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**Six Times: Antony Gormley Statue
Installation,
West Pier, Leith Docks,
Edinburgh**

Report No. 1759

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Commissioned by	National Galleries of Scotland
Date issued	March 2010
Version	0
OASIS Reference	cfaarcha1-74294
Planning Application No	09/01483/FUL
Grid Ref	NT 2673 7735

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1. INTRODUCTION

1.1 General

The National Galleries of Scotland have been granted planning consent to locate a piece of public art at the end of the old West Pier, Leith Docks (Fig. 1), as part of the proposed Six Times Project produced by Antony Gormley. The project will see six life-sized human figures placed at different locations along the Water of Leith starting from the National Gallery of Modern Art and culminating at the end of the West Pier.

An historical desk-based survey is required by John Lawson, City of Edinburgh Council Archaeology Service (CECAS), in order to bring together what is known about the history of the derelict West Pier situated within Leith Docks (NGR: NT 2673 7735), to produce an historical report about the development of the West Pier of Leith Harbour, and evaluate when the pier was built, when it was either extended or repaired, and when it finally went out of use.

The pier was one of a number of sites included in a cultural heritage impact assessment of Leith Docks conducted by CFA in 2004 (Cressey 2005) and was considered to be of Local Historical Importance.

Recently, engineering surveys have been carried out to determine the physical nature of the rock fill at the base of the timber pier. Cross-sections through the pier have also been produced. The results of this survey are incorporated into this report.

1.2 Aims and Objectives

The objectives of this project were:

- To carry out a desk-based assessment on the history of the West Pier
- To bring together the results of the findings of the desk-based assessment into a succinct report

Historical investigations were carried out by researchers from History Tomorrow, University of Stirling's commercial history unit, under the direction of Dr Alasdair Ross.

2. METHODS

This assessment was conducted in accordance with the Institute for Archaeologists' Code of Conduct (IfA 2002) and relevant Standards and Guidance. Recording and assessment were conducted according to established CFA and History Tomorrow methods.

Sources consulted included:

1. The relevant Ordnance Survey map editions and other historical maps housed in the National Map Library of Scotland;
2. Existing historical photographs showing the pier in its context were examined;
3. Nineteenth century plans and documents relating to the West Pier held by the National Archives of Scotland.

Recent survey work carried out by Briggs Marine and Environmental Services has produced survey data including sections through the rock fill which show the remaining timber work. This data, collected from off shore, was interpreted and is included within this report.

History Tomorrow investigators targeted specific batches of information held by the National Archives of Scotland (NAS), together with associated maps and plans. The aerial photographs held by RCAHMS proved to be small in number and of no real use.

It was noted by History Tomorrow that the collections of material relating to Leith docks in NAS were vastly larger than anticipated and it is now clear that not all of the material in these collections has been properly catalogued by NAS. Accordingly, there is a strong likelihood that NAS holds more material relating to the West Pier than it was possible to evaluate during this project.

3. RESULTS

3.1 The West Pier

Perhaps the most obvious problem in undertaking this research was peeling back the multiple layers of development that have been undertaken at Leith and trying to determine what exactly various people had defined as a 'West Pier' across time. As far as nineteenth century engineers were concerned, the story of the development of Leith Harbour went back to the mid-sixteenth century when a strong wooden rampart was constructed to prevent the formation of sandbanks by 'high floods and easterly winds' in the harbour.¹ This may be the same programme of works that was briefly alluded to in the accounts of the Master of Works during 1539-41.² To all intents and purposes this sounds as though the harbour at that time suffered from a cycle of coastal erosion and deposition elsewhere, and this is known to have happened regularly along other parts of the Lothian coastline. There were also anthropogenic factors at work here as large quantities of sand were regularly taken away from Leith during the sixteenth century for building purposes.³ The engineer's report also states that at the same time a new wooden fence was erected for a considerable distance to the westward of the harbour. Though no further information is provided it might be questioned whether the purpose of this second construction was to act as a bulwark against coastal erosion.

The same nineteenth century engineer's report also notes that a stone pier was first built at Leith Harbour c.1722 and this is presumably the same construction illustrated in the maps of both John Adair (c.1735) and General Roy, drawn between 1747 and 1755 (see Figs. 2 and 3). In fact, there is more detailed information relating to this construction in Westminster parliamentary records. These state that by 23 January 1722, 600ft of a new 1,600ft stone-built East Pier had already been constructed. More importantly, when it was finished this new East Pier would enclose the harbour because a West Pier already existed, and that the two piers would enclose an area of about twenty-nine acres. It was further proposed that if a wall was built from 'the point of the present West Pier to the intended point of the new East Pier' and a sluice was constructed in that wall, the water entering and leaving the basin could be controlled.⁴ This information is substantial proof that a construction called the West Pier was present at Leith Harbour in 1722 and this probably explains the presence of a smaller pier to the west of the harbour on both the Adair and Roy maps (Figs. 2-3). However, at this stage it is not certain that the 1722 West Pier was the same construction that was referred to as the West Pier in the nineteenth century.

There were clear attempts to improve Leith Harbour in the 1750s, and bills for the removing of a stone bridge and its replacement by a drawbridge, erecting new docks, and increasing the size of the harbour certainly reached the second reading stage in

¹ NAS, GD224/1124/1.

² Henry Paton, *Accounts of the Masters of Works* (2 vols., Edinburgh, 1957 and 1982), i, 290.

³ *Ibid.*, 4, 19, 22, 27 & 30.

