising main were found to be predominantly of recent contexts forming made ground behind the 19th century wharf structures.

The trench ran south from a point opposite Porth Isaf to the north side of the Quay car park following the edge of the Quay road at its interface with the wharf platform. 0.20m of modern road make-up was seen to overlie a mixed layer of redeposited mudstone shale and yellowish brown clay which continued to the lowest extent of the trench. No features or deposits of archaeological significance were present in this section.

From the north side of the quay car park the trench continued along the edge of the wharf and to the junction with existing pipework in Conwy Road. From N of quay car park to Custom House Terrace (where the wharf is set closer to the town walls) deposits were typically 1.5m depth of a grey silty clay overlaid by 0.20m of modern building waste/debris in turn capped by 0.30m of the present car park makeup. No features of archaeological significance were observed in the trench although the grey silty clay layer may represent tidal deposits prior to the construction of this part of the wharf. Documentary map evidence suggests that until at least the late 19th century the foreshore closely approached structures at Custom House Terrace.

From Custom House Terrace to Conwy Road the trench crossed the heavily made up ground associated with the construction of the most recent river crossing, Conwy Bridge. No features or deposits of archaeological significance were observed.

5) Watching brief - Temporary Access Road

0.30m of turf and topsoil was removed from the route of the access road and replaced with pink roadstone. No features of archaeological significance were revealed.

6) Further fieldwork

In addition to fieldwork carried out within the specified brief, two test pits were investigated during the course of the project.

Test Pit A

This was located on the south side of the town wall 11.2m from Lower Gate street arch and right up against the town wall (see fig. 3). The pit measuring 2.1m in length and 2.0m wide was designed to record the foundations of the town wall and their underlying geology in preparation for a possible deviation of the route of the main storage/pumping pipe.

