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Bowling Canal Basin
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Archaeological Monitoring
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Kirkdale Archaeology
April 2006

Site Bowling Canal Basin, West Dunbartonshire

Project Description Archaeological Monitoring and Excavation at Bowling Canal Basin during refurbishment works affecting the Scheduled Area

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1.0

INTRODUCTION

Kirkdale Archaeology was asked to undertake a period of archaeological monitoring between December 2005 and January 2006 at Bowling Canal Basin while an external contractor undertook a series of works in order to facilitate the refurbishment of the site as agreed with Historic Scotland under the parameters of the Scheduling Guidelines issued to it in 1997. The site is managed and maintained by British Waterways and the Scheduled area comprises the entire length of the canal *in water* along with the banks on either side of the canal and the tow-path along one side. Structures included within this are the harbour walls; Locks 38, 39 and 40; the Upper and Lower canal basins; the hand-cranked Bascule Bridge and the Tinkers Burn Aqueduct. Additionally this monument includes an area to either side of the area in water *in which traces of activities associated with its construction and use may survive.*

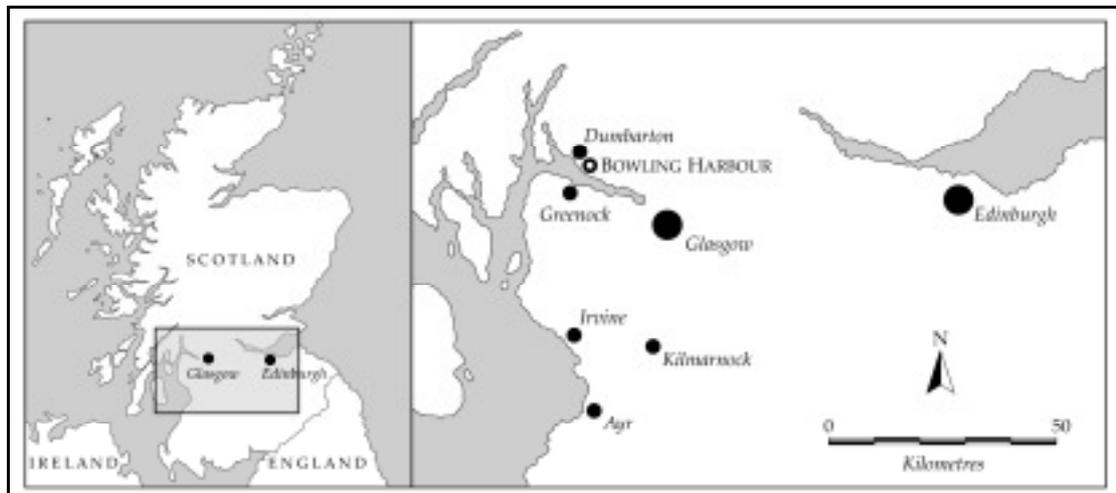


Fig. 1 *Location of Bowling*

A series of works were undertaken as part of the redevelopment that required archaeological monitoring:

1. The removal of the top 300mm of topsoil, turf and stone setts representing the current ground surface immediately N of the Lower Canal Basin (This stretches from the NW corner of the Lower Canal Basin to the area outside the front of Customs House). These would be replaced by a new laid surface comprising granite setts.
2. The installation of a new sewer pipe running W from Helenslea along the N canal side to the front of Customs House and along the N edge of the Lower Canal Basin where it would feed into a large septic tank E of Bowling Harbour. This

operation included several branches in order to provide appropriate sanitation for various other outbuildings and workshops. Trench averaged 800mm wide x 800mm deep although this was considerably deeper in specific locations.

3. The digging of 5 trenches along the S/SE curved edge of the Lower Canal Basin in order to provide secure anchoring points for new pontoons being fitted as part of the refurbishment.
4. The excavation of a Crane Pad E of Helenslea House that would allow boats to be lifted from the canal onto trailers in the newly constructed E Car Parks.

These activities all required a measure of groundbreaking and therefore the potential for archaeologically significant deposits, structures or artefacts to be examined at first hand. In addition, a series of historical plans of the Forth and Clyde Canal, Bowling Harbour and the Upper and Lower Canal basins were examined in order to establish where we were likely to find evidence related to a certain phase of activity in a certain place. It emerged that the site was indeed highly complex and had undergone major changes over time in order to arrive at its present layout. This afforded us the opportunity to target areas of interest and to note them for ongoing work and for future reference. Any subsequent groundbreaking activities could be undertaken with a far superior sense of what to target and where. This can be of immense value particularly in situations where deadlines preclude thorough examination. Even a cursory examination can be revealing when backed up with an understanding of what *may* be below ground and which phase of activity to which it refers.

This report will describe the deposits and structures encountered during the groundbreaking activities with reference to various factors that could inform the most productive and appropriate approach for future dealings with this type and scale of site.

It should be noted from the outset that the archaeological monitoring carried out by Kirkdale Archaeology occurred during works in various stages of progress. The crane pad at Helenslea House had already been dug and its concrete base poured, as had the 5 pontoon anchoring trenches to the S of the Lower canal basin. Where possible these trenches were recorded in section. Similarly, much of the main strip of ground to the N of the Lower Canal Basin had already been excavated and levelled with a roller to prepare it for re-cobbling. A large tract of the main sewer pipe trench had also been excavated and much of it backfilled. The nature of this activity meant that it precluded any kind of detailed archaeological commentary relative to the layers that were exposed. A photographic record of these works was produced

by British Waterways and made available for examination.

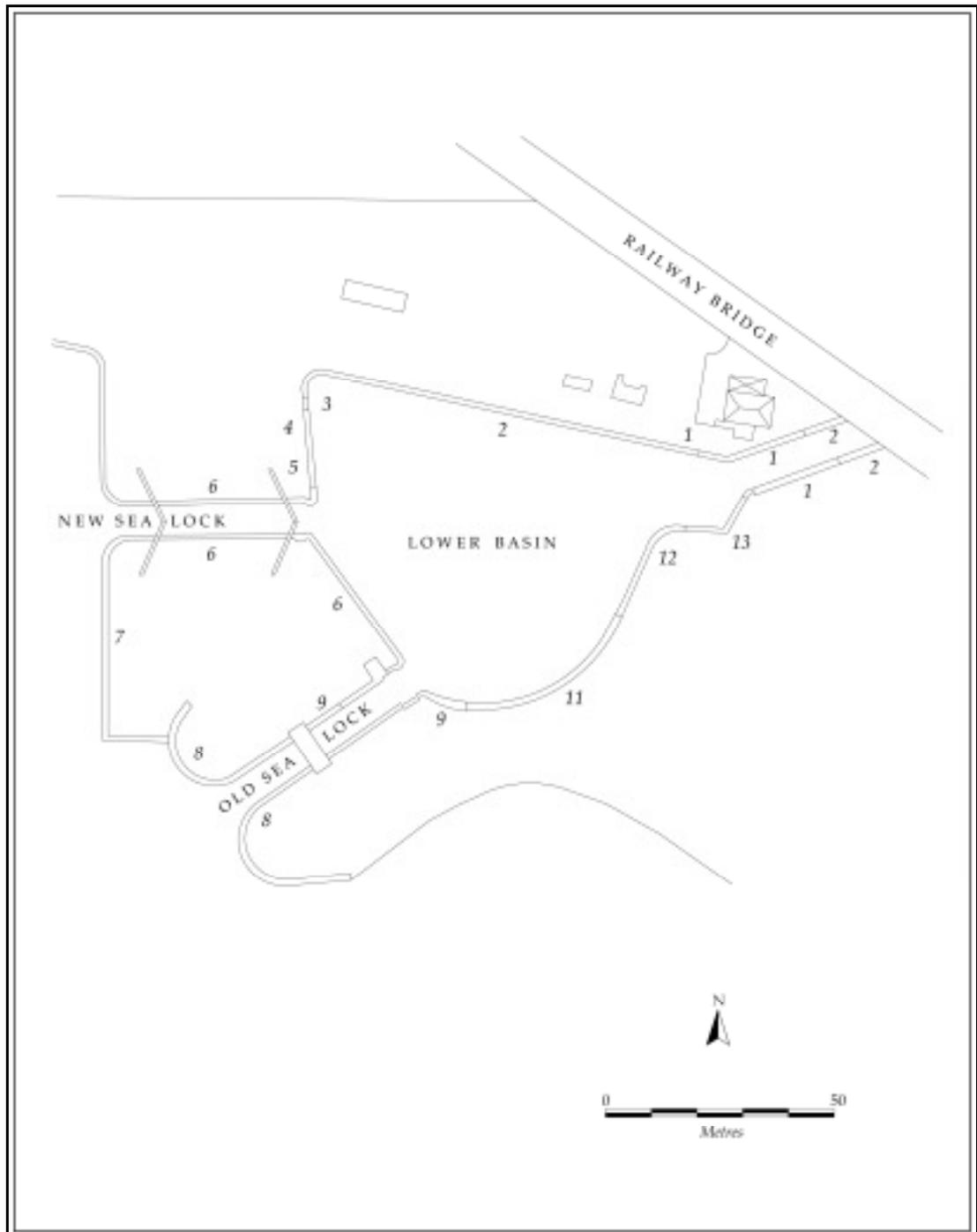


Fig. 2 *Plan of Bowling Lower Basin*

2.0 ARCHIVAL DOCUMENTATION

An examination of historic maps and plans of the site show its complex development in response to changing patterns of transport, and the excellent archaeological potential.

Summary

The plans show the development of the site from an ovoid basin with dry dock in 1790. The foreshore is gradually reclaimed, the dyke to the west defining the southern extent of the later harbour. The basin is extended in the 1840s and a new lock built to link it to the improved harbour. The railway is introduced from 1850. In the latter part of the century, the basin was extended slightly northwards. The north wharf of the harbour was rebuilt after 1901.

Abbreviations

CHP Canal House Plans.

OS Published Ordnance Survey plans

NAS RHP National Archives of Scotland, Register House Plans. Held in West Register House, Edinburgh.

NLS National Library of Scotland, Edinburgh.

RCAHMS Royal Commission on the Ancient and Historical Monuments of Scotland, Edinburgh.

Note: The plans are reproduced here for purposes of research. Copyright regulations state that permission is required to reproduce plans held in the above public archives for publication or exhibition purposes.

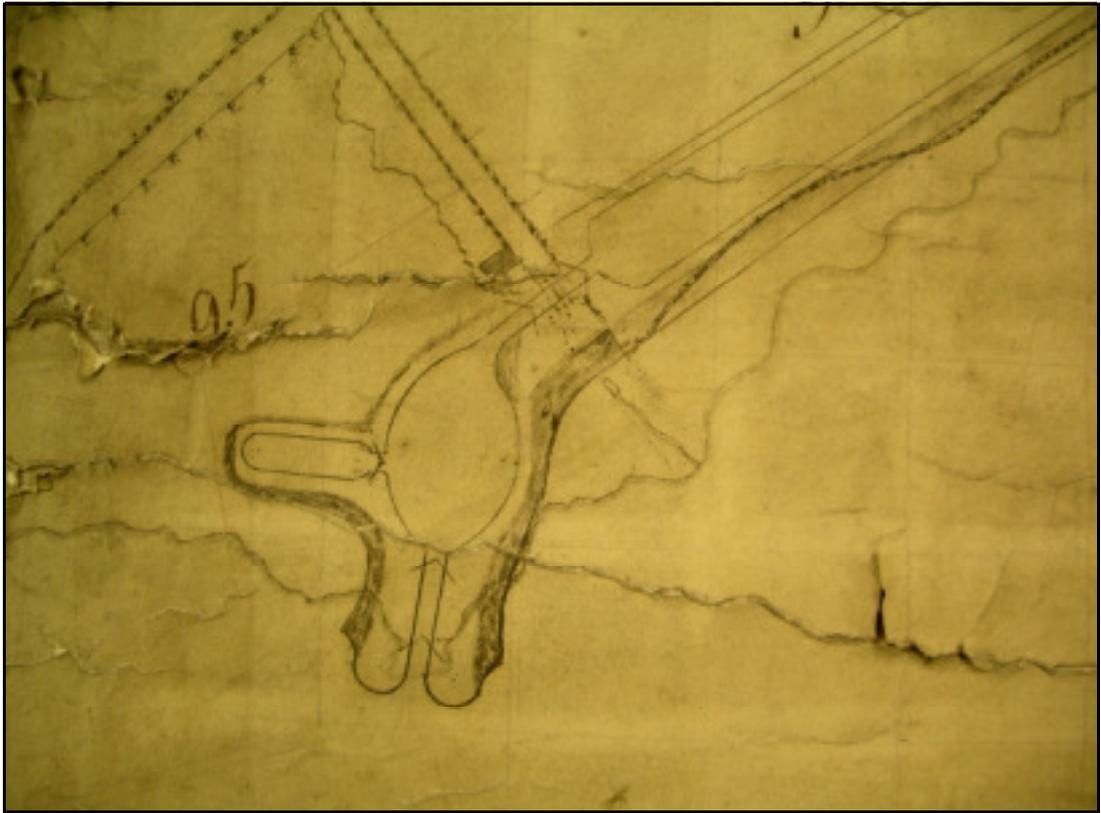


Fig. 3 *Plan of whole canal as finished. 1790 (CHP P9)*

This plan shows the terminus of the canal with the original ovoid basin (NE to top). A dry dock (lock gate depicted) extends to the north-west. The only building shown on this detail is the Collector's House/ Custom House, without its rear wing. The shading alongside the canal may indicate embanking.