⁴ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:rec:jhc-004316. A letter dated 1835 also refers to the 'stone pier built about 100 years ago' to replace an earlier wooden pier. This letter also states that the old stone pier was only 100 yards long which, if accurate, would suggest that the original 1722 plan for a much longer eastern pier was never completed. [NAS, GD224/1124/2].

parliament but do not seem to have been subsequently enacted.⁵ Leith was brought to the attention of parliament again in 1788 when Sir Adam Fergusson reported that the harbour was too small and that it was necessary to deepen and enlarge the harbour, while at the same time enlarging the 'quays and piers' associated with the harbour. This report also referred to the necessity of constructing new piers but was unspecific in detail.⁶ However, the major turning point in the development of the harbour seems to have been the 13 June 1799 Act for Enlarging and Improving the Harbour of Leith. This empowered the local authorities to construct new wet docks, locks, piers, quays, and dry docks from the harbour westwards towards Newhaven. They were also required to erect and construct such piers, basins, quays, and other works necessary to improve the present harbour, as well as any of the same necessary for making a proper entrance to the new docks at Newhaven. During the course of these improvements it was calculated that the old harbour would be extended westwards by 1,840ft.⁷ The effects of these improvements can be best seen on two maps that chronologically straddle either side of the period of harbour improvement (Figs. 4 and 5).

The latter seems to show that either the destruction of the old West Pier or, more probably, its incorporation into the new docks that had been constructed. However, the fine details contained on the map in Fig. 5 are problematic. Though the four docks shown on this map are replicated upon another three maps dated to the period 1814-1821,⁸ the next two maps in the series, dated to 1828 and 1832, demonstrate that only two of these docks had actually been built and that the new harbour had not been fully extended westwards to Newhaven (see Fig. 6).⁹ Further confirmation of this is found in the maps in Figs. 7 and 10. This would suggest that the four maps which do display four docks might have been based upon projected plans for improving the harbour, specifically the pre-1799 Rennie Report.¹⁰

A letter written in 1828 explains what had happened. According to this, the plan laid out in the 1799 Act to build four docks had been drawn up by Mr Rennie and, in 1812, £17,000 had been spent in buying ground between the old harbour of Leith and Newhaven. Thereafter the Corporation of Edinburgh borrowed, probably through stock issue, a total of about £265,000 for building just two of the four proposed docks. The first of the docks was begun in 1800 and finished in 1806; the second begun in 1810 and finished in 1817. Having almost bankrupted themselves, in 1825 the Corporation attempted to disencumber themselves of this debt but this bill was opposed by the merchants of Leith, probably because it would have meant raising import and export tariffs in the port, and was subsequently thrown out of parliament.¹¹

⁵ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:jhc-007494:3

⁶ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:jhc-011270

⁷ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:rec:lpa-000128

⁸ <http://www.nls.uk/maps/counties/detail.cfm?id=611>;
<http://www.nls.uk/maps/atlas/thomson/465.html>; <http://www.nls.uk/maps/joins/649.html>.

⁹ <http://www.nls.uk/maps/joins/612.html>;

¹⁰ The original of this report was not traced but it is frequently referred to in subsequent correspondence.

¹¹ NAS, GD18/3318; NAS, GD224/1124/1.

The subtext here seems to be that the Corporation of Edinburgh, during the Napoleonic Wars, had speculated upon improving Leith Harbour in the hope of recouping most of this money from the Admiralty. Unfortunately for the Corporation, these wars ceased in 1815 and it might be suggested that it was shortly after this point that further construction of another two Leith Harbour docks was halted.

While the abandonment of the 1799 Rennie Plan may have been convenient for both the Admiralty and the Corporation of Edinburgh, it appears that the inhabitants of Leith remained dissatisfied with Leith Harbour and the fact that the Water of Leith was not strong enough to prevent silting in the harbour. In 1818 the Stevenson Plan was commissioned and it argued that the West Pier of the harbour should be extended by 510ft so it would approach to within 150ft of the East Pier.¹² No action appears to have been taken at this juncture but it does prove that a structure called the West Pier still existed at this time.

1822 saw the production of two further reports. First seems to have been the Crichton Report, which proposed extending the eastern stone pier out to the Martello Tower and the new extension would be built out of wood. This was objected to by the Walker report which pointed out that Crichton's Report took no account of the prevailing currents. Accordingly, Walker suggested that the East Pier extension should be built out to a point 1,500ft east of the Martello Tower. Neither of these reports mentioned a West Pier.¹³

These two reports were quickly followed by the 1824 Chapman Report. Chapman began by stating that an extended eastern pier alone would actually make Leith Harbour more hazardous to shipping. Chapman then proposed extending the eastern pier to a point 300ft west of the Martello Tower, built of timber but with stone filling. He further proposed to build a ' [...] second pier or breakwater from near the salient angle to the north-west bastion of the dock-wall, running east-north-east towards a point 200ft distant from the line of the eastern pier'. It was estimated that both piers would cost £31,158.¹⁴ The 1824 Chapman Report was quickly followed by an Act of Parliament on 26 May 1826 for enlarging and improving the Harbour of Leith.¹⁵

3.2 A New West Pier?

The 1826 Act of Parliament was largely focused on extending the East Pier within the space of five years and it was not to cost more than £28,000. The same Act also contained a provision that after the erection of the new naval dock to the west of the two existing yards, a new West Pier or breakwater would be erected at the west end of the said yards. This proposed new West Pier is clearly shown, along with the new naval dock, on a plan drawn in 1827 where it clearly abuts the west side of the new naval dock.¹⁶

¹² NAS, GD224/1124/1.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:lpa-004282.

¹⁶ NAS, GD224/1124/2.

A subsequent report compiled in 1835 claimed that both piers were built and there would be no reason to doubt this statement but for the simple fact that the proposed new West Pier on the 1827 plan is located some distance to the west of the actual new West Pier shown on subsequent maps of Leith Harbour. Therefore, at some point between 1827 and 1835 the site of the proposed new West Pier was shifted eastwards to the west end of the two docks built between 1800 and 1817. This new location is clearly shown on the map in Fig. 6. It is immediately noticeable that the new naval dock, proposed under the 1826 Act, is also missing from post-1835 plans of Leith Harbour and this can be explained by the simple fact that the City of Edinburgh was declared insolvent in 1833. The absence of this structure also explains the shift eastwards in the location of the new West Pier or breakwater, which was calculated to be 1300ft in length.¹⁷

What is interesting for the purposes of this project is determining the proximity of this new western pier or breakwater to the older western pier and there seem to be three options. While there is a suspicion that the old West Pier was originally located immediately east of the two docks constructed between 1800 and 1817, it is equally possible that it lay either between the two new docks or immediately to the west of them. In other words, the new West Pier or breakwater built between 1827 and 1835, and which currently largely lies under Ocean Drive, could have been tied into the older structure. At the moment there is no way of conclusively proving any of these suggestions. The only certainty is that after the building of the second of the two new docks in 1817, part of the old West Pier must have still been visible to the naked eye since it was specifically mentioned in the 1818 Stevenson Plan.