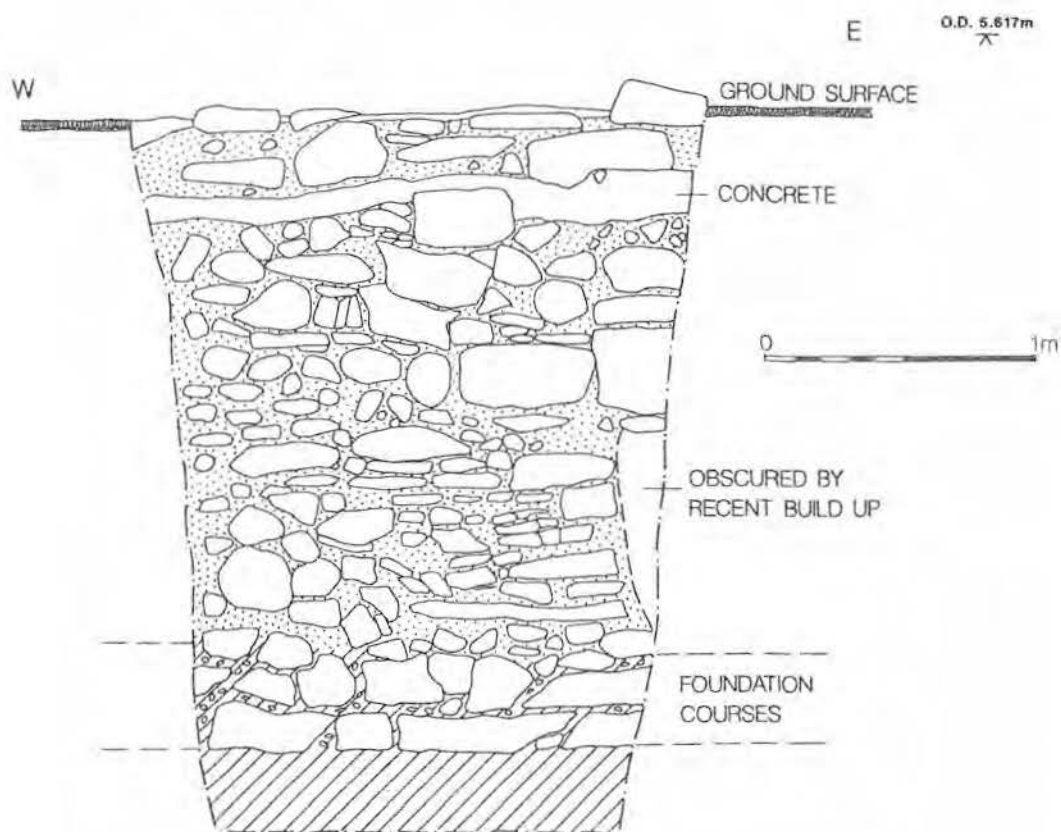


Fig. 6 Test Pit A, south facing section

The pit was excavated to a total depth of 2.65m and, following the installation of adequate trench shoring, the foundation and elevation of the town wall was recorded with scaled field drawing (see fig. 6) and black and white and colour photography.

Detail of stratigraphy in the east and western sections of the test pit were obscured by trench shoring, therefore archaeological recording of deposits was not possible.

A well preserved stone-built wall was located in the north facing section of the test pit. The wall was a maximum height of 1.40m with its base constructed at a depth of 1.90m from the present ground surface on a 0.20m deposit of grey silty clay. An interesting feature of the wall was the location of a vertical beam slot 0.20m wide and 0.15m deep running the entire height of the wall.

Documentary investigation following the discovery of these remains indicates a small structure was located at this point on the 1898 O.S 1:2500 edition map (see Fig. 3), although the function of the feature remains unknown at the present time.