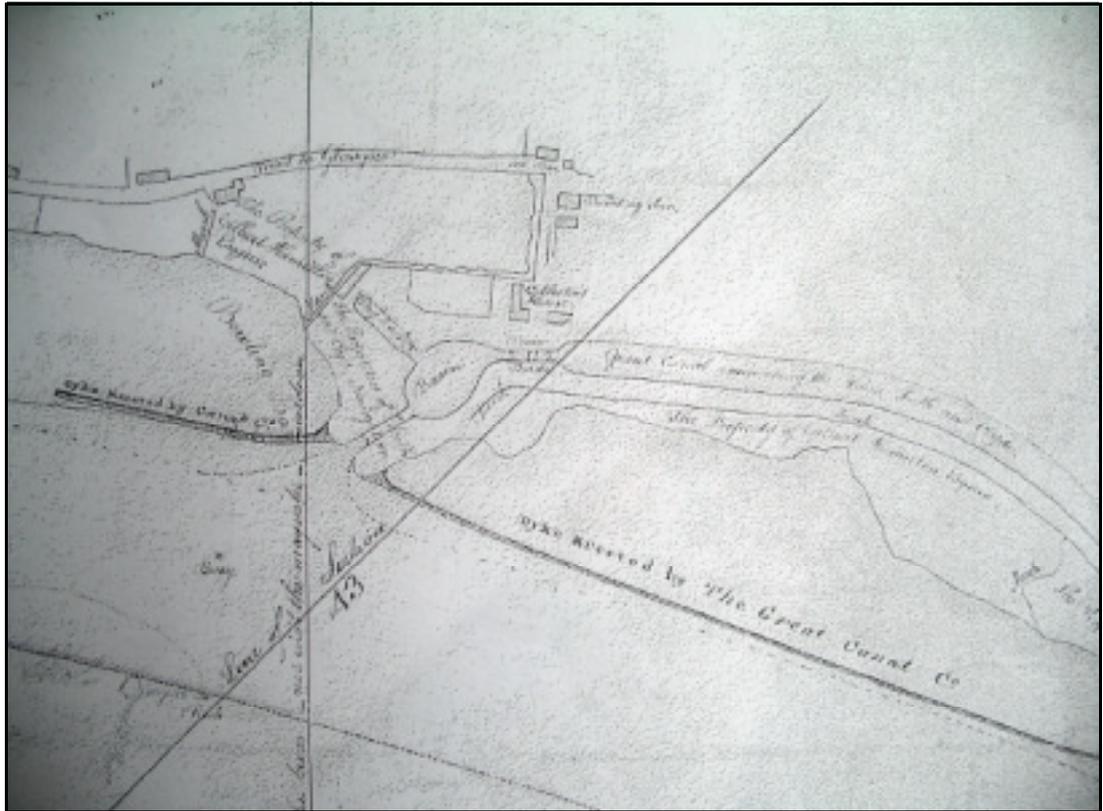


Fig. 4 Plan of the River Clyde illustrating improvements to navigation and giving details of frontages, from the River Cart to Bowling Bay 1808. NAS RHP2859

A plan of 1808 (NAS RHP2860) shows the basin with a lock at its entry from the river and another, with draw bridge, immediately its north. A dry dock, 40 feet wide, is shown projecting 132 feet north-west from the basin at right angles to the line of the first lock. A burn, marked as a 'March' or boundary, is shown flowing southwards towards the 'Collector's House' where it turns at a right towards the west then turning again into Bowling Bay. Two dykes are shown as 'erected by the Canal Co' running parallel with the river from near the mouth of the canal. One dyke to the east cut the whole distance across the small bay which existed to the east of the canal basin, with a small outlet to the river near its eastern end. It defines the approximate line of the present foreshore. A shorter dyke extended westwards from the mouth of the canal following the line of the present pier. Frisky House is shown to the west of Bowling Bay. Another plan of 1808 (NAS RHP 2859) shows the same details. A plan of 1830 (NAS RHP is identical, but omits the dykes.



Fig. 5 *Plan for Proposed Docks 1800. (CHP P130)*

Soon after the construction of the canal, there was a demand for more docks. This plan shows a proposed dock, drawn over the existing arrangement. The later shows the extent of the foreshore at that date, reclamation being limited to the area immediately surrounding the canal basin. The burn is shown as draining into the present harbour. The dyke on the site of the present pier can be seen, extending west near the canal lock. The plan shows another dyke to the east, along the line of the present shore, with unclaimed land behind.

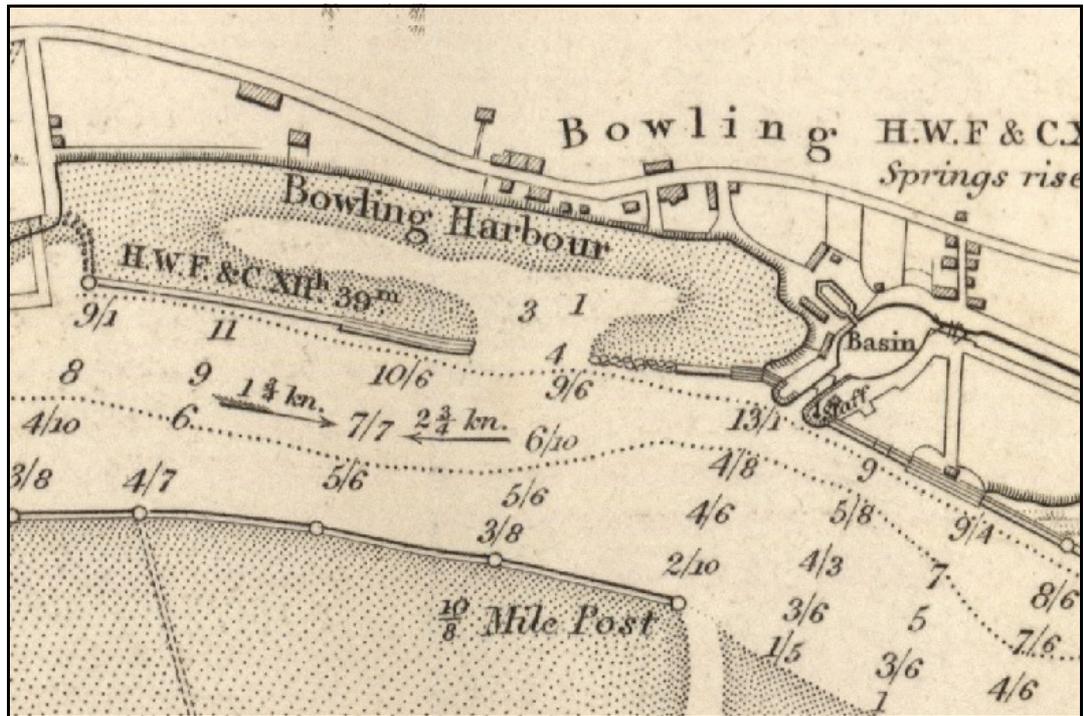


Fig. 6 River Clyde from Dumbarton to Glasgow. Hydrographic Office, London, surveyed 1846, published 1850. NLS Admiralty Chart 2007.

This shows the basin unexpanded and the harbour in its undeveloped state. The depiction of the pier would seem to indicate three different types of construction, the outermost shown as a line of rubble.

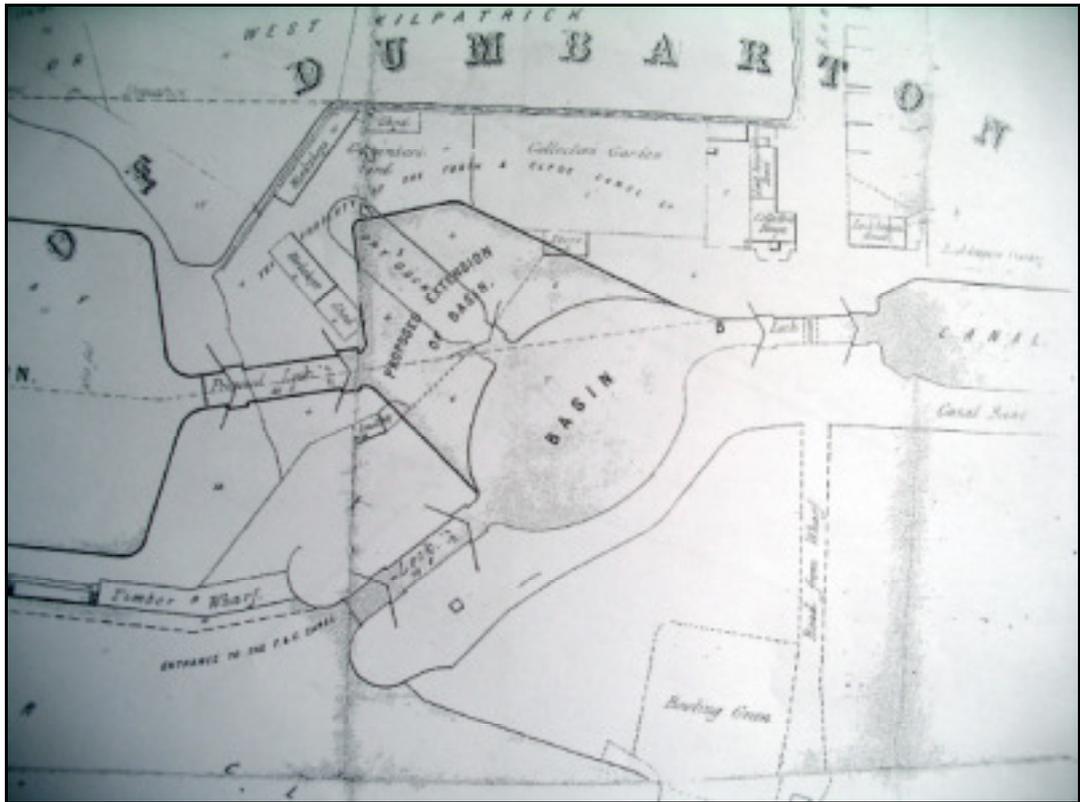


Fig. 7 *Plan of Bowling Bay with proposed improvements for Better Accommodation of the Trade of the Forth and Clyde Canal, 1845. NAS RHP 2637.*

This proposal established the basic form of the present layout. The canal basin was to be extended to the north-west, over most of the length of the dry dock. Another lock leads westwards from this extended basin into a larger basin, approximating to the present harbour. A new quay wall, 500 feet long, was to be created on the north side of this basin, approximately 80 feet to the south of the previous foreshore. Sections show that this quay wall was proposed to be 13 feet in height and rising from just below low water, below which it is shown as supported on three piles, extending down a further 15 feet to below the level of the bottom of the river. It was proposed to enclose the southern, or river, side with a new timber wharf (another timber wharf appears already to have been erected to the west by the Clyde Trustees). This new wharf was to rise 6 feet above high water. It was based on long outer piles, about 28 feet in length and a shorter central pile, 12 feet in length, which extended through the centre of the former dyke to the low water mark. The surface within the basin was to be lowered around 8 feet thus creating a harbour from what had been a tidal mudflat within the confines of the dyke.