3.3 The Western Breakwater and a (new) New West Pier

While observers were generally happy with the extended eastern pier and the new west breakwater they were unhappy to learn that only an additional depth of 30in had been achieved in the harbour and sand bars were once again threatening the shipping channels. It was also noted that the new western breakwater ought to be a pier and that the harbour could not accommodate steam vessels.¹⁸ A new stone pier had been erected at Newhaven but it too was useless for steam vessels.¹⁹ Bearing these facts in mind a number of new plans for the development of Leith Harbour were formulated and one the most influential of these was the Cubitt Report of 1835.

Essentially, this once again proposed extending Leith Harbour westwards to Newhaven and involved the construction of at least four new breakwaters or piers, a massive lock system at Newhaven, and a canal to link the new harbour entrance at Newhaven with the two Leith Harbour docks. Confusingly, the westernmost of these breakwater constructions at Newhaven was to be called the 'new western breakwater'. However, it appears that none of these plans ever reached fruition and the evidence indicates that the debts owed to the crown by the City of Edinburgh for developments at Leith were once again at the heart of the problem.²⁰ On 18 April 1836 this was

¹⁷ NAS, GD224/1124/1; NAS, GD224/1124/2.

¹⁸ NAS, GD224/1124/1.

¹⁹ NAS, GD224/1124/2.

²⁰ Ibid.

calculated at £238,000.²¹ This problem was finally resolved on 10 July 1838 when a deal was brokered between Edinburgh, Leith, and the Treasury to pay back the loan in annual instalments.²²

The next plan to improve Leith Harbour was contained in the Rendell Report, submitted on 19 January 1847. In this Rendell summarised that the port required a low-water pier and landing-place, together with a new dock for steam ships and the largest classes of sailing ships. This new dock was eventually called Victoria Dock and it can be seen on the map in Fig. 7. The plan also allowed for extending both the East Pier and the Western Breakwater into deep water, with the low-water landing being located at the head of the newly extended Western Breakwater. The plan was to build a new Western Breakwater out of the end of the existing Western Breakwater. This would be upwards of 1,750ft in length with the low-water landing pier being a further 350ft in length. The end of the Western Breakwater and the upper west corner of the new Victoria Dock would also be joined by an arched wooden platform supported by piles to carry a new railway out to the landward end of the low-water landing pier (see Fig. 10). According to a parliamentary report, the Western Breakwater extension was to be:

[...] a timber platform, twenty feet wide, raised seven feet above high-water spring tides, supported on piles, and protected from the weather and worm by a breakwater [...] viz. Two low water mounds of rubble stone, with a clay nucleus, having stone paved slopes at suitable inclinations, raised above high water, and formed along the line of the timer roadway, the low-water landing having a slip twenty feet wide and a rise of one in fifteen, built of masonry, founded on piles at the level of low water, and inclosed with iron sheet piles driven into the strong clay, and having their heads well secured to the first courses of masonry. By this plan the expense of founding walls in deep water will be saved, whilst by means of the iron sheet piles to inclose the area, and a careful deposit of rubble stone and clay round the wood piles, on which the walls would stand, the structure would be as durable as circumstances could require.

Unfortunately, the precise cost of this is not specified but these works, together with the changes to the eastern pier, were projected to cost £79,000.²³

The actual plan adds more detail:

The Western Breakwater is to be extended from near its present termination out to join the intended low water pier [...] to be 1750ft in length, measured from the end of the timber arching to the low water pier. It is to be made by a rubble stone bank, with paved slopes, hearted with clay, and having a piled staging for a pier, and as a roadway to the Low Water Pier. The clay for hearting to be got from the excavation of the dock. The rubble stone coating to be brought up as the clay is deposited, and to be in no part less than 2ft thick.

²¹ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:1836-016518.

²² http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:1837-017327.

²³ NAS, GD224/1124/3.

The slopes on the inside are to be trimmed off to 3 horizontal to 4 perpendicular, and on the outside to 2 horizontal to 1 perpendicular, and are to be laid with paving similar in every respect to that of the last extension of the present eastern breakwater [...]. So much of the paving of the head of the old western breakwater as is necessary, to be removed, and to be properly joined up to the new work of the extension.

Between the end of the staging above described for the extension of the western breakwater and the new sea wall, a bridge of piles and timber arching is to be constructed [...] to be 1000 feet in length from the intended sea wall to the commencement of the stage over the extension of the West Breakwater, and measured on the eastern side.

The low-water pier is to be constructed as shown upon drawing 6. It is to be 273 ft. 6 in. long, by 43 ft. 6 in. wide measured on the top level. The landing slip is to be 20 feet wide, rising from the level of 8 feet above low water spring tides to 26 feet above ditto, with an inclination of 1 in 15. [...] piles of Baltic timber not less than 10 inches in diameter, or Larch, or young green straight beech not less than 10 inches at the small end, cills, wales, planking, cast iron sheet piles, rubble stone between the piles, wall, coping, stairs, filling between the walls, arch at the head of the pier, parapet, paving and bollards.²⁴

The Rendell Plan had been approved by the provost and council of Leith by 1 March 1847 and they asked to borrow £55,000 from the Treasury to help pay for the improvements. Some Leith merchants opposed the plan because it was proposed that higher shore dues would help pay for the improvements.²⁵ Nevertheless, the plan must have been approved almost immediately since there is a reference to Rendell visiting Leith and examining the state and progress of the new works before 29 July 1848. The same source states that the new West Breakwater/Pier had been completed before May 1859.²⁶