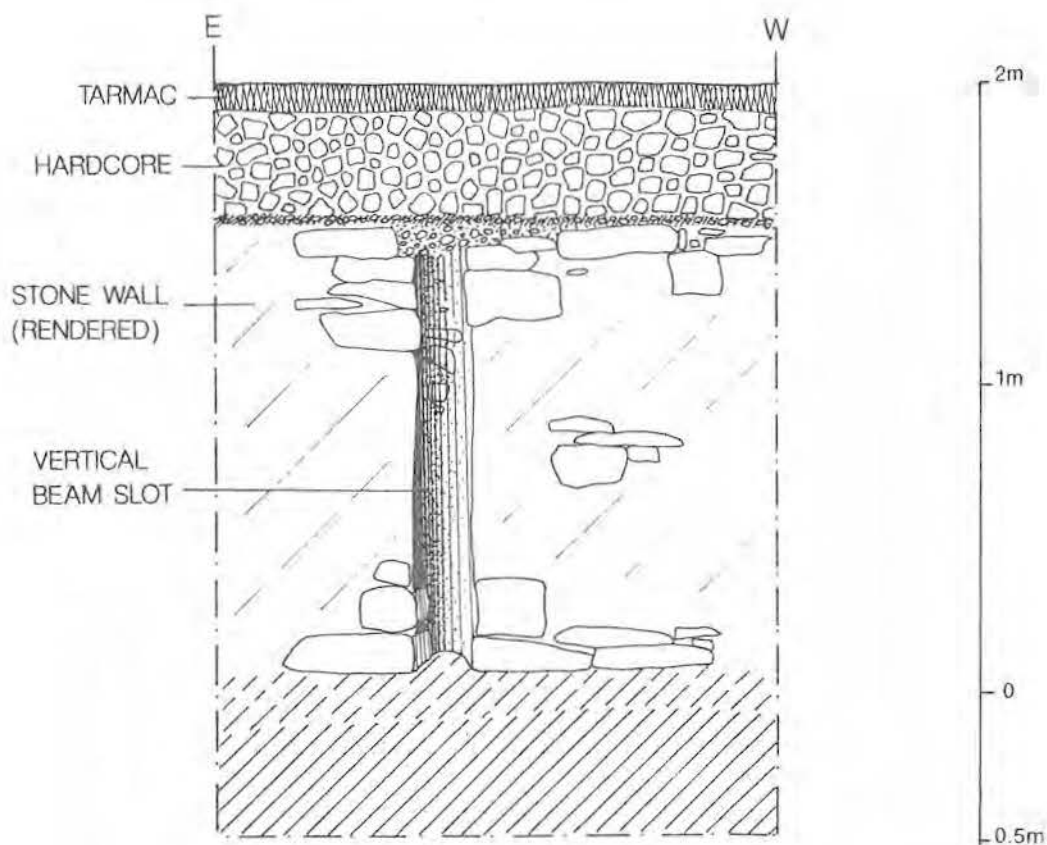


Fig. 7 Test Pit A, north facing diagrammatic section

Test Pit B

A test pit 2m x 2m was located on the north side of the town wall 13m from the Lowergate street arch and up against the town wall to permit Welsh Water's consultant engineers to record the nature and depth of the town wall and its underlying geology. Since its location was within the area outlined for archaeological watching brief for the removal of the boatyard buildings, the work was observed by GAT and a record made of identified features (see fig. 8 and plate 1).

The test pit was excavated to a maximum depth of 3.0m. At a depth of 2.5m from the ground surface a line of timber stakes was observed running approximately parallel to the town wall and approximately 1.0m to the north. Excavation and removal of the feature was carried out by GAT following agreement with the contractors on site to allow a brief delay in the work.

Seven individual timber stakes closely spaced and set firmly into a deposit of sticky grey clay were sealed by 0.90m thick deposit of grey silty clay alternating with thin lenses of organic peaty material. Some of the timbers seemed to exhibit evidence of extensive wear to the upper half suggesting that whatever their original form or function they had remained exposed for some considerable time prior to the deposition of the sealing layer. Six of the stakes were recovered and examples will be subjected to dendrochronological examination in the hope of securing a date for the timber.