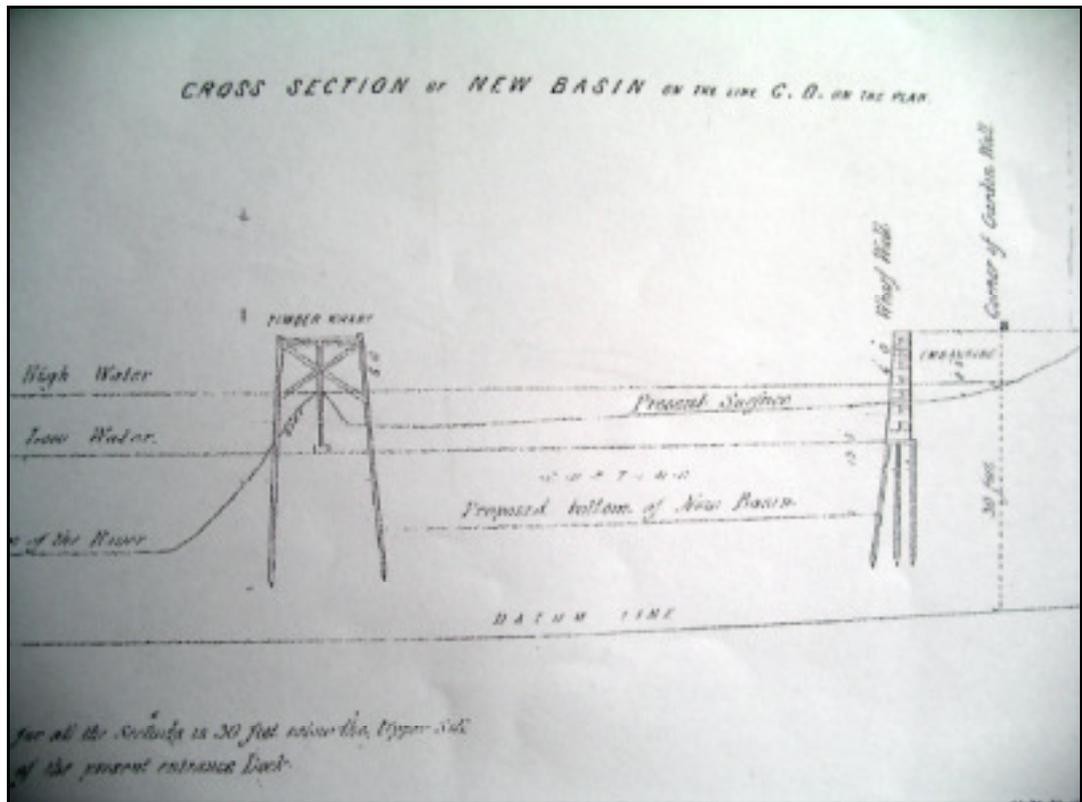


Fig. 8 Detail of *Plan of Bowling Bay with proposed improvements for better accommodation to the trade of the Forth and Clyde Canal 1845*. NAS RHP2637.

Cross section of New Basin.

The pier/warf at the harbour entrance is shown as a timber platform on piles, which are based on a dyke. The proposed construction of the northern edge of the harbour consisted of a masonry wharf wall, resting on piles below low water, and with embanking behind.

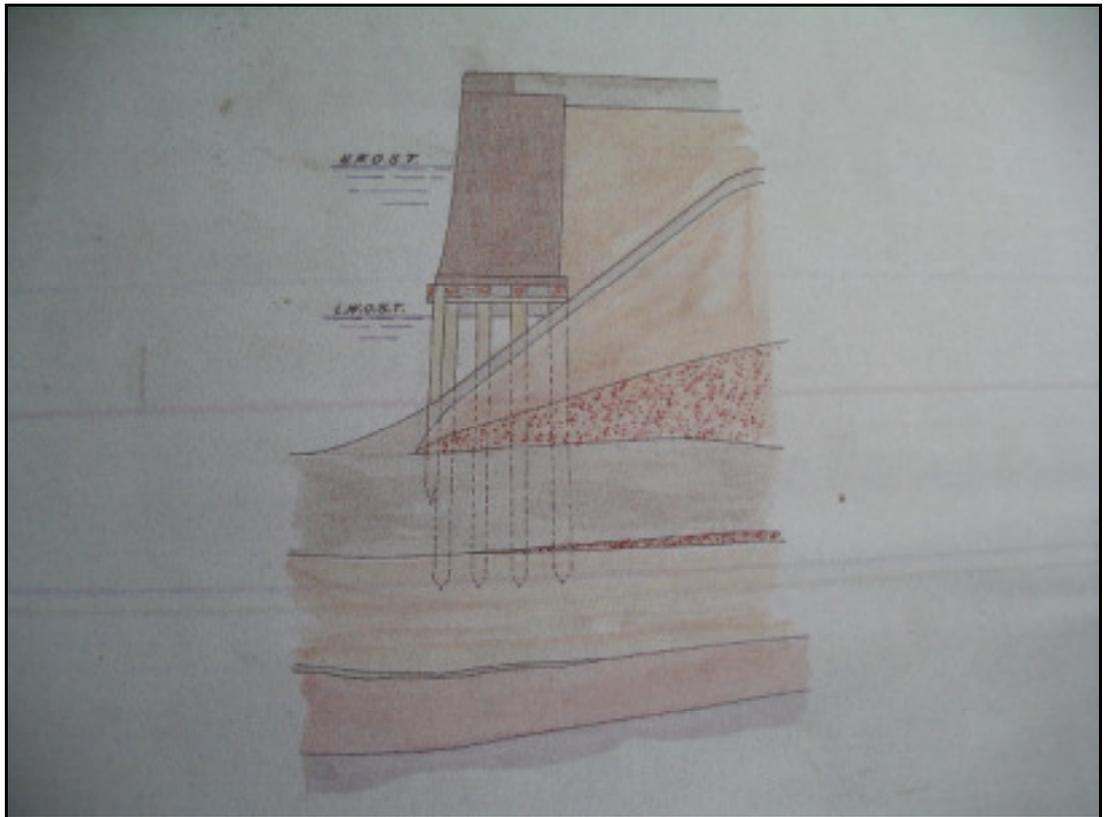


Fig. 9 *Caledonian Railway. Bowling Harbour. Plan and Cross Sections of Quay Wall. February 1901. NAS RHP120695*

Section of existing west end of the wharf prior to proposed improvements with new quay walls and cylinders. This appears to show the quay wall as constructed in the mid nineteenth century.



Fig. 10 *Improvements as Proposed. 1847. CHP101.*

This would seem to be a variant on a plan of 1845, illustrated above (NAS RHP 2637).

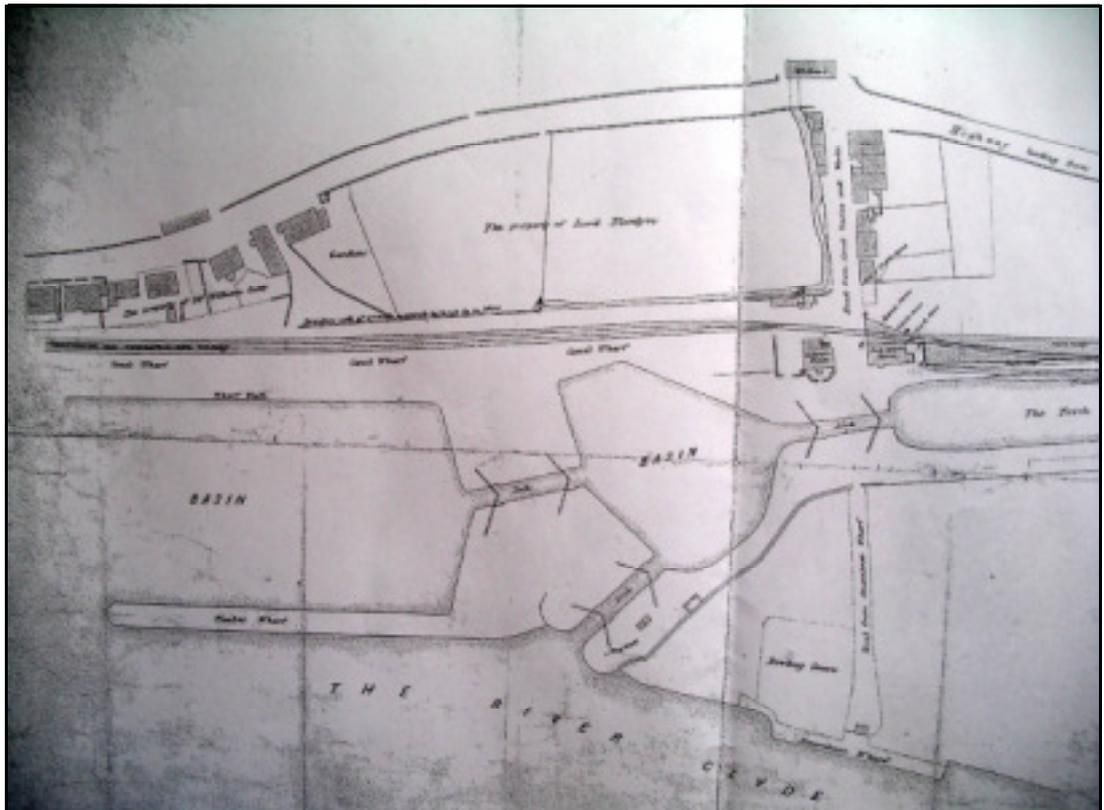


Fig. 11 *Plan of the Basin of Forth and Clyde Canal at Bowling 1850. NAS RHP105.*

This plan of 1850 shows the first impact of the coming of the railways on Bowling. The line of the Caledonian and Dumbartonshire Railway runs north of the harbour basin, immediately north of the 'Collector's House' (Custom House) to the north bank of the canal. In 1850 Caledonian and Dumbartonshire Railway opened from Bowling to Balloch, with steamer connections at each end.



Fig. 12 CHP P504 Plan for Bowling Basin. Undated.

The details are simplified on this plan. Although it shows no railway, it marks the probable engine house on the north side of the basin, as on the OS 1857-61 plan. It shows one a dry dock to the NW of the basin, not two as on the OS plan, so is likely to be earlier than 1857-61. Collector's House with a lock keepers house behind and another across the road to the E- Road leads to a bridge, possibly a bascule that then continues to a wharf to the S. Large garden and various outbuildings- Bowling harbour not constructed.

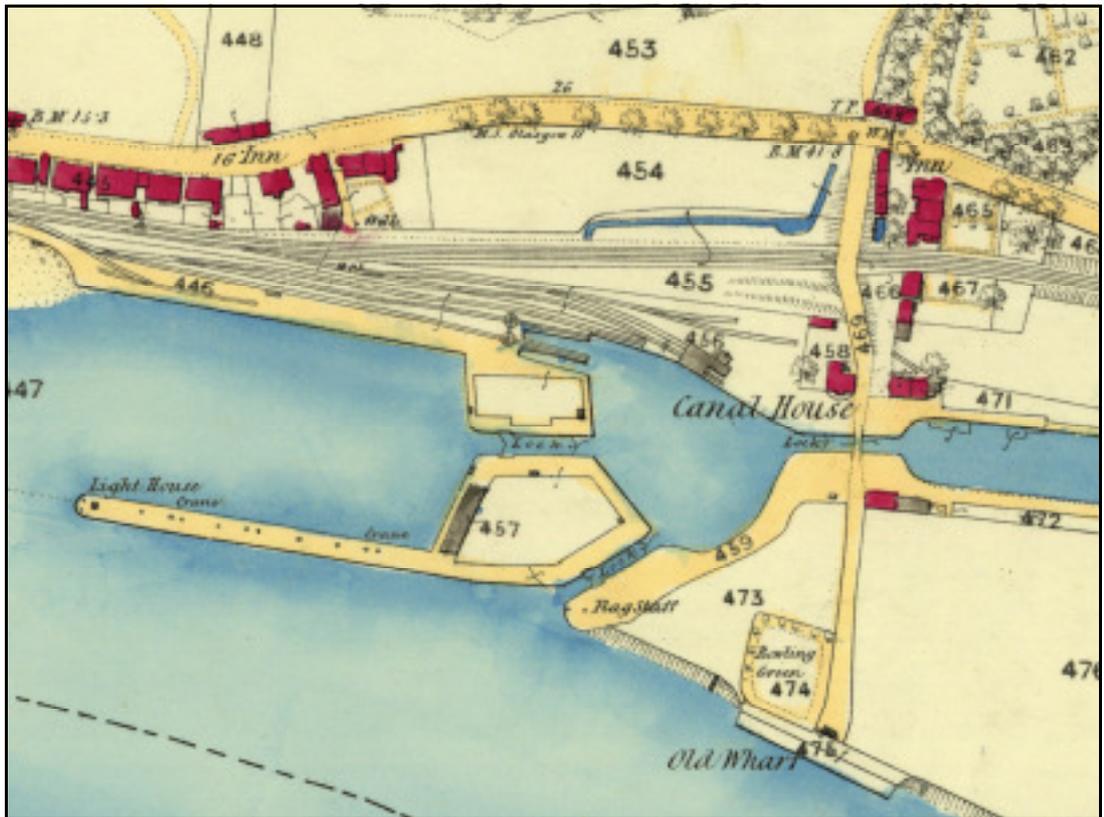


Fig. 13 OS 1:2500 Dumbartonshire XXII.12. Surveyed 1857-61

This shows two docks extending west from the canal basin. This and the north side of the basin are served by a network of railway sidings, some terminating in a possible engine shed. A bowling green is established by the steamer wharf. The road now passes over the main railway on an embankment. The burn is within a culvert before entering the basin.