Thereafter, although it is obvious from the cartographic evidence that Leith Harbour continued to develop, particularly with the addition of new docks (see Fig. 11), the West Breakwater/Pier is more difficult to track in official documentation. This is probably because it was just maintained rather than undergoing re-construction or enlargement. An invoice for repairs to the West Breakwater/Pier from 1907 is fairly typical of this evidence. It gives a repair cost and provides a total cost for various items but nothing is said about the nature of the repairs that had to be made. All that is mentioned is repairs to the West Breakwater/Pier cost £1901 and involved the purchase of timber for piles, timber for three-inch decking, steel for piles, wrought iron for stanchions, running timber, and the cost of settling piles in their positions.²⁷ These components would suggest that fairly major engineering works were being undertaken on a portion of the West Breakwater/Pier but it is impossible either to tell why this was necessary or whereabouts on the structure the work took place.

²⁴ NAS, RHP17081.

²⁵ NAS, AD58/233.

²⁶ NAS, AD56/234.

²⁷ NAS, GD310/2.

Fortunately, it is clear that there was a major programme of improvements and alterations carried out on the West Breakwater/Pier during World War I. Essentially, this appears to have consisted of the removal of the old timber arches that linked the western upper corner of Victoria Dock to the end of the 1827 Chapman Report breakwater and the replacement of the old wood and iron piles with reinforced concrete piles. There are some very interesting engineering details in this description, including the fact that both ends of the new concrete and asphalt 'causeway' were to be tied into the existing timber of the West Breakwater/Pier. Unfortunately, no plans that might have accompanied these works were traced:

The works to be performed under this contract comprise the removal of the old timber work at the part of the West Pier known as "The Arches" and extending for a length of about 169 feet; the removal of the tipped rubble stone at the base of existing piles and disposal of the same; the transportation of reinforced concrete piles from the east side of the harbour to the site of the new works repairing several of said piles and driving them in the positions shewn on the plans; the erection on said piles of the superstructure in reinforced concrete with the necessary timber and iron work together with the supply of all materials plant labour temporary works pumping supervision &c necessary to complete the works in accordance with the full intent and meaning of the drawings and of the conditions of contract specification and bill of quantities attached hereto.

In removing the old timber piles and superstructure arrangements are to be made by the contractors to the satisfaction of the engineer for the maintenance of the traffic past the works to the West Pier. The old timber and iron work is to become the property of the contractors and they must make an allowance for the same in the schedule of prices. The groups of old timber piles along the front of the pier and any piles at or near the position of any of the new works are to be drawn but if in the opinion of the engineer the old piles are at such a distance from the new works so as not to interfere with the construction they may be removed by being cut at a level of not less than three feet below the surface of the ground. The ripped rubble stone which is at present protecting the timber piles is to be removed and disposed of and the berth alongside is to be left entirely free from stones.

The reinforced concrete piles will be provided by the commissioners but the contractors are to repair certain of them which are cracked and others which require to be re-headed. These piles are at present stored on ground at the east side of the harbour nearly opposite the proposed works and the contractors are to carry out the necessary repairs to the piles on that site. While the piles are being repaired they are to be laid for their whole length on a suitable platform well secured against settlement at any part, the damaged parts are then to be carefully cut out to the satisfaction of the engineer and new links placed in their correct positions with cast iron forks where required after which the necessary shuttering and forms are to be erected to receive the concrete. The repair work is to comply in every respect with the requirements specified for new work.

All repaired piles must remain on the platform for a period of not less than four weeks before being removed therefrom and no such piles are to be transported or driven within a period of six weeks from the date of the completion of the repaired work.

The contractors are to transport the reinforced concrete piles to the site of the works and thereafter drive them in the positions and to the levels shewn on the drawings great care being taken not to crack or fracture the piles. All piles which become cracked or fractured while being transported or driven are to be repaired in a manner approved of by the engineer and at the expense of the contractors. After the piles are driven in the manner described in the specification the heads are to be stripped of concrete and lings and the reinforcing rods exposed to the level shewn on the drawings.

On the top of the piles thus stripped the superstructure consisting of reinforced concrete columns walings diagonals beams decking &c is to be constructed. The reinforcing rods of the columns are to be fixed to the rods of the piles in the manner shewn on the drawings great care being taken to ensure they are kept vertical and all joints between columns walings diagonals beams &c are to be carefully formed and the shuttering for same kept perfectly rigid until removed. At each end of the works where the piling joins the existing breakwater no piles are to be driven but the columns supporting the decking beams &c are to be constructed on concrete foundations built into the stonework of the breakwater.

All steel reinforcement with the exception of the black wire is to be delivered at the site of the works on straight lengths.

After the decking is in position and thoroughly dry and the timber rail bearers laid and fixed the surface of the concrete is to be covered with a layer of asphalt one inch thick. This work is to be carried out by workmen trained in this class of work and by an approved sub-contractor.

The laying of the causeway and rails will be carried out by the commissioners.

At each end of the new works a connection is to be made between the reinforced concrete work and the existing timber of the pier by means of pitch pine piles waling beams decking &c and the contractors will be required to remove and reinstate a sufficient amount of the old timber to enable them to make satisfactory connections.

A steel handrailing consisting of rolled steel angles with horizontal gas tubing as shewn in the drawings is to be provided and fixed along the back of the new pier.

Three cast iron bollards are to be provided and fixed in approved positions by means of holding down bolts through the concrete deck and beams and holes are to be formed in the concrete for this purpose. The pattern from which these bollards are cast is to become the property of the commissioners and is to be delivered in good condition by the contractors at the commissioners' store.

Weep holes are to be formed in the concrete decking where directed by the engineer and they are to be carried through the layer of asphalt. Bolt holes are also to be formed through the concrete where necessary for fixing handrailing rail bearers timber fenders walings ladders &c.

Timber rail bearers of pitch pine 12" X 5" are to be laid on the concrete deck and fixed thereto by means of straps and bolts as shewn on the drawings.