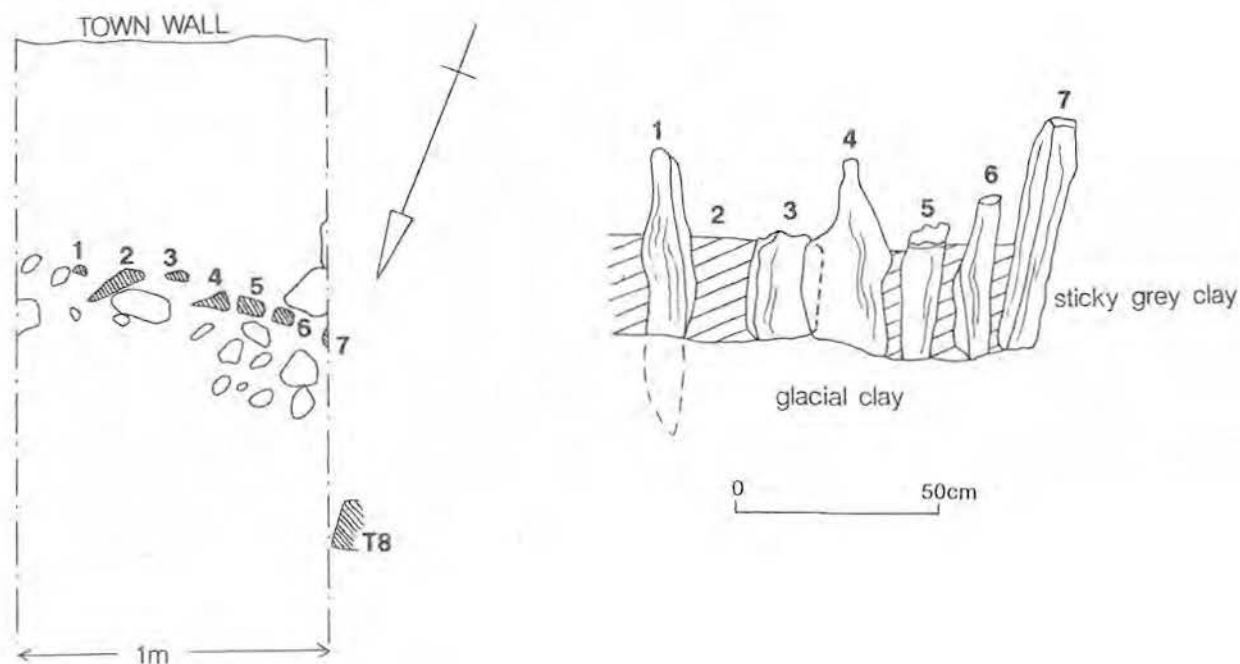


Fig. 8 Test pit B, diagrammatic plan and elevation

Additional Fieldwork in Lowergate Street

Recent investigations carried out by GAT in conjunction with British Gas during the laying of a replacement gas main along the length of Lowergate Street have revealed wall facings at various points along the eastern side of the road. Although much disturbed during the work, it was clear that these findings represented a stoutly constructed stone revetment facing the water. In addition a single timber post was observed set close to the wall facing and just showing in the bottom of the trench. The location and nature of the remains strongly suggests the discovery of the 18th century quayside, as described in the documentary results of this report. (See also GAT report no.74, forthcoming).

6. INTERPRETATION AND APPRAISAL OF RESULTS

Archaeological activity within the area of the present wharf and stretching southwards towards the castle has not been identified during the course of the present project and the potential for the recovery of surviving deposits from all but the most severe and widespread disturbances appears to be unlikely within this area. Identified as a largely sterile area in the 1977 Archaeological survey by the Gwynedd Archaeological Trust, the results of the present work, though fairly limited in this area of the scheme, seem to have largely confirmed this prediction.

Investigations in Lowergate Street however have produced surviving evidence of activity dating to certainly the 18th century and quite possibly to the early post medieval period.

Perhaps the earliest and most significant discovery was that of a line of well preserved stakes set closely together and forming a linear timber feature near to and approximately parallel to the line of the town wall 2.5m below the present surface and sealed by deposits provisionally dated from pottery evidence as laid down as early as the 16th century. Dendrochronological results are awaited on recovered samples in the hope of attaining an accurate date for the feature. It is noted with considerable interest that the stratigraphic location of the feature bears a resemblance to that of the discovery of timbers of a 16th century fish weir investigated by GAT on the opposite foreshore in 1988. It is hoped that positive results from the analysis of the stakes can be included in a report on the subsequent stages of the project.

Activity in the 18th century may be represented by the possible pigsty structure partially excavated on the site of the former boatyard which it is hoped can be clarified by further investigation of the area during the forthcoming development of the site. Also identified by additional investigations in Lowergate Street were the remains of the 18th century stone built wharf which will be described in forthcoming GAT report 74.

The survival of late 18th/19th century features was represented by the remains of a large lean-to building on the site of the former boatyard and the substantial wall located in Test pit A. Foreshore timber structures of the 19th century were also identified during the project and include a former large landing stage and the remains of many timber posts that may be related to fishing activity, although their origin has not become clear.

One in-situ post and a post-hole recorded in Trench A may well be associated with the large 'boat house' structure identified during the documentary search as appearing on the 1898 1:2500 O.S sheet. (See fig. 3)

Excavation in Trench A in advance of the large pumping pipe to be tunnelled below the medieval wall, exposed a thick layer of tidal silt deposits alternating with inclusions of organic refuse remains and cultural artefacts. Domestic pottery dating to the 16th and 17th century was present in layer 005 associated with numerous finds of leather pieces and fragments which appear to represent a period of intense refuse dumping into the waterfront and identifies a date for stratigraphy associated with discoveries made during test pit excavation in 1991. In particular, this may point to late medieval/early post medieval date for the timber platform located in 1991 test pit T2 (see Project Background). Pottery was not present to provide dating evidence of the lowest deposits. Finds of worked timber preserved in the anaerobic environment of layer 017 represent evidence of archaeological activity sealed by deposits probably pre-dating the 16th century.