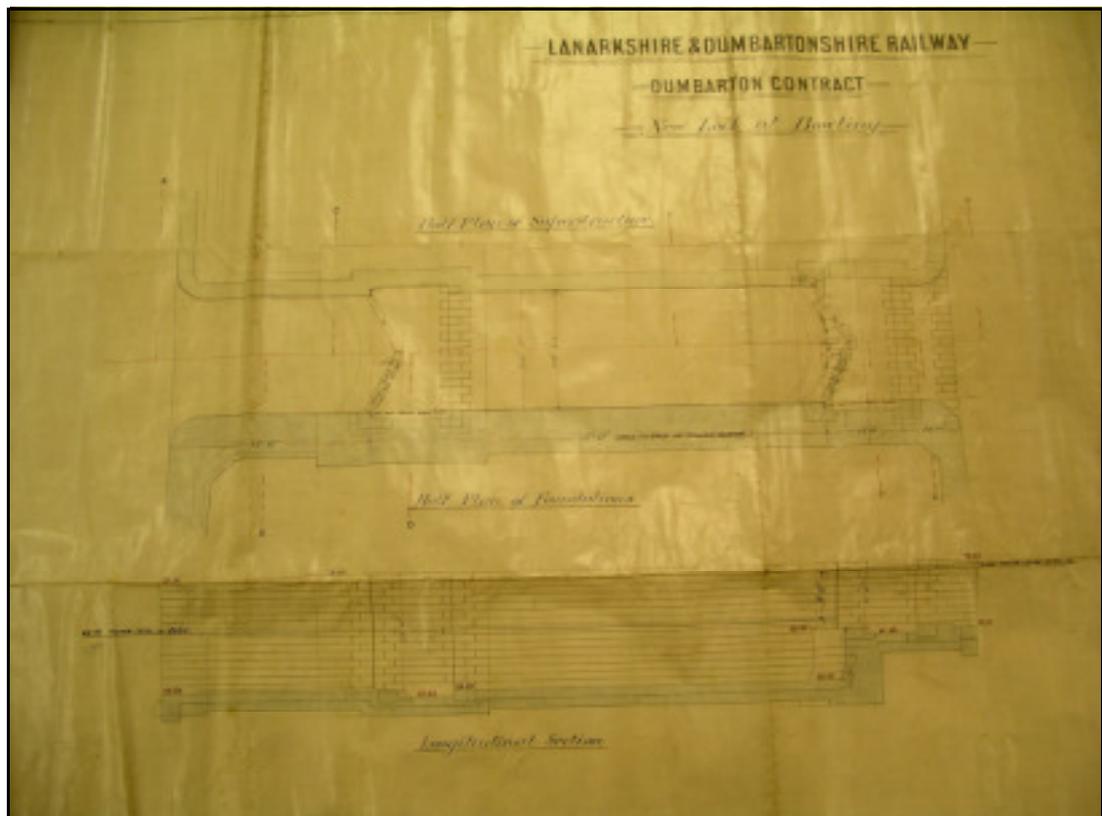


Fig. 14 *Lanarkshire and Dumbartonshire Railway. New Lock at Bowling. CHP116. Half plan and longitudinal section.*

This lock was associated with the building of the line for the Lanarkshire and Dumbartonshire Railway, which travelled on a large swing bridge over the canal. Nine drawings survive showing elevations, plans, sections and details of masonry and steelwork for this swing bridge (NAS RHP1 22184-122192).

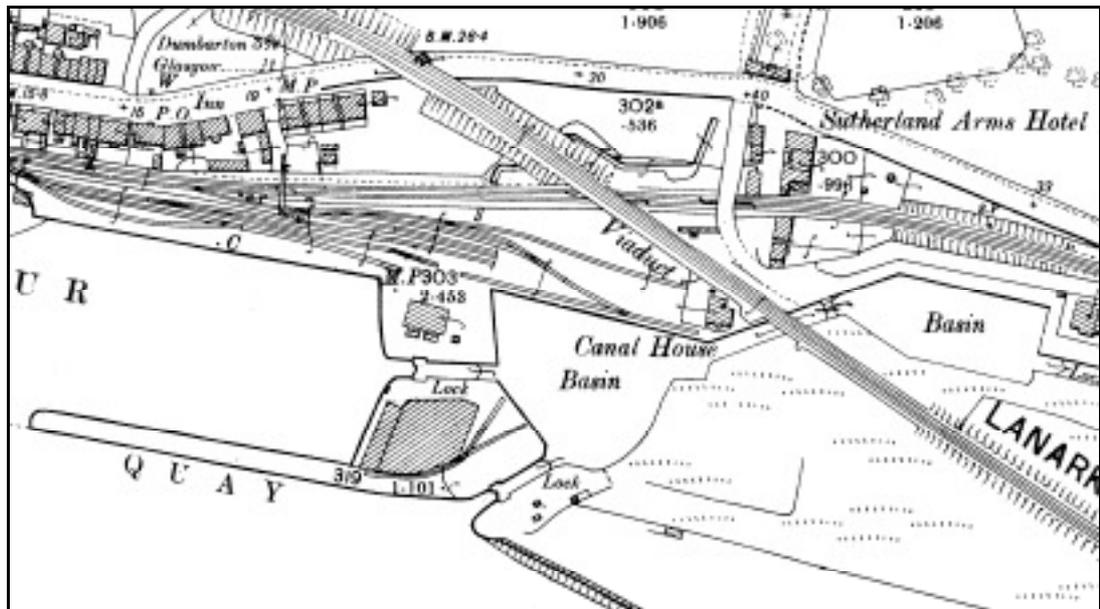


Fig. 15 OS 1:2500 Dunbartonshire XXII.12 1898.

The second canal lock has been removed. The two tanks in the NW corner of the Lower Basin have been filled in and the angle taken out of N Basin edge. New channel dug on NE-SW orientation connecting Upper and Lower basins (now at same water level). Helenslea House and its Lock Built. Land outside Customs House considerably reduced and cut away on SW-NE angle- this removes semicircular feature on S end of Customs House. Customs House no longer entered directly from 1st Floor level- steps built up to it from reduced ground level. Railway Bridge, Swing Bridge and Bascule Bridge added and extension of train tracks on N shore, crossing Swing Bridge to S basin shore. Road N of New Railway Bridge is now diverted to swing E to Helenslea or W under bridge and round to Custom's House – no longer gives access to the Old Wharf and Bowling Green which have become defunct. Replacement of buildings N and S of Lock into Bowling Harbour.

NAS RHP120690-120695 Hand tinted tracings showing details of new quay wall and cylinders at Bowling Harbour (Caledonian Railway) 1904. (Copies ordered)

These show details of the proposed rebuilding of the north wharf of the harbour. Details of bores alongside the wharf show c 6m of sand and gravel over boulder clay at the west. The sand and gravel was deeper at the east end, with 12m over the boulder clay.

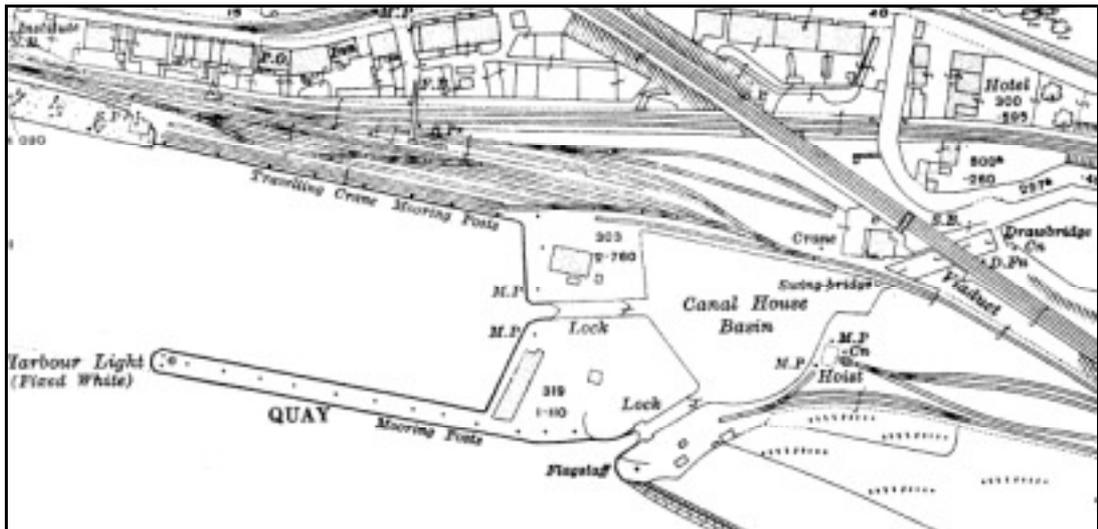


Fig. 16 OS 1:2500 Dumbartonshire XXII.12. 1918.

The railway extends across a swing-bridge to the south of the viaduct. A siding extends to the east side of the basin adjacent to a hoist and crane. There is a travelling crane along the north side of the harbour. Mooring posts line the harbour.

Aerial photographs

The more recent history of the canal basin is documented by aerial photography. The first in the series was taken in November 1945 (RCAHMS AP 1066/UK/1019.5349) showing the harbour as operational and the pier in apparent good condition. The small swing bridge has gone.

On another, taken in March 1960 (RCAHMS AP 543/RAF/840.0245) the decay of the basin is noticeable. The platform of the pier has gone and its four supports are visible. There are three vessels in the harbour, possibly abandoned.

In June 1963 further dereliction is apparent. A photograph taken near high tide (RCAHMS AP OS/63/60.68) shows the prow of a sunken vessel above water in the SE corner of the harbour.

Another, taken at low water in June 1988, shows the nature of the foreshore and the silted harbour (RCAHMS AP 51588.070).