Along the front of the pier pitch pine timber fenders are to be provided and fixed to the concrete piles and walings by means of 1 1/8" diameter bolts with nuts and 3" diameter washers. The heads of all such bolts are to be countersunk into the timber for a distance of 1 1/2" and the holes filled with cement.

Wrought iron ladders are to be provided and fixed in approved positions.'

This work appears to have cost £18,410 17s 6d.²⁸

What has not appeared in these financial records is that the area enclosed by the timber arches, Victoria Dock, and the 1827 Chapman breakwater appears to have been gradually reclaimed from the sea. Some of this process can be seen on the maps in Figs. 8 and 11 and, by the time of the 1916 works, if not slightly later, the same area appears to have been completely reclaimed (see maps in Figs. 9 and 12). Accordingly, it should be questioned whether the complete replacement of the timber arches c.1916 was either the first or the last step in this process of land reclamation. Whatever the case, it is interesting to note the instructions in the second paragraph about allowing old wooden piles to remain in place, but cut down, if they did not interfere with the programme of works. This might account for the presence of wooden piles noted in survey undertaken by Briggs Marine and Environmental Services.

Subsequent twentieth century material relating to the development of Leith harbour contains little of interest to the West Breakwater/Pier and it is not even shown on most of the harbour plans.²⁹ Nevertheless, one point that is clear is that the penultimate 1958 plan of the West Breakwater/Pier clearly shows that it had not altered in size since the 1847 Rendell Report plan.

A final report on the West Breakwater/Pier, compiled in November 1961, contains plans to construct a new stone roundhead at the southern end of the West Breakwater/Pier at a cost of £11,000:

A roundhead at the south end of the West Pier commencing at a point on the north-east side of the West Pier and one thousand one hundred feet measured in a west-south-westerly direction from the said datum point, thence in a north-westerly direction for a distance of one hundred feet terminating at a point thirty feet in a south-westerly direction from the point of commencement

²⁸ NAS, GD310/18.

²⁹ NAS, RHP5911 (1925); RHP 45238 (1944); RHP45239 (1944-45); RHP5442 (1952).

and the abandonment and removal of the existing West Pier extending to the north-west of the said roundhead.³⁰

Since it can be calculated that the new West Breakwater and low-water pier in the 1847 Rendell Report extended a total of 2023ft 6in outwards from the older 1827 Chapman report breakwater, this means that a maximum of 1,200ft of the 1847 Rendell Report structure was removed after 1961. Accordingly, the line that transects the Western Breakwater/Pier in the drawing in Fig. 14 may in fact indicate the cut-off point, even though the proportions as marked on the map do not seem quite right. In any event, this plan to remove the greater part of the West Breakwater/Pier was confirmed in a parliamentary bill of 23 July 1962.³¹ Presumably, work commenced on removing a large part of the West Breakwater/Pier shortly thereafter.

³⁰ NAS, AF58/96.

³¹ http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:hcpp&rft_dat=xri:hcpp:fulltext:1961-050306.

4. SUMMARY AND CONCLUSION

The denuded remains of the West Pier sit within the heavily developed Leith Harbour (Fig. 15), where significant changes have been recorded since the 18th century. The remains still surviving today comprise timber piles and fragmentary surface timberwork (Fig. 16). These surviving remains have been surveyed from off-shore by Briggs Marine and Environmental Services and the longitudinal section and a representative selection of cross-sections are shown in Figs. 17 and 18.

While a West Pier is known to have existed in 1722 and probably at least partly survived as late as 1818, it is not clear whether this was the same pier referred to as the West Pier in the 19th century. The new West Pier was sanctioned in an 1826 Act of Parliament and was built between 1827 and 1835; its final, as-built location is not the same as that intended on the 1827 drawing. The Pier was extended by 1859 with a wooden platform joining it to Victoria Dock to carry a railway. The new extension was to be a mound of rubble with a clay core, having paved sloping sides, and a timber platform supported on piles.

It is known that the West Pier was repaired in 1907, which may have included some fairly substantial work, with a further major programme of improvements and alterations during World War I. This included the replacement of the old iron and timber piles with new reinforced concrete piles. The old timber piles were to be kept in place but cut back where possible, and these piles may be those still visible today (Figs. 16-18).

Land reclamation immediately to the west of the West Pier was underway in the early 20th century and the Pier was earmarked for destruction in 1962. Its course is now marked by the route of Ocean Drive skirting around the Ocean Terminal shopping centre.

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GD224/1124/2 (1835) Report, Leith and Newhaven harbours. Ordered by the House of Commons to be printed.

GD18/3318 (1828) Melville Castle. Copy Letter to William, Duke of Clarence, Lord High Admiral, from Henry, Viscount Melville, on the intended improvements to Leith Harbour.

RHP17081 (1847/1848) Plan showing proposed works at Leith Harbour and Docks.

AD58/233 (1847) Correspondence of Lord Advocate's Department concerning Leith Harbour, Papers etc.

GD310/2 (1892-1907) Leith Harbour & Dock Commissioners: Reclamation of embankment, new dock, lock and graving dock (Specification, bill of quantities, schedule of prices and tender). Dredging channel from Imperial Dock to Fairway at Leith Harbour (Copy contract). Repairs at West Pier (Copy schedule of prices).

GD310/18 (1916) Leith Harbour & Dock Commissioners: West Pier reconstruction of "Arches" (Specification, conditions, bill of quantities, schedule of prices and tender).

AF58/96 (1933-1962) Marine Works.

RHP5911 (1925) 1. Bound plan and section of new wet dock etc. at Leith Harbour. 2. Book of Reference thereto.