Documentary evidence examined in connection with the position of the Lowergate Street quayside indicates that since the 17th century the limit of high water has been reduced by successive dumping to extend the quay area towards the west, ie over the line of the former foreshore. The absence of cultural artefacts from the medieval period contemporary with the establishment of the castle and Edwardian borough can perhaps be explained by this process.

The area investigated within the recent project may lie largely on the medieval foreshore and was thus not subject to occupation, development, or intensive activity. It should be noted, however, that any disturbance around the end of the medieval wall (which projects into the estuary), may affect the remains of the tower known to have been located at its terminus.

The project has identified a wide range of activity within the area of the foreshore at Lowergate Street. It has also located areas of interest represented by possible medieval timber remains in the area of the old Conwy River Boatyard, and identified the importance of discoveries made in the 1991 observations. Further investigation is anticipated should development proceed in these areas.

7. ACKNOWLEDGEMENTS

Gwynedd Archaeological Trust would like to gratefully acknowledge the assistance of Welsh Water, Wallace Evans, Daniel Pipelines Ltd, and Mulcair Construction.

APPENDIX

Project Design

SPECIFICATION FOR ARCHAEOLOGICAL INVESTIGATIONS & RECORDING:

CONWY WEST SEWAGE DISPOSAL AND QUAY PIPELINES

Prepared for Welsh Water - 20 October 1993

1. PROJECT BACKGROUND

Welsh Water are proposing to build a sewage pumping station in the old boatyard Lower Gate Street, Conwy. This will involve the demolition of the existing buildings and the construction of a new pumping station on the boatyard site.

In addition, several new pipes will be laid including a new sea outfall pipe from the pumping station into the estuary, a large 2m diameter storage and supply pipe from the pumping station across the quay to opposite the bandstand, and a 1m diameter rising main which will run from opposite the bandstand past the Custom House Terrace to join up with an existing rising main in Conwy Road.

A new temporary access road will be constructed from Conwy Road onto the quay and a temporary causeway will be built around the end of the medieval wall which projects into the estuary from Lower Gate Street.

The Gwynedd Sites and Monuments Record has identified the archaeological implications of the project proposal and specified a programme of work in mitigation. The Gwynedd Archaeological Trust (Contracts Section) has been asked by Welsh Water to prepare a project design and costings to satisfy the archaeological implications (see below).

2. KNOWN ARCHAEOLOGY

A stone walled hillfort caps Conwy Mountain one mile to the west. A Cistercian abbey was founded in Conwy c. 1192 on what was presumably royal land. A timber hall, later known as Llywellyn's Hall, stood to the west of the abbey church. In 1283 a stone castle was constructed on a rock outcrop overlooking the estuary. A planted borough was appended enclosed by stone walls and containing 122 burbage plots. The abbey was displaced to Maenan but the abbey church was retained to serve the new community. The town saw little development during the later middle ages with many open areas surviving as gardens into the late 18th and early 19th centuries.

The area of the modern quay is delineated by a medieval wall which projects down the foreshore from Lower Gate Street. It is known that this enclosed area also served as a quay in medieval times, providing a protected landing site for supplying the medieval town and castle. There would also likely have been various wharves and jetties projecting from the medieval quay to serve the transport ships.

Trial pit excavations for geological investigations associated with the present project have indicated a considerable buildup of dumped and accumulated material dating from at least the 18th century in the area of the proposed development. However, the depth of these intrusions was limited and no natural or river terrace deposits were identified. Therefore it is possible that this later dumping has sealed the earlier archaeology. One larger test pit excavated adjacent to the medieval wall projecting into the estuary revealed an organic layer located some 1.5m below the present ground surface and containing shaped timbers and bone. It is possible that this represents the remains of some collapsed structure, although unfortunately, no dating material was recovered. This organic layer sealed a layer of thick river clays which could

preserve even earlier archaeology or palaeo-environmental remains.