3.0 DESCRIPTION AND INTERPRETATION

Trench 1- This refers to the general spread, up to 9m across, to be re-cobbled with granite setts N of the Lower Canal Basin, from the NW Basin corner 100m to the front of Customs House and including the area outside the building. As can be seen in Photographs IMG 2897 and IMG 2898, the ground surface was composed of patches of granite setts overgrown with grass and muddy patches, with a grey stony surface predominating to the W (See IMG 2904). This surface was cut with a digger to a depth of approx 300mm, revealing that the setts **1002** were set in a layer composed predominantly of **1003**, a gritty greyish black ash with silt and occasional small angular stones <10mm, 50-70mm deep. This appeared to be a levelling layer associated with the decommissioning of the railway. The setts themselves were grey or rose granite with relatively flat cut faces, 180-250mm deep. This surface can be shown to be of relatively late date as it overlies railway sleepers **1035**, **1038** and **1039** that were part of an active transport system that was used well into the 20th century. The upper faces of these wooden sleepers carry the scars of removed metal rails and their fixings. When the railway went out of use these were removed as they had a significant scrap value. The sleepers themselves were truncated to the S by the main sewer trench **1026**, but were typically 2.70m long x 0.25m across x 0.15m deep - they appear on the 1896 Plan of the basin and may be of this date. It was noted that several other sleepers had been removed as part of this excavation process prior to archaeological monitoring and these could therefore not be recorded in situ. As these sleepers do not appear on the OS plan of 1857-61, these can be identified with the major layout changes of the late 19th century. A further group of eight wooden railway sleepers **1004** approx 4m E of **1035** run on a WNW-ESE orientation and appear to be part of a line again visible on the 1896 plan that connects the back of the NW Bowling Harbour side to the now removed swing bridge opposite Customs House. These sleepers were again found at an approximate depth of 300mm and were 2.60m long x 0.27m wide x 0.12m deep. They all carried the scars of removed metal rails and their fixings. Only a brief examination was possible of the material into which these sleepers were bedded as the area was stripped to the upper face of the sleepers. The layer was identified as being a dark brown moist organic silt of indeterminate depth **1009**. Associated with sleepers **1004** was a Stone Pad **1006** overlying a concrete base **1005**. The stone pad was identified from the 1896 plan as being a stone footing associated with a capstan. The concrete base was approx 50mm thick and set in ash layer **1003**. The upper surface of the stone pad was dressed with a square cut 420mm x 420mm x 20mm deep with 4 circular cuts of 110mm diameter x 30mm deep at each corner. Each of these 4 cuts had a

central threaded metal fixing while in the middle of the stone pad was a further circular cut 130mm across x 50mm deep. The pad itself was 1000mm x 1000mm x 180mm thick. It would appear that this was used to secure part of the capstan into place.

The 1896 refit of the Lower Basin required a reduction of the ground level outside Customs House. The stairs and porch to the original entrance were removed and the ground level rationalised. As part of this process a concrete base **1020** up to 2.50m wide was poured to provide a flat solid walking surface and strengthening for the connection of the new rail tracks to the Swing Bridge. It ran from the W garden wall of Customs House E around the front of the building where it abutted the caps of the adjusted canal channel and was approx 200-400mm thick. It was composed of numerous pieces of smashed grey and blonde sandstone <100mm bonded in a grey cement matrix containing small black and grey angular stone inclusions <3mm. Outside Customs House, **1020** sits on **1043**, a layer of angular sandstone rubble levelling material up to 300mm thick that in turn rests on **1030**, a layer of heavy pink clay of indeterminate thickness. **1021**, a remnant patch of setts sits on silty ash **1022** atop **1020** at the steps to Customs House.

A similar concrete plinth **1007** is to be found running along the N side of the NE Lower Basin caps **1001** SW of Customs House. It is 150mm thick by up to 1000mm wide and was exposed for approx 14m- to the E it still had granite setts laid on it. To the W, the plinth stops abruptly- **1014** may represent a cut or a deliberate termination of the plinth although it is likely that this was a strengthening measure- see below. **1007** is of similar composition to **1020** and provides a footing for 2 stone pads with recessed mooring rings **1015** and **1016**. These pads in themselves do not explain why **1007** runs for such a considerable distance- Mooring ring pads **1013**, **1017**, **1046** and **1047** are not connected by concrete and sit individually. All of the recessed mooring rings are of similar dimensions- the central circular recess is usually 350mm across x 50mm deep with an inset metal band and hoop. They vary from small stones set in a concrete jacket to large stones sitting on a concrete pour. While these may be reused from earlier phases their current position relates to the latest phase of site activity. The concrete plinths **1007** and **1020** perhaps provide strengthening for the 1896 railway tracks at a point where the spread narrows as it approaches the Swing Bridge outside Customs House. The S garden wall **1031** and balcony/steps **1032** of Customs House are also products of the 1896 refit, replacing an earlier arrangement. These will be discussed later.

Immediately S of Customs House an array of cuts and services were exposed as part of the clearance of setts **1002** and the cut **1026** of the new sewer pipe trench.

Concrete plinth **1020** and wall **1023** were partially truncated by cut **1027**, a 400mm wide pipe trench of unknown depth (exposed in plan only) connecting to **1025**, a 20th century drain with a pierced metal cover. Wall **1023** has sides that are 500mm thick and its top sits 160mm higher than concrete plinth **1020**. It forms a roughly square structure and abuts the foundations of balcony **1032** to the N. It does not appear to have a base internally but is instead filled by **1024**, a layer of broken sandstone in a dark brown gravelly silt matrix of indeterminate depth. The function of this structure is unclear but it may relate to drainage/sewerage alterations carried out as part of the 1896 work. Further related drainage/sewerage interventions of this period or later are **1029**, a pierced drain cap serving brown ceramic pipe **1044**, bedded on a greyish black silt and ash layer **1045** similar to **1003**. A 20th century cast iron wastepipe **1041** running N-S was exposed at the SE angle of the demolished toilet block- this sat within cut **1040**, an approx 400mm wide trench that truncated concrete plinth **1007** and concrete Basin caps **1001** to the S. Several other service pipes were partially exposed along the length of the spread but were only recorded photographically.

In the W portion of the spread, immediately E of sleepers **1004**, a layer of demolition debris **1010** was uncovered after the removal of surface material **1012**, a spread of very modern red pitch trample 200mm thick and a 70mm thick layer of brown silt **1011**. A c.1950's photograph showed that there were two brick buildings, probably stores, at this location. **1010** was a spread rather than a footprint, although it is possible that this may survive below at some further depth.

Immediately to the S of Trench 1 are the Basin Caps **1001** forming the N edge of the Lower Canal Basin. It is unclear whether these are formed of solid concrete or are stone caps with a concrete overlay. It is clear that this particular line of the N Lower Basin Edge did not come into existence until 1896 when it was rationalised to compliment the changing layout of the canal as well as the Basin and its sides. It will be discussed later whether it is possible to phase a particular part of the Basin through analysis of the Basin caps. Caps **1001** are 900mm wide x approx 300mm deep and have an upper face of concrete incised with lines to provide additional grip. The only surviving metal rail tracks **1033** are to be found set into the stippled granite Basin Caps at the NE Lower Basin edge outside Customs House. These are 60mm across by 140mm high and are set into a metal base clamp 540mm across x 150mm thick set on a wooden sleeper on the same orientation as the rail- as opposed to sitting at right angles to it. The top of the rail sits flush with the top of the canal caps and allowed transit over the now-demolished Swing Bridge. E-W wooden sleeper **1034** appears to be on a similar orientation to **1033** and may represent a

contemporary rail element. If this is the case then it shows that recessed mooring ring pad **1015** is a late addition as it could not have been there when the rail tracks would've passed over it. The rails were reinforced at this point by **1042**, a series of 3 or 4 massive concrete blocks approx 1m across with sandstone inclusions and a grey cement matrix similar to **1007** and **1020**. Two of these were removed prior to archaeological monitoring in order to instate a manhole for sewer pipe trench **1026**.

As the N Lower Basin edge was rationalised in 1896, it follows that an area of the Basin *in water* was reclaimed as part of the process and subsequently acted as part of the N Lower Basin side. This is represented in plan by **1019**, a layer of brick, silt and stone infill of indeterminate depth- the edges of this spread could not be discerned as it had been excavated, rolled and partially levelled before it could be examined. In addition there was no sign of the remains of the immediately pre-1896 N Basin Wall, suggesting that its masonry and caps were reused after it was dismantled.

Trench 2 can be identified with the main sewer pipe trench **1026** running W-E through Trench 1. To the E this connects to Trench 11, which runs from the Swing Bridge to Helenslea House. This Trench was largely dug and backfilled in the area of Trench 1 before it could be recorded but was typically 800mm wide x 800mm deep, deepening to 1200mm to the W where the contents of Trench 14 were encountered. To the W of Trench 14, Trench 2 continued WSW for a further 21.60m where it widened out to form Trench 16 to house the new septic tank. Where recording was possible, a typical section was composed of an upper deposit of gritty grey ash **2001** 100mm thick lying over a layer of greyish silt and angular pieces of sandstone rubble <200mm **2002**, up to 350mm thick. Beneath **2002** was **2003**, a layer of heavy pinkish clay at least 250mm deep. These appeared to be layers associated with the backfill and subsequent use of the preceding N Lower Basin edge after its reshape in 1896. Wooden railway sleepers were noted piled nearby and may have been bedded in **2001**.

Trench 3 was not a trench as such, but an area of disturbance noted during the archaeological assessment. This refers to the grassed area opposite Customs House where an area turf had been removed and replaced. This would've been in the vicinity of the Swing Bridge removed in the 1950's and there are portions of dressed masonry visible that are possibly remnants of this, as well as a traces of rail lines and a concrete spread.

Trenches 4-8 were excavated in advance of an archaeological presence and Trenches 4-6 had concrete bases of approx 600mm thickness already poured while Trenches 7 and 8 were formed by the reduction of a pre-existing concrete spread possibly associated with the removed Coal Hoist that was known to have operated here. These trenches were cut along the S/SE curved edge of the Lower Canal Basin in order to provide secure anchoring points for new pontoons being fitted as part of the refurbishment. It was noted that this side of the basin was disturbed by a tarmac footpath and a series of services (indicated by manhole covers) including power lines to provide electricity to moored boats. Trenches 4-6 contained no traces of Pre-1896 activity.

Trench 4 was 3.0m wide x 3.75m long x 0.22m deep. The E section showed that a modern tarmacadam path **4001** 100mm deep overlay **4002**, a cobbled layer of grey and rose granite setts 100-150mm across sitting within a matrix of mixed mid-brown silty sand containing ash/industrial debris **4003**, exposed by 120mm.

Trench 5 was 2.60m wide x 3.20m long x 0.29m deep. The E section showed that a modern tarmacadam path **5001** 100mm deep overlay **5002**, a cobbled layer of grey and rose granite setts 100-150mm across sitting within a matrix of mixed mid-brown silty sand containing ash/industrial debris **5003**, exposed by 120mm.

Trench 6 was 2.50m wide x 2.90m long x 0.29m deep. The E section showed that a modern tarmacadam path **6001** 100mm deep overlay **6002**, a cobbled layer of grey and rose granite setts 100-150mm across sitting within a matrix of mixed mid-brown silty sand containing ash/industrial debris **6003**, exposed by 120mm. At the S end of this section were the exposed remains of wooden railway sleepers **6004** and further removed sleepers in a spoilheap close by. The presence of these appears to confirm the 1896 plan showing rail tracks serving this part of the Basin edge.

Trench 7 was 2.50m wide x 3.00m long x 0.35m deep. The SE section was composed of **7001**, a thin turf 30mm thick overlying **7002**, a cobbled layer of grey and rose granite setts 100-150mm across x 270mm high sitting within a matrix of

mixed mid-brown silty sand containing ash/industrial debris **7003**, exposed by 80mm. The E trench corner revealed that these layers sat atop a thick Pinkish Clay **7004**, possibly imported onto the site to help make the Basin watertight. This was in turn truncated by a cut **7005** (visible in plan only and of indeterminate dimensions) for a poured concrete base **7006** surmounted by a concrete platform **7007** (both concretes containing an additive of smashed sandstone pieces like **1007** and **1020**) which had been broken out to the NE to reduce it by 400mm to the appropriate base height of the trench. Both concrete pours were only partially exposed in this trench and their wider dimensions were not recorded- they both appear to be related to the Coal Hoist introduced in 1896 when railway tracks were introduced to this part of the Basin. The basin caps at the edge of this trench also change from grey or rose granite blocks to concrete. Since this portion of the basin was undisturbed by alteration from 1790-1896 it may be possible to date the two cap types to the two extremes of this date range.

Trench 8 was 2.50m wide x 4.00m long x 0.08m deep. When this trench was examined, the turf **8001** was 40mm thick and lay atop a layer of gritty silt and ash **8002** 40mm thick. This covered the Rose granite cobbles **8003** which sat to the N and E portions of the trench separated by a concrete plinth **8004** to the S, a continuation of **7007**. All activities within the confines of this trench were of 1896 date or later.

Trench 9 was a trench for a crane pad 15m long x 12m wide E of Helenslea House. This trench was dug prior to on site archaeological supervision and had been lined with a pvc membrane and had its concrete base poured. It was therefore not possible to make a record of the deposits encountered although the trench looked as if it had been dug, at least partially, through a deposit of material dredged from the canal. A photographic record of these works was taken by British Waterways.