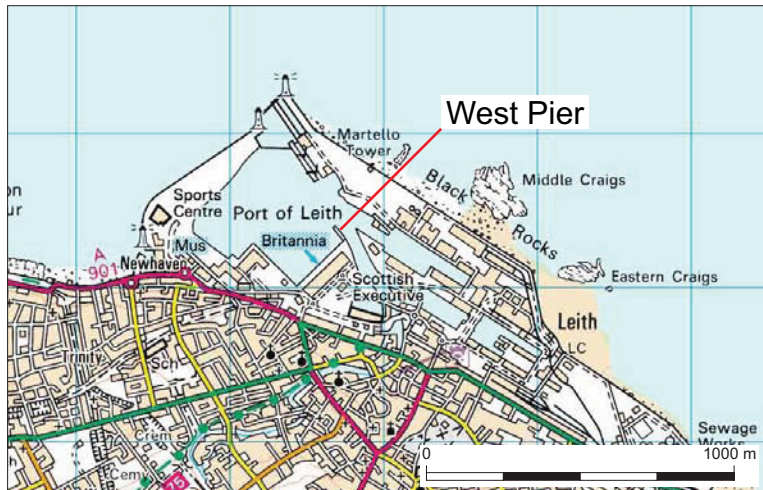
RHP45238 (1944) Plan of Henry Robb Ltd's Victoria Shipyards, West Pier, Leith showing water mains and hydrants.

RHP45239 (1944-45) Plan of Henry Robb Ltd's Victoria Shipyards, West Pier, Leith showing winches and derricks.

RHP5442 (1952) Bound plans and sections of new reclamation embankment and reclamation of land at Leith harbour and docks.

AD56/234 (1853-1883) Copies and drafts of various bills.

GD224/1124/3 (1847) Leith Harbour and Docks, copy of report to the Treasury, and correspondence, respecting Leith Harbour, and also, the last report of Mr Rendal, engineer.



Key:



Fig. No:	1	Revision:	A	Client:	National Galleries of Scotland
Title:	Location Map				
Project:	Six Times Project: West Pier, Leith Docks				

Scale:



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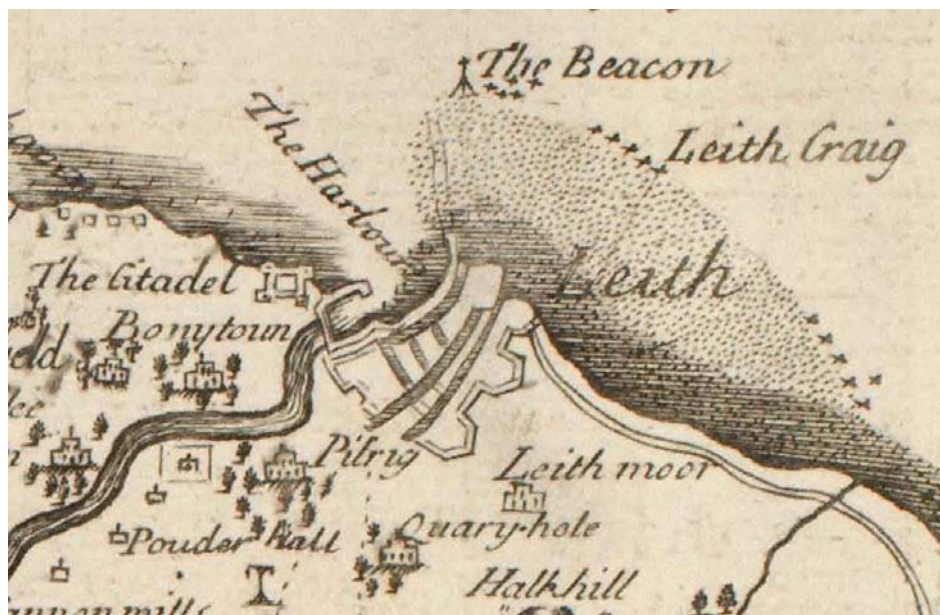