3. PROJECT BRIEF

The proposed development will involve considerable disturbance of the ground from the boatyard right across the quay to Conwy Road. Considering the proximity of important surviving archaeological remains and structures (the town walls and castle), and the known use of this area as a quay in the medieval period, it is quite possible that this disturbance will uncover further archaeological features or deposits of importance. Appropriate archaeological recording and investigations should be undertaken to ensure that all archaeology which is likely to be affected by the development proposals has been adequately recorded. The following specific areas of potential archaeological impact have been identified:

1) The Demolition of the Boatyard Buildings

Though these buildings are of relatively recent date, they are of some local interest. In addition, the foundations of the existing buildings will be dug out which may disturb earlier remains.

Actions: A brief photographic record should be undertaken of the exterior and interior of the boatyard before demolition and a watching brief should be carried out during the digging out of the existing foundations.

2) The Temporary Causeway

A machine access will be built by the dumping of hardcore around the medieval wall which projects into the estuary from Lower Gate Street. This is to allow equipment to pass from the boatyard onto the quay when the arch at Lower Gate Street is blocked. There is a group of projecting timbers at the west end of the medieval wall which may represent an old pier or jetty. In addition there are projecting timbers on the north side of the medieval wall.

Actions: The positions of these timbers should be located accurately and they should be recorded. Samples should be taken from any timbers which may be threatened by the causeway construction to provide dendro-chronological dating.

3) Tunnelling Beneath The Medieval Wall

In order for the large storage pipe to pass from the pumping station to the quay it will have to pass under the medieval wall. This will require the excavation of two large service trenches on each side of the wall measuring in the region of 6m by 6m and to a depth of 5m.

Action: These trenches should be archaeologically excavated before the development starts, to identify and record any remains which may be disturbed. In addition, a watching brief should be undertaken during the excavation of the tunnel beneath the medieval wall.

4) The Large Storage\Pumping Pipe

This pipe will require a trench some 3m in width and some 5m deep to be excavated from the medieval wall across the quay to opposite the bandstand. It is possible, considering the extent and depth of this disturbance that important archaeology will be disturbed. In addition, the stratigraphy of the quay will be revealed right across its length which may reveal important details of its evolution as well as possible palaeo-environmental remains.

Action: Two 3 by 2 metre trenches should be excavated along the line of this trench, one as close to the middle of the pipeline as possible, and one at the end opposite the bandstand, to sample and record the stratigraphy in different areas. Should these reveal significant remains, the trenches should be enlarged within the corridor of the proposed pipeline.

5) The rising main

A 1m wide rising main will be laid from opposite the bandstand across the quay to Conway Road.

Actions: The extent of the disturbance for this pipe is much more limited and a watching brief will be sufficient.

6) Temporary Access Road

This will run from Conwy Road onto the quay and will not be a full foundation road.

Action: A quick photographic survey should be carried out to record the area before the road is started. A watching brief will be sufficient during the construction of the road itself to record any archaeology which may be disturbed.

7) The New Pumping Station

The new pumping station will be constructed on the site of the present boatyard, it is understood that the foundations which will be necessary for this new building are likely to be of a considerable depth.

Actions: It is proposed that the scale of archaeological work required for this stage of the development await the results of other archaeological recording near by.

8) A new sea outfall pipe

This will be constructed from the pumping station out into the Conwy Estuary and is likely to be to a considerable depth. The excavation may disturb archaeological remains on the shore and reveal important palaeo-environmental remains on the foreshore and out into the estuary.

Action: It is proposed that the scale of archaeological works required await the results of other nearby archaeological investigations.