Fig. 17 *Trench 9 Crane Pad*

Trench 10 refers to the digging of two trenches for new paving slabs to be recessed into on the roadbridge at Helenslea. The trenches were approximately 420mm wide x 180mm deep and contained nothing of archaeological interest.

Trench 11 connects the E end of Trench 2 to Helenslea House and is part of the replacement of the sewer pipe system. It varies in dimension from E-W and was encountered in various stages of progress, including some tracts where digging and backfilling had already taken place. At its W extreme, the N section comprised of Grey granite setts **11001** 140mm high bedded in and separated by **11002**, a layer of gritty silt and ash 70mm thick. This in turn overlaid a layer of concreted pieces of stone and brick **11003** 170mm thick lying on a bed of loose sandstone rubble **11004** 270mm thick, all of which were placed there as part of the 1896 alterations. Interestingly, **11004** lies over **11005** a heavy pink clay, seen in plan only, which is either a natural clay or waterproofing material that was brought in. The trench narrows to 400mm wide up to the bascule bridge, other dimensions are not known as this section had been backfilled. The trench continued around the N side of the Upper Basin, skirting around Helenslea House where periodical monitoring of the digging took place. A typical section of this trenching showed a section composed of turf **11006** 60mm thick overlying a 300mm thick layer of **11007**, a mid-brown silt containing numerous small stones <50mm. This lay over a 450mm clean orange brown sand **11008**, possible natural. Nothing of real archaeological interest was found in this trench.

Trench 12 was a shallow service trench 500mm wide x 500mm deep x 24m long running S-N from the Lower Basin caps to the electricity fixture NW of the Amenity Block. The upper layer **12001** seen in its section was a redeposited 100mm thick spread of imported building material ie type 2 bedding associated with the construction of the Amenity Block. Below this was **12002**, a layer of sand, silt and stone 400mm thick which was recorded photographically as the trench kept flooding. No artefacts were found in this trench, although the S portion of the trench had been excavated and backfilled before supervision was put in place.

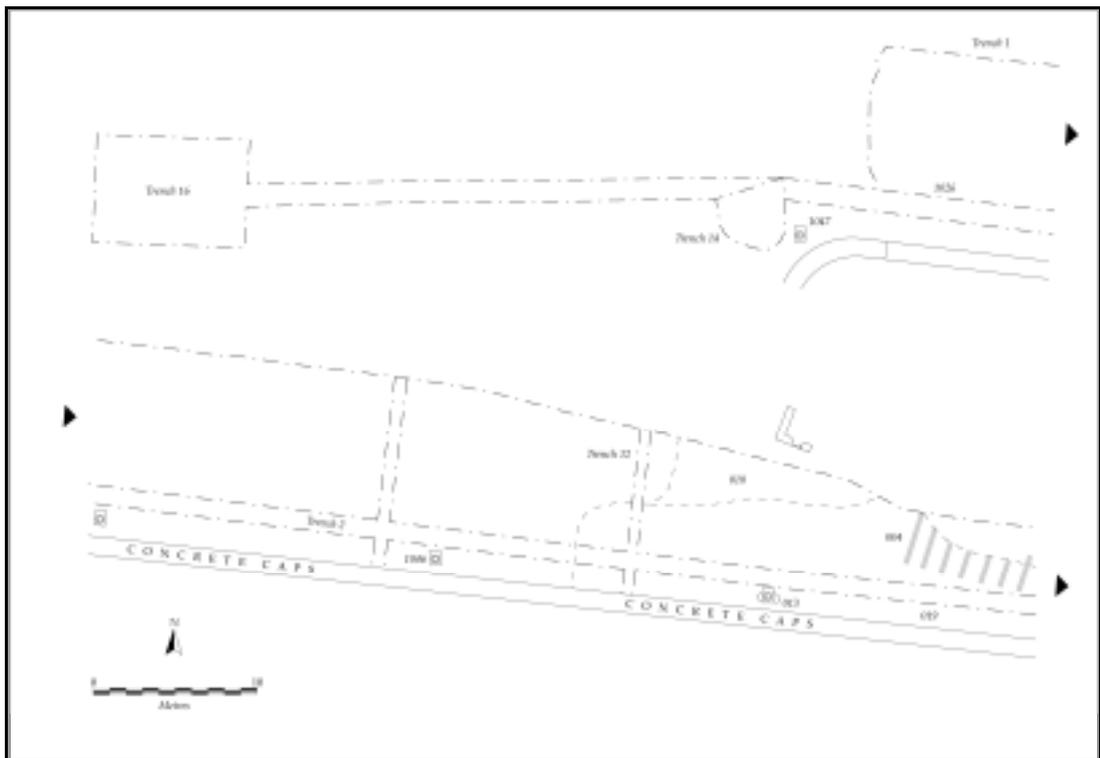


Fig. 18 *Plan of trenches Page 1*

Trench 13 was a shallow service trench 500mm wide x 250mm deep x 8m long running W of and parallel to Trench 13 ie S-N, connecting the electricity supply to the Amenity Block. The upper layer **13001** seen in its section was a redeposited 100mm thick spread of imported building material ie type 2 bedding associated with the construction of the Amenity Block. Below this was **13002**, a layer of sand, silt and stone 400mm thick which contained a clay pipe bowl and an unidentified piece of cream glazed ceramic.

Trench 14 refers to the W extreme of Trench 2 where masonry remains were

encountered and had to be recorded before the sewer pipe trench could proceed. Some masonry was disturbed before it became clear that there was a masonry feature in situ. A 50mm cast iron gas pipe **14001** was also exposed running N-S through the trench and was worked around. Historic Scotland were contacted by British Waterways and permission obtained to expand the trench to try to identify the feature. An area of 3.20m E-W x 2.40m N-S was accordingly exposed. The ground surface consisted of a modern gravelly grit **14019** up to 100mm thick overlying **14018**, a loose dark grey layer up to 250mm thick composed of silt, sandstone rubble and pieces of slate- likely demolition debris from buildings featured on the 1896 plan and now removed. Beneath this was **14020**, a very compact layer of black ash up to 250mm thick overlying a redeposited heavy gritty pink clay **14017** up to 200mm thick. These layers sealed **14002**, a platform composed of mortared blocks of dressed blonde sandstone 2.00m E-W x 1.60m N-S covered to the NE by **14005**, a very compact mottled orange brown layer of gritty sand and sandstone rubble at least 100mm thick- this appeared to be demolition debris and was separated from an almost identical layer **14014** by **14012**, a moderately compact layer of black ash with clay and angular stone inclusions <50mm. This layer was probably the same as **14020** but had been compressed by the blade of the digger. To the W of **14002** was **14004**, a banked up compact layer of dark brown gritty clay at least 360mm deep that appeared to be a post-construction backfill related to the masonry platform. To the SW of Trench 14 was **14003** (part of Masonry Platform **14002**) a blonde sandstone block with a rebated rectangular socket **14022** on its NW corner that appeared to have housed a flattened cast iron leg **14016** 500mm long x 90mm wide x 100mm thick. To the NW of Platform **14002** was a further blonde sandstone block **14015** bonded to **14002** by a greyish-pink cement. This was an in situ part of the masonry that was disturbed by the digger. Platform **14002** sat over a layer of concreted sandstone rubble **14007** at least 300mm thick x 2.20m E-W. This was in turn bedded on **14006**, a curving concrete platform at least 150mm thick with a ragged cut **14010** on its NE edge. This curve was mirrored on Platform **14002** where curved scar **14013** was backfilled by **14005**, **14012** and **14014**. Cut **14010** could not be fully described as it ran into the SE and NW sections however it also cut through the E face of puddle clay **14009**. Banked up against **14007** was a layer of heavy pink clay **14008** with a further layer of grey puddle clay **14009** to the N. These were only observed in plan so dimensions were not established. Overlying clay **14009** was **14011**, a piece of decayed wood 60mm wide x 500mm long E-W with cast iron fixings- it is likely that this was a later backfill.

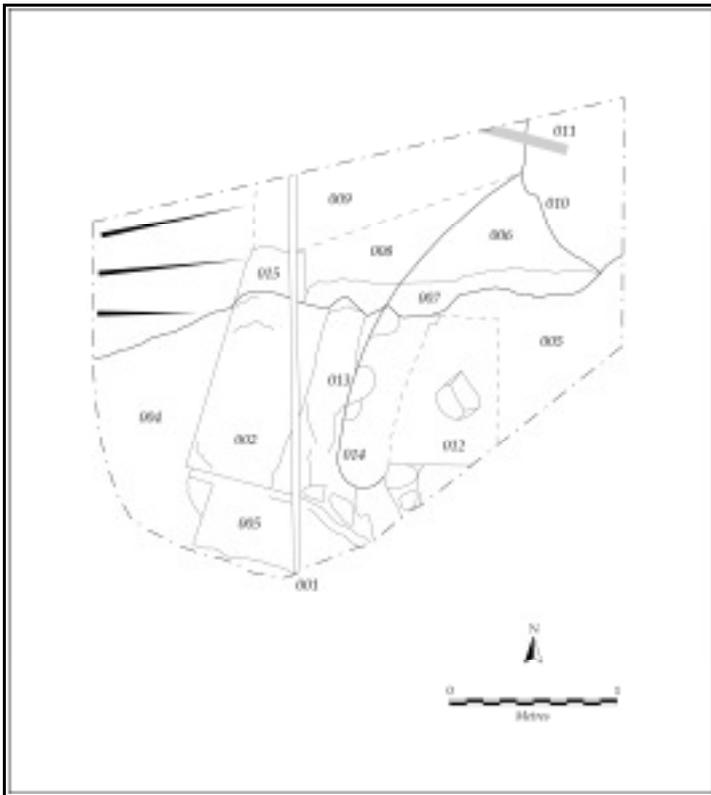


Fig. 19 *Trench 14 Plan*

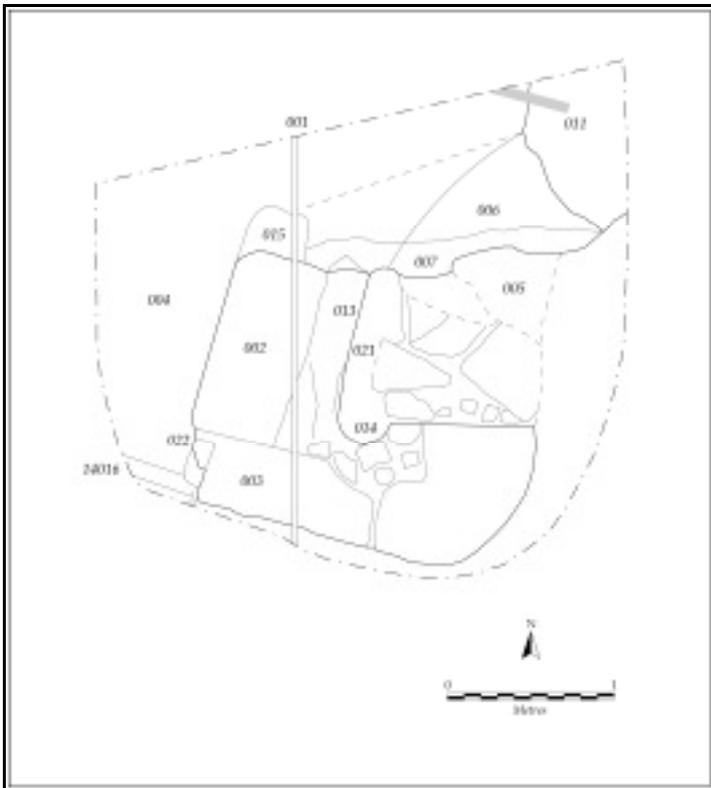


Fig. 20 *Trench 14 Plan Overlay*



Fig. 21 *Trench 14 Post-excavation*

It would therefore appear that a substantial feature operated in this location previous to the Lower Basin's realignment in 1896. Puddle clay is used throughout the canal system to seal masonry structures, helping to repel water. The curvature scar and iron fixtures associated with what is a substantial masonry platform infer that it was the basis for some kind of machinery/fitting associated with the 'tanks' noted on both the 1850 and 1863 Basin Plans. Demolition debris associated with the upper layers as well as scar **14010** suggest that machinery and masonry were removed or ripped out and then partially redeposited as part of the 1896 refit.