Figure 2 - Adair's map of 1735



Figure 3 - Roy's map of 1747-55

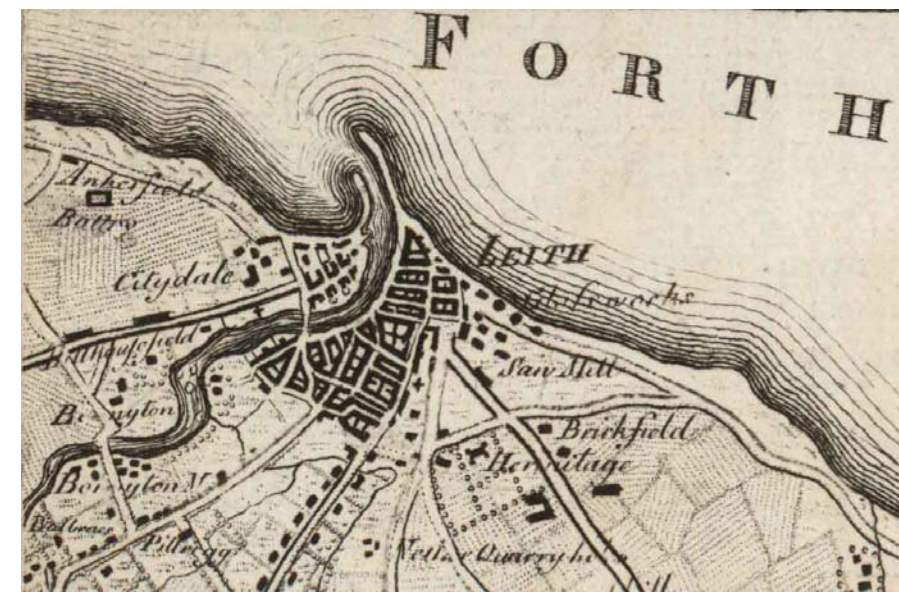


Figure 4 - Laurie's map of 1786



Figure 5 - Knox's map of 1816



Figure 6 - Great Reform Act Plans and Reports, 1832



Figure 7 - Forrester's map of 1850



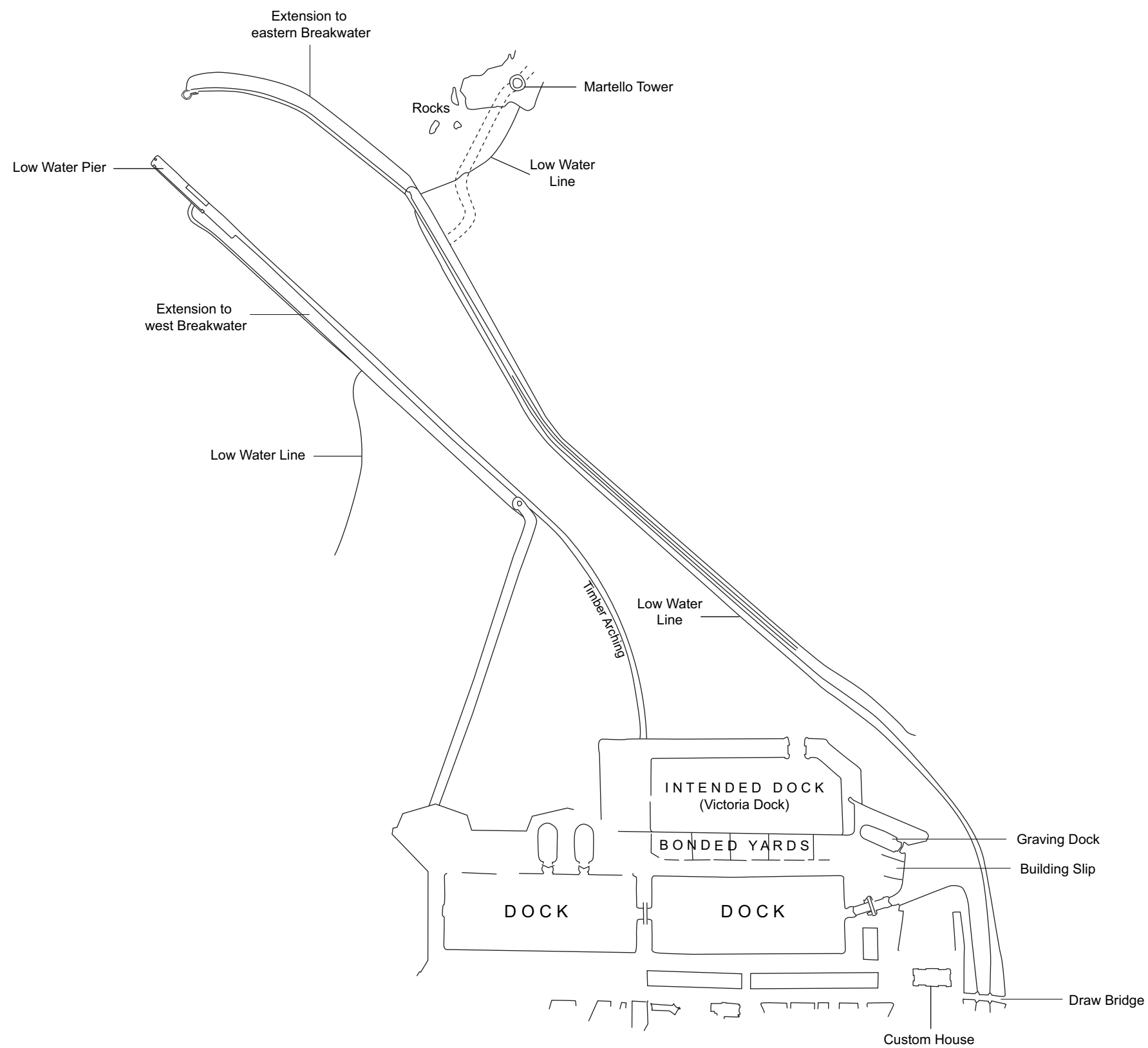
Figure 8 - Ordnance Survey plan of Leith Docks, 1853



Figure 9 - Ordnance Survey Quarter-inch map, 1926



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Fig. No: **10** Revision: **A**

Title:
1848 map of Leith Docks

Project:
**Six Times Project: West Pier,
Leith Docks**

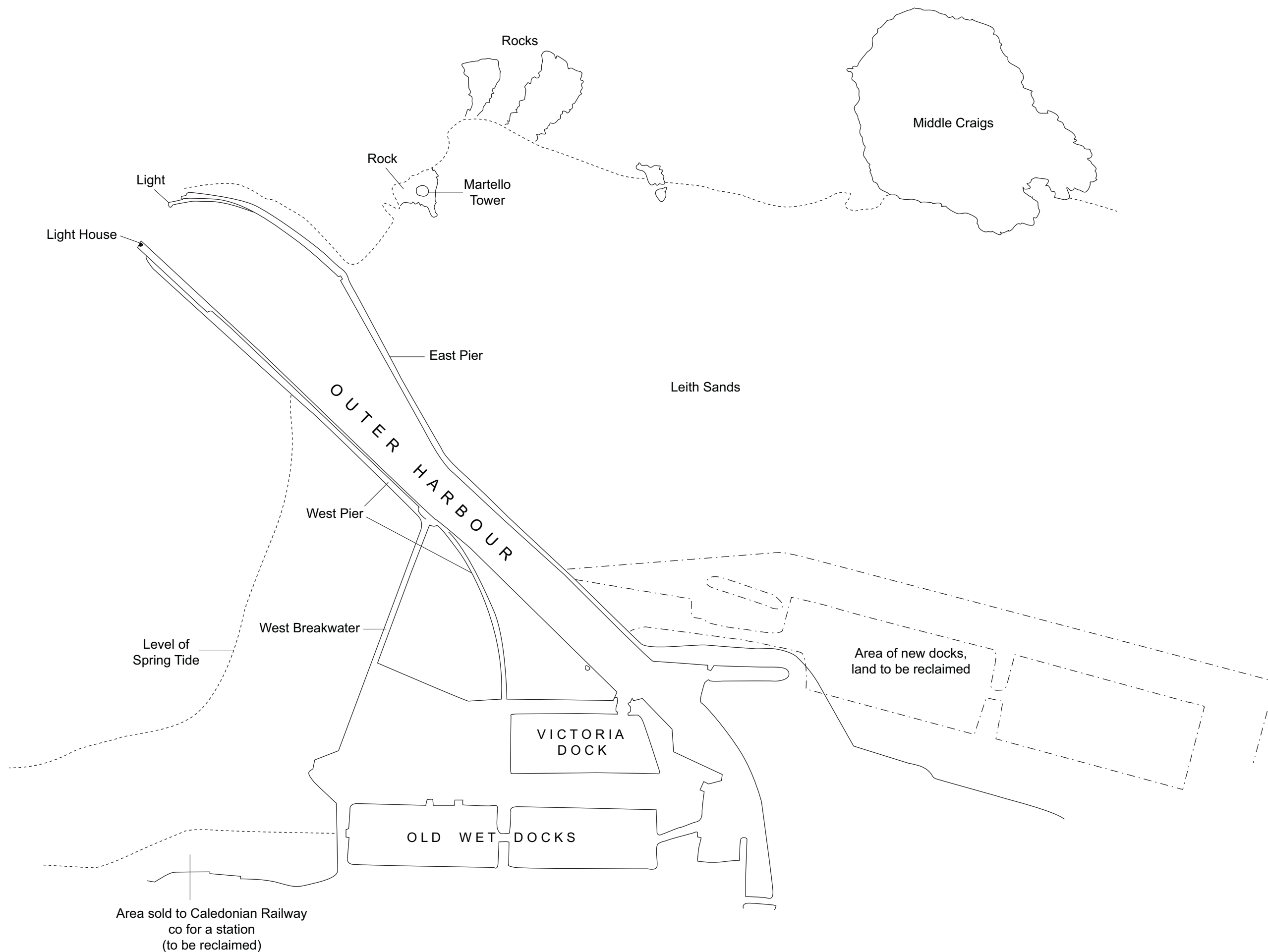
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Fig. No:	11	Revision:	A
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1862 map of Leith Docks