3. ARCHAEOLOGICAL PROJECT AIM

The aim of these archaeological investigations is to record in a full and detailed manner the presence/absence, extent, condition, character, quality and date of any archaeological deposits within the whole of the area potentially affected by the development.

4. METHODS AND TECHNIQUES

As recommended by the Gwynedd Sites and Monuments Record acting as the archaeological curator, this specification is designed to comprise two stages:

- 1 Desk Based Assessment,**
- 2 Fieldwork**

Stages 1 & 2 are to be carried out as a single exercise to be followed by a detailed report once all of the fieldwork is completed.

STAGE 1- Desk Based Assessment

A brief desk based study will be undertaken involving the examination and synthesis of easily available maps and any other relevant primary and secondary records relating to the area of the

proposed development and its surroundings.

Staff: one

Grade: Project Officer

Time: 1 man-day

STAGE 2 - Fieldwork

A limited amount of trial trenching will be undertaken through the excavation of 4 trenches: one on either side of the projecting medieval wall at the site of the tunnelling service trenches, each measuring approximately 6m by 6m, and two further trenches measuring each 3m by 2m initially, one located midway along the large storage pipe and the other at its southern end opposite the bandstand. The exact positions of these trenches will be agreed on site with Welsh Water.

The trenches will be opened and excavated by machine down to the first significant archaeological horizon. The machine work will be supervised by an experienced archaeologist. Once a significant archaeological horizon has been defined, this will be cleaned by hand and features revealed. The trenches will be hand excavated and recorded according to the normal principles of stratigraphic excavation and all stratigraphy will be recorded even if the trench exhibits no sign of human activity.

Any human remains which may be encountered will initially be left in situ and if removal is deemed necessary, this will comply with the relevant Home Office regulations.

All recording including watching briefs will involve written descriptions on standard Gwynedd Archaeological Trust context forms, plans at 1:20 scale, sections at 1:10 scale, scaled black and white photographs and colour slides at 35mm format.

Any finds will be sampled and located three dimensionally if significant and environmental samples will be taken where appropriate.

NB: Previous assessment trenches have revealed a significant organic layer containing cultural material at a depth of 1.5m in the area of the large storage\pumping pipe. This layer is some 1m thick and seals a further clay layer which also may contain archaeological or palaeo-environmental remains. It is therefore very likely that the trenches along this pipe will have to be excavated to a considerable depth. This will almost certainly mean that they will be affected by high tides which are likely to fill the trenches and require pumping. In addition, there is also a health and safety implication requiring that at least two staff be working in any of the trenches at all times.

FIELDWORK STAGES:

1) Demolition of the Boatyard Buildings

- photographic survey - one man-day
- watching brief - (estimate) two man-days

2) The Temporary Causeway

- recording of timbers - one man-day

3) Tunnelling Beneath Medieval Wall

- watching brief - one man-day

4) The Large Storage \Pumping Pipe

- 6m x 6m trench S side of medieval wall - 8 man-days
- 3m x 2m trench centre of pipeline - 4 man-days
- 3m x 2m trench at S end of pipeline - 4 man-days

- 6m x 6m trench N side of medieval wall - 8 man-days

5) Rising Main

- watching brief - (estimate) 3 man-days

6) Temporary Access Road

- watching brief - (estimate) 1 man-day

5. FINAL REPORT

Following the completion of Stages 1 and 2, a report will be produced for submission to Dwr Cymru/Welsh Water and The Gwynedd County Sites and Monuments Record. This will detail and synthesise the results of the desk top assessment and trial trenching, watching briefs and other recording and investigations. It will comprise:

- a) a copy of the agreed Project Design,
- b) a plan drawing showing the site and its location in relation to published boundaries and OS datum.
- c) plans at an appropriate scale showing trench layout (as dug) and features located as well as, where possible, predicted archaeology
- d) other illustrations as appropriate
- e) a description of the archaeology revealed including its extent and character, a provisional interpretation and date, and an assessment of its condition and importance (quality and state of preservation)
- f) a full bibliography of sources consulted

The report will be compiled using Wordstar7 software. The client will be supplied with one hard copy of the report with further copies at cost (a copy of the report can also be supplied on disc if required). A copy will also be lodged with the Gwynedd County Sites and Monuments Record on the understanding that this will become a public document after an appropriate period of time (generally not exceeding six months).