Trench 15 connected the main sewer pipe to the arched bays under the 1896 Railway Bridge. It ran from Trench 2 approximately 4.00m from the SE corner of the garden wall of Customs House where it headed N for 20m before turning WNW for a further 25m. The trench was typically 800mm wide x 800mm deep- This rose to a depth of 2.00m to the N where the land had been built up. This trench was cut out with the strict limits of the Scheduled area but was monitored in case anything of archaeological interest was uncovered. It was only recorded in plan and

photographically. The S portion of the trench contained cobbles bedded on gritty grey ash while the N portion was built up with layers of infill presumably related to the 1896 refit of the N Basin side.



Fig. 17 Trench 15 with exposed buffer

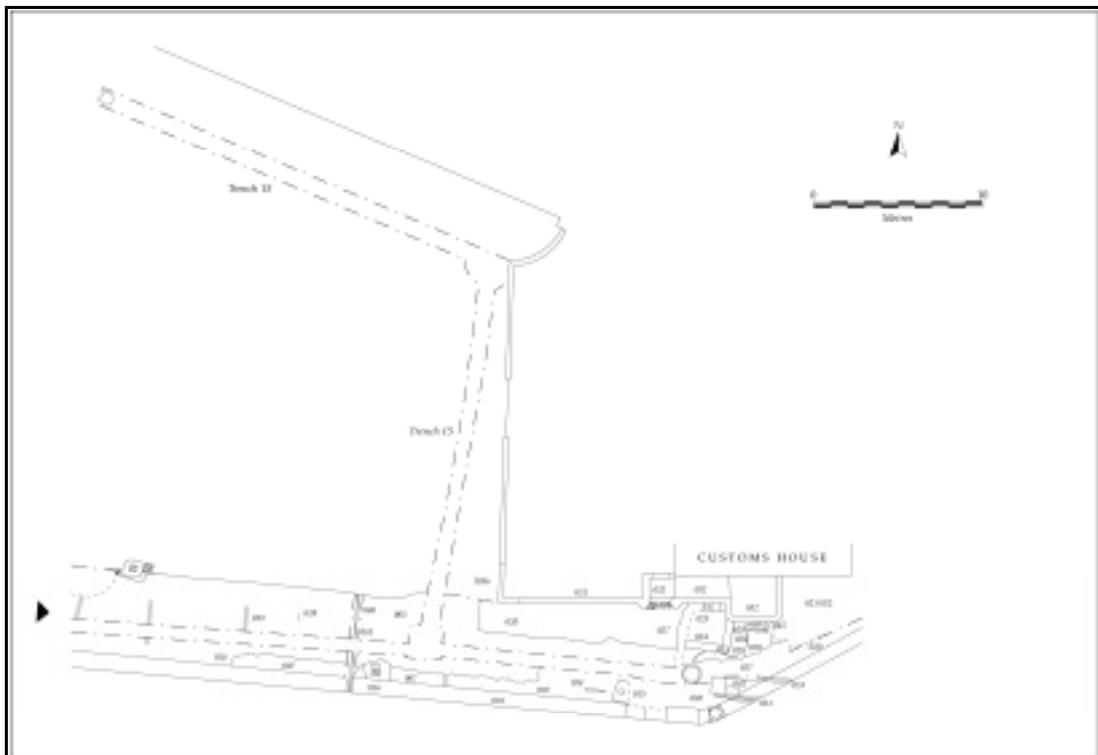


Fig. 23 Plan of trenches Page 2

Trench 16 was located at the W extreme of Trench 2 and was cut to house the new septic tank connected to the main sewer pipe. The trench was 5.00m N-S x 7.00m E-W. The section consisted of an upper layer of orange brown sand **16001** 200mm thick overlying **16002** a grey-black layer of gritty ash 200mm thick with **16003** below, a distinct mixed layer of ash and brownish grey silt 200mm thick. Beneath this to an indeterminate depth was **16004**, a layer of clean orange brown sand. These appeared to be layers of infill and levelling with **16004** relating to the construction and infill of Bowling Harbour with **16002** and **16003** relating to the bedding of the post-1896 railway tracks that operated here.

In addition to these trenches, the culvert that runs into the NE corner of Bowling Harbour was examined. It was in a state of partial collapse and was photographed and recorded as thoroughly as its dilapidated state would allow. A series of observations were made in relation to both the fabric of the structure and the evidence for its development from the historical site plans. The burn running through the culvert followed a natural course prior to 1790 after which it was rationalised to follow the angular course as seen on the 1790 Plan. By 1850 and the construction of Bowling Harbour, the burn had been rerouted. It followed a similar route but had been shifted 50m N. The burn was enclosed in a culvert with a flat sandstone slabbed roof for at least its last 40m before flowing out from the corner of the newly constructed harbour wall. To the N, the roof is arched in red sandstone- this is purposely built into the wall of the adjacent platform. The floor of the culvert was at least partially slabbed in red sandstone- the exact form is unclear due to recent clearance after a collapse. The rest of the burn was possibly un-enclosed and running in a walled channel with chamfered red sandstone copes. The burn was built over by the main line railway of the mid-19th century and became enclosed in an arched culvert with a red brick roof but retained the stone sides of the open culvert. In the late 20th century a manhole was added S of the platform wall which was itself reinforced with a concrete lintel. More recently, a 3m stretch of the sandstone-arched section of the culvert collapsed and was cleaned out by JCB.



Fig. 24 *Damaged section of culvert*

4.0

CONCLUSIONS AND RECOMMENDATIONS

The Scheduled Monument comprises a range of structures associated with the Forth and Clyde Canal and its development and use: including locks, bridges, buildings and basins. With such an extensive and complex industrial monument the archaeological input will have to meet a range of requirements involving desk-based research, on-site monitoring, survey, recording publication and archive. It is important that the precise requirement of each aspect of the archaeological work is identified in advance of any proposed development or intervention. This will mitigate any possible delays and will allow for effective scheduling of the work as well as identifying any possible costs relating to field work, research or reporting.

5.0 ACKNOWLEDGEMENTS

Special thanks are due to Scott Gaherty and John Black of British Waterways for their help, advice and enthusiasm throughout. Thanks to the squad who worked hard on site and kept their eyes open for archaeology. Thanks also to the staff at Canal House for their hospitality.

APPENDIX 1 : LIST OF CONTEXTS

No	Description
1001	Incised concrete basin caps
1002	Stone Setts
1003	Silt and Ash layer beneath 1002
1004	Wooden Sleepers
1005	Concrete base for 1006
1006	Incised stone pad- Capstan base
1007	Concrete plinth N of 1001
1008	Sleeper w ith Metalw ork- part of 1004
1009	Dark Brow n Silt below 1004
1010	Demolition Layer
1011	Brow n Silt overlying 1010
1012	Modern Trample over 1011
1013	Stone Pad w / Mooring Ring
1014	Cut for services
1015	Stone Pad w ith Mooring Ring
1016	Stone Pad w ith Mooring Ring
1017	Stone Pad w ith Mooring Ring
1018	Fill of 1014
1019	Brick, Stone and Silt Infill
1020	Concrete Plinth outside Customs House
1021	Cobbles on 1020
1022	Ash bedding for 1021
1023	Wall/Structure outside Customs House
1024	Internal fill of 1023
1025	Modern drain at Customs House
1026	Cut of Main Sew er Trench
1027	Cut for Drain 1025
1028	Cut for Drain? *Disregard
1029	Modern Drain
1030	Pink Clay
1031	S Garden Wall of Customs House
1032	Steps and Balcony of Customs House
1033	Railtracks on Canal Caps
1034	E-W Wooden Sleeper
1035	Sleeper- Part of E-W Arrangement
1036	Rebuilt section of Garden Wall at Customs House
1037	Backfill of Cut 1026
1038	Wooden Sleeper
1039	Additional Woodw ork
1040	Cut for Sew er Pipe from Toilet Block
1041	Cast Iron Pipe in 1040
1042	Concrete Slabs E of Railtracks 033
1043	Stone Layer under Concrete Plinth 1020
1044	Brow n Ceramic Wastepipe
1045	Ash/Silt Pipe Bedding under 1044
1046	Stone Pad w ith Mooring Ring
1047	Stone Pad w ith Mooring Ring
2001	Gritty Silt and Ash

No	Description
2002	Greyish Silt and Rubble
2003	Pink Clay
4001	Tarmac Path
4002	Cobbles
4003	Mid-Brown Silt and Sand with Ash/Industrial material
5001	Tarmac Path
5002	Cobbles
5003	Mid-Brown Silt and Sand with Ash/Industrial material
6001	Tarmac Path
6002	Cobbles
6003	Mid-Brown Silt and Sand with Ash/Industrial material
6004	Wooden Sleepers
7001	Turf
7002	Cobbles
7003	Mid-Brown Silt and Sand with Ash/Industrial material
7004	Pink Clay
7005	Cut through 7004
7006	Concrete Base poured in 7005
7007	Concrete Platform sitting on 7006
8001	Turf
8002	Gritty Silt and Ash
8003	Cobbles
8004	Concrete Plinth
11001	Cobbles
11002	Gritty Silt and Ash
11003	Concrete
11004	Loose Sandstone Rubble
11005	Pink Clay
11006	Turf
11007	Topsoil
11008	Orange Brown Sand
12001	Redeposited Spread
12002	Mixed Silt, Sand and Stone
13001	Redeposited Spread
13002	Mixed Silt, Sand and Stone
14001	Cast Iron Pipe
14002	Masonry Pad
14003	Worked Stone
14004	Compact Layer W of 14002
14005	Sand/Sandstone Deposit
14006	Lowest Pad with Curved Edge
14007	Stone Footings

No	Description
14008	Pink Clay
14009	Grey Clay N of 14008
14010	Cut through 14006
14011	Fe and Wood within 14009 (NE of 14006)
14012	Loose Black Ash
14013	Curved Impression with straight S edge
14014	V. Compact Gritty Orange Sand
14015	Blonde Sandstone to NW- Part of 14002
14016	Collapsed Cast Iron Fixture
14017	Redeposited Pink Clay
14018	Redeposited Demolition Debris
14019	Aggregate/Gravel Surface
14020	Compact Ash Layer between 14004 and 14017
14021	Stone Surface Bedded on 14014
14022	Socket for 14016
16001	Orange Brown Sand
16002	Gritty Ash
16003	Ash and Silt
16004	Clean Light Brown Sand

A2.0

APPENDIX 2: LIST OF DRAWINGS

No	Type	Description	Scale
1	Plan	Plan of Lower Basin showing Cope Types	1:500
2	Plan	Segment of Plan of Trench 1	1:50
3	Plan	Segment of Plan of Trench 1	1:50
4	Plan	Segment of Plan of Trench 1	1:50
5	Plan	Segment of Plan of Trench 1	1:50
6	Plan	Plan of Trench 14 showing exposed masonry	1:20
7	Overlay	Overlay for Drawing #6	1:20
8	Plan	Plan of Trench 15	1:20
9	Elevation	Sketch of S part of Culvert- West Elevation	1:20
10	Elevation	Sketch of N part of Culvert- West Elevation	1:20
11	Plan	Segment of Plan of Trench 1	1:50
12	Plan	Plan to N of Drawing #8	1:50
13	Plan	T2 Extension and T16 Plan INKED	1:50
14	Plan	T1, T2, T14 Composite Plan INKED	1:50
15	Plan	T1, T2, T12 Composite Plan INKED	1:50
16	Plan	T1, T2, T15 Composite Plan INKED	1:50
17	Plan	T15 Plan INKED	1:50
18	Plan	Lower Basin Cope Types INKED	1:500
19	Plan	T14 Plan INKED	1:20
20	Plan	Overlay for Drg#19 - Plan T14 INKED	1:20

A3.0**APPENDIX 3: LIST OF FINDS**

No	Trench	Description
1	T 13	Large Pipe Bowl painted with white slip
2	T 13	Glazed piece of ceramic

COLOUR PRINT 1 (Revised List)