Project:
Six Times Project: West Pier, Leith Docks

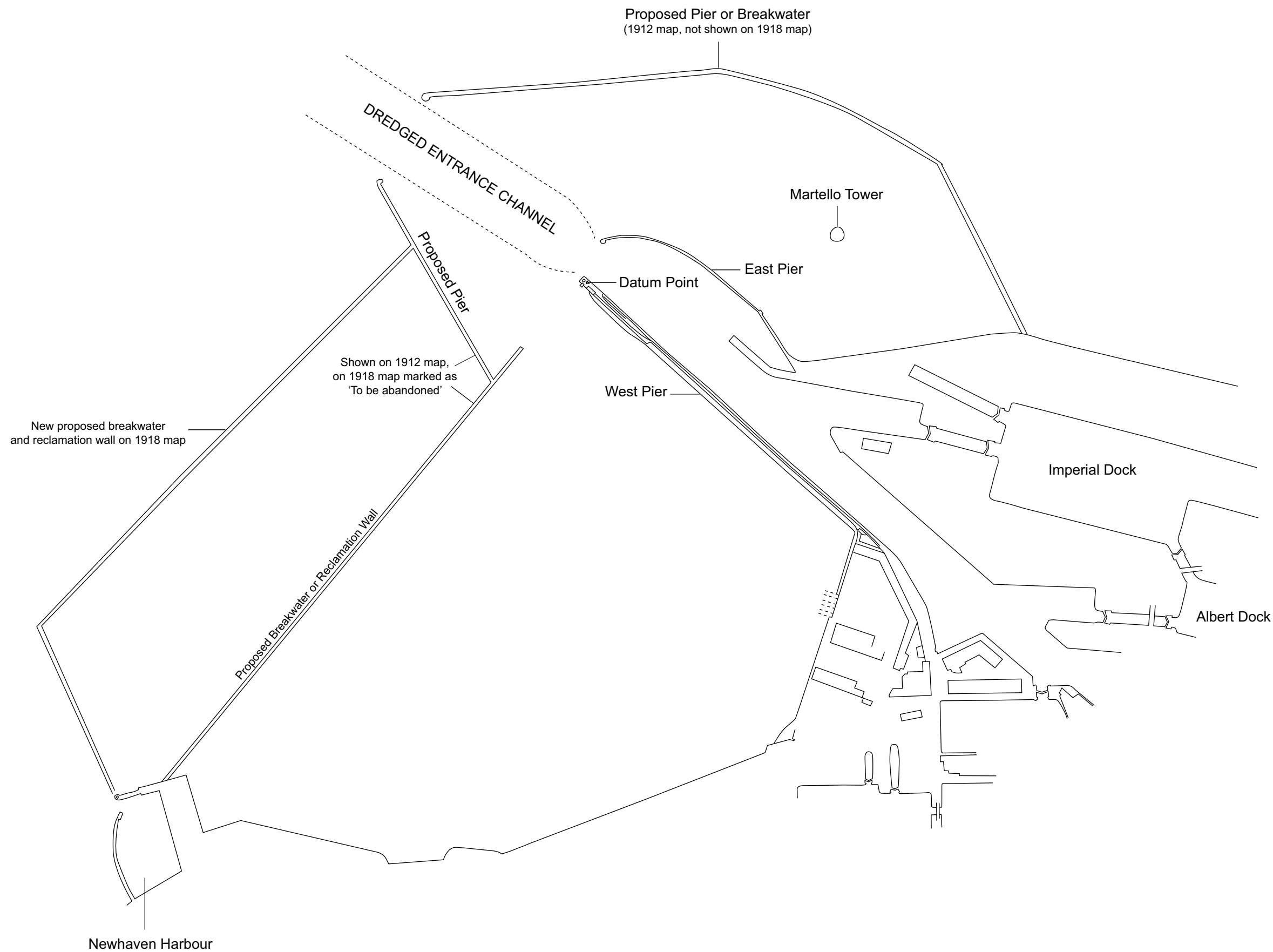
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Fig. No:	12	Revision:	A
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Title:
1912-18 map of Leith Docks

Project:
Six Times Project: West Pier,
Leith Docks