Staff: two

Grade: Project Officer

Time: 5 man-days

6. DEPOSITION OF ARCHIVES AND FINDS

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled, and cross-referenced, and lodged in an appropriate place (to be decided in consultation with the Sites and Monuments Record) within six months of the completion of the project.

Staff: one

Grade: Project Supervisor

Time: two man-days

7. PERSONNEL

The work would be supervised by the Trust's Project Manager (Contracts), Mr Roland Flook. The work would be undertaken by one of the Trust's Archaeological Project Supervisors and carried out by fully trained Project Assistants.

8. MONITORING

The Gwynedd County Sites and Monuments Record are responsible for monitoring progress and standards throughout the project. Provision has been made to accommodate field visits by the SMR for monitoring during the trial trenching and once the fieldwork is complete to discuss the results.

9. TIMING

The Trust would be able to make personnel available to commence this work from October 13 1993 should the specifications and costings be judged acceptable by the client. The scheduling and duration of the stages would, of course, be dependent upon the development programme as well as, to some extent, upon the weather, for which some allowance has been made. However, it should be possible to carry out the programme of work in line with the following schedule:

From Oct 13

- Stage 1 Desk Based Survey
- excavation of southern service trench and two sample trenches along large pipeline
- photographic survey of inside and outside of boatyard
- photographic record of area of new access road
- recording and sampling of timbers around the medieval wall projecting from Lower Gate Street

From Oct 18

- watching brief on removal of old boatyard foundations?
- once building is cleared, commence excavation of second service trench for under wall tunnelling

From Nov 1

- watching brief on under wall tunnelling
- watching brief on construction of access road
- watching brief on digging out of old boatyard foundations

Before Christmas

- watching brief on smaller rising main

The remaining work involving the construction of the new pumping station and sea outfall pipe are programmed to begin in 1994 and will be the subject of a separate project design once the results from the above investigations have been assessed by the Gwynedd Sites and Monuments Record.

CONWY WEST SEWAGE DISPOSAL AND QUAY PIPELINES
ARCHAEOLOGICAL INVESTIGATIONS & RECORDING
PROJECT COSTINGS - OCTOBER 18 1993

STAGE 1: Desk Based Survey

labour	1 man-day	80
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STAGE 2: Trial Trenching (four trenches along large 2m pipeline)

labour	24 man-days	1920
travel		82
machine hire (JCB) 4 days (including backfilling)		508
materials		50
fencing		186
pump hire	8 days	130
sub-total		2876

STAGE 2: Watching Briefs

- a) demolition of the boatyard buildings - 2 man-days
- b) tunnelling beneath medieval wall - 1 man-day
- c) rising main - 3 man-days
- d) temporary access road - 1 man-days

total labour	7 man-days	560
travel		82
materials		50
subtotal		692

STAGE 2: Other Recording

- a) Photographic recording inside and out of old boatyard & area of new access road - 1 man-day
- b) recording of timbers around medieval wall - 1 man-day

total labour	2 man-days	160
travel		20
dendro dating of timbers @ £50 per sample		150
sub-total		330

STAGE 2 : TOTAL	3898
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FINAL REPORT

labour	3 man-days	240
illustrator	2 man-day	160
materials		25
sub-total		425

ARCHIVING OF SITE RECORDS

labour	2 man-day	160
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TOTAL ALL STAGES	4563
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admin. & overheads @ 15%	684
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GRAND TOTAL	£5247
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Plate 1 Test pit B - Area 2 Detail of stake line.



Plate 2 Area 2 Structures 1 and 2 and Trench D. Site of former boatyard.