Frame	Description	From	Date
1	Stone Capstan Pad 1006 looking SSW T1	NNE	6/12/05
2	Stone Capstan Pad 1006 looking SSW T1	NNE	6/12/05
3	Stone Capstan Pad 1006 looking N T1	S	6/12/05
4	Stone Capstan Pad 1006 looking N T1	S	6/12/05
5	Metalwork on Sleeper 1008 T1	S	6/12/05
6	Metalwork on Sleeper 1008 T1	E	6/12/05
7	Example of Sleeper from 1004 T1	S	6/12/05
8	Example of Sleeper from 1004 T1	S	6/12/05
9	Trench 7 looking E	W	6/12/05
10	Trench 7 looking E	W	8/12/05
11	Trench 12 looking S	N	8/12/05
12	Demolition Debris 1010 looking E T1	W	8/12/05
13	Demolition Debris 1010 looking E T1	W	8/12/05
14	Sleepers 1004 looking WNW T1	ESE	8/12/05
15	Sleepers 1004 looking WNW T1	ESE	8/12/05
16	Sleepers 1004 looking ESE T1	WNW	8/12/05
17	Sleepers 1004 looking ESE T1	WNW	8/12/05
18	Trench 13 looking N	S	12/12/05
19	Trench 13 looking N	S	12/12/05
20	Cobbled Path running SE- NW at T14	SE	12/12/05
21	Cobbled Path running SE- NW at T14	SE	12/12/05
22	<i>Unknown</i>	E	12/12/05
23	<i>Unknown</i>	E	12/12/05
24	General Shot of Masonry Platform in T14	E	13/12/05
25	General Shot of Masonry Platform in T14	E	14/12/05
26	General Shot of Masonry Platform in T14	E	14/12/05
27	General Shot of Masonry Platform in T14	S	14/12/05
28	General Shot of Masonry Platform in T14	S	14/12/05

COLOUR PRINT 2

Frame	Description	From	Date
1	T14 Excavated Masonry	W	14/12/05
2	T14 Excavated Masonry N Facing Section	N	14/12/05
3	T14 Excavated Masonry N Facing Section	N	14/12/05
4	T15 Looking N	S	14/12/05
5	T15 Looking N	S	15/12/05
6	W Facing Section T14 Cobbles to Silt Change	W	15/12/05
7	W Facing Section T14 Cobbles to Silt Change	W	15/12/05
8	T15 Remains of Railway Buffer and Sleeper	W	15/12/05
9	T15 Remains of Sleeper	E	15/12/05
10	W Elevation of Customs House	W	19/12/05
11	W Elevation of Customs House	W	19/12/05
12	Building tacked onto W Elev Customs House	W	19/12/05
13	SE Return of Customs House	SE	19/12/05
14	S Elevation of Customs House	S	19/12/05
15	General Shot of Customs House and Rail Bridge	S	19/12/05
16	Shot of Original Canal Line and Harbour Lock	E	19/12/05
17	T1 Slabs 1042, Rails 1033 and Wall 1023 looking S	N	19/12/05
18	T1 Plinth 1020, Wall 1023 and Slabs 1042 looking S	N	19/12/05
19	T1 Shot of 1020,21,22,23,29,30,32and45 looking N	S	19/12/05
20	T1 Shot of Plinth 1020 looking E	W	19/12/05
21	Current Doorway to Customs House	S	19/12/05
22	Customs H - Masons Mark on 2 nd Floor Window Quoin	SW	19/12/05
23	Culvert Exit in W Harbour Wall	W	21/12/05
24	Shipwrecks along N Harbour Wall looking W	E	21/12/05
25	Shipwreck along Breakwater looking SW	NE	21/12/05
26	Pile of removed Railway Sleepers looking S	N	21/12/05
27	T1 Old Toilet Block, Customs H and Garden looking E	W	21/12/05
28	Concrete Bridge at Old Sea Lock looking NE	SW	21/12/05
29	General Shot of Basin and Pontoons looking WNW	ESE	21/12/05
30	Masonry Swing Bridge Circle looking N	S	21/12/05
31	Masonry with Flat Dressing beside Shot 30	SE	21/12/05
32	Shot of sloping Basin Caps opposite Customs House	N	21/12/05
33	General shot of T1 looking W from Customs House	E	21/12/05
34	General Shot of T15 Backfilled Dogleg looking W	E	22/12/05
35	Lock Gate in New Sea Lock looking SE	NW	22/12/05
36	Scribed Metalwork Reinforcing at Lock Gate	-	22/12/05
37	General Shot of Lower Basin looking NE	SW	22/12/05

Site	Bowling Canal Basin
Project #	BW-6779-05-01
SAM #	6779

Report files submitted on Disc:

Report in MS Word	BW-6779-05-01.doc
Corel Draw files	
TIFFs	1 folder of figures used in the report: 'Report Drawings and Plans' – 6 files.

Other files submitted on Disc:

AutoCAD files	
Photo scans	4 folders of digital photographs: Archaeological monitoring Digital Photographs – 101 files. Archaeological monitoring Photo Scans – 67 files. Digital photographs from British Waterways – 394 files. Historic Photographs – 25 files. 1 folder of historic plans: 'Historic Plans' – 12 files.
Workings	

Archival sources**Canal House archives**

1. Plan of the whole canal as finished. 1790. P9.
2. Plan of the whole canal, c. 1800. P125.
3. Plan for proposed docks. 1800. P130.
4. Improvements as proposed. 1847. P101.
5. Plan of Bowling, no date. P504.
6. Steam derrick crane, no date. P511.
7. Plan of new lock at Bowling. Lanarkshire and Dumbarton Railway. P116.

National Archives of Scotland

8. NAS RHP31975 Photocopy of tracing copy of plan of terminus at Bowling on Forth and Clyde Canal. 1785.
9. NAS RHP17502 Plan and section of the Forth and Clyde Canal from Bowling Bay to Grangemouth. 1790.
10. NAS BR/FCN/1/37, 211-14 Minutes of Meetings of Committee of Management (Scots Minutes) Jan 1791-Dec 1791 (Including comprehensive statistical report on authorisation and construction of Canal).
11. *NAS RHP2860 Plan of the River Clyde illustrating improvements to navigation and giving details of frontages, from Bowling Bay to Dumbarton Castle 1808.
12. *NAS RHP2859 Plan of the River Clyde illustrating improvements to navigation and giving details of frontages, from the River Cart to Bowling Bay 1808.
13. *NAS RHP5548/2 Copy plan of the entrance to the Forth and Clyde Canal; at Bowling Bay 1825.
14. *NAS RHP5548/1 Plan of the entrance to the Forth and Clyde Canal at Bowling Bay 1833.
15. NAS RHP20125 1. Plan of proposed Vale of Leven Canal, intending to unite Loch Lomond with the River Clyde and joining the Forth and Clyde Canal at Bowling with a branch to Dumbarton 2. Ms book of reference to Dumbarton area of plan 1841.
16. NAS RHP47213 Book of reference to plans of proposed canal from River Leven to Forth and Clyde Canal at Bowling and of navigation improvement of part of the Leven 1841.
17. NAS RHP20133 Plan of proposed line of [Glasgow, Dumbarton and Loch Lomond Railway] from Dumbarton to Bowling 1844.
18. *NAS RHP2800 Plan for new basin and wharf at Bowling Bay 1844.
19. *NAS RHP2637 Plan of Bowling Bay with proposed improvements for better accommodation to the trade of the Forth and Clyde Canal 1845.
20. NAS RHP40075 1. Bound plans and sections (with manuscript additions) of the proposed Edinburgh and Glasgow and Dumbartonshire Junction Railway from Glasgow to Dumbarton and Helensburgh with branches to Balloch, the Forth and Clyde Canal at Bowling, to the Edinburgh and Glasgow and Glasgow Garnkirk and Coatbridge Railways. 2. Book of reference 1845.
21. NAS RHP47516 Bound plans and sections of proposed Edinburgh and Glasgow and Dumbartonshire Junction Railway from Glasgow to Helensburgh via Dumbarton, with branches to Glasgow Garnkirk and Coatbridge Railway at Broomhill, Forth and Clyde Canal at Bowling, and branch from Dumbarton to Balloch Nov 1845.
22. NAS RHP95079 1. Bound plans and sections of proposed Edinburgh and Glasgow and Dumbartonshire Junction Railway from Glasgow via Helensburgh and Dumbarton to Edinburgh and Glasgow Railway near Cowlands and Glasgow Garnkirk and Coatbridge Railway near Broomhill, with branches to Balloch, to Dumbarton Harbour, to Forth and Clyde Canal at Bowling, to Renfrew Ferry, and to Dalmonach, Dalliechip, Cordale and Dalquhurn Print Works; and other works: 1845 2. Book of reference (standing orders bound in) 3-4. Duplicates of nos.1-2 1845.

23. NAS RHP46597 1. Bound plans and sections of Edinburgh and Glasgow and Dumbartonshire Junction Railway from Glasgow to Helensburgh via Dumbarton with branch lines, including to Balloch, Dumbarton Harbour, Forth and Clyde Canal at Bowling, Renfrew Ferry, and to the Edinburgh and Glasgow Railway and Glasgow Garnkirk and Coatbridge Railway 2. Book of reference 3. Duplicates of nos. 1 Nov 1845.
24. NAS RHP40495 1. Bound plans and sections of deviations and branches of the Caledonian and Dumbartonshire Junction Railway in Glasgow, between Duntocher and Bowling and at Helensburgh. 2. Book of reference 3-4. Duplicates of nos 1-2 1846.
25. NAS RHP20141 Plan of deviation of the Caledonian and Dumbartonshire Junction Railway near Bowling, annotated 1846.
26. NAS RHP15855 Plan of terminus of Forth and Clyde Canal near Bowling: [post 1849] 1849.
27. NAS RHP105 Plan of the Basin of Forth and Clyde Canal at Bowling 1850.
28. NAS RHP18235 Plan and section of proposed station and sidings at Bowling Caledonian and Dumbartonshire Junction Railway. 1850.
29. NAS RHP47548 Bound plan and section of Clyde Navigation deepening of basin and construction of new quays at Bowling 1863.
30. NAS RHP16303 Architectural plan, section and elevation of proposed new station at Bowling (North British Railway) 1881.
31. NAS RHP3058 OS 1/2500 plan of Foreshore of River Clyde at Bowling marked to show land reclaimed: 1881.
32. NAS RHP85810 Plan of Bowling Station and Wharf showing boundaries (North British Railway) 11 May 1885.
33. NAS RHP15964 Bound plans and sections of the Lanarkshire and Dumbartonshire Railway including lines to Clydebank, Bowling, and Renton: 1889.
34. NAS RHP40005 1. Bound plans and sections of the Lanarkshire and Dumbartonshire Railway including lines to Clydebank, Bowling, and Renton. 2. Book of reference and Gazette notice 1889.
35. NAS RHP122184-122192 Nine drawings showing elevations, plans, sections and details of masonry and steelwork for Swing Bridge over canal at Bowling (Lanarkshire and Dumbartonshire Railway) c 1890.
36. NAS RHP6900 Plan of North British Railway pier at Bowling. 1892.
37. NAS RHP47404 1. Bound plans and sections of Lanarkshire and Dumbartonshire Railway various works, including acquisition of lands at Bowling, Well Street, Partick and elsewhere, deviation of railway between Bowling and Dumbuck and other works 2. Book of reference 3. Duplicate of no.1 Nov 1894.
38. NAS RHP120690-120695 Hand tinted tracings showing details of new quay wall and cylinders at Bowling Harbour (Caledonian Railway) 1904.

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39. River Clyde from Dumbarton to Glasgow . Hydrographic Office, surveyed 1846, published 1850. NLS Admiralty Chart 2007.
40. Ordnance Survey, Dumbartonshire, Sheet XXII.12. 1:2500. Surveyed 1857-60-61.
41. Ordnance Survey, Dumbartonshire, Sheet XXII.12. 1:2500. Revised 1896.
42. Ordnance Survey, Dumbartonshire, Sheet XXII.12. 1:2500. Edition of 1918.

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Aerial photographs

43. 1069/UK 1019. frame 5349. 26 November 1945. 1:500.
44. 543/RAF/840 frame 0245. 24 March 1960. 1:10,000.
45. OS/63/90 frame 068. 3 June 1963. 1:7500.
46. Meridian 80/70, frame 81. 8 October 1970. 1:24,000.
47. 51588, frame 070. 10 June 1988. 1:24,000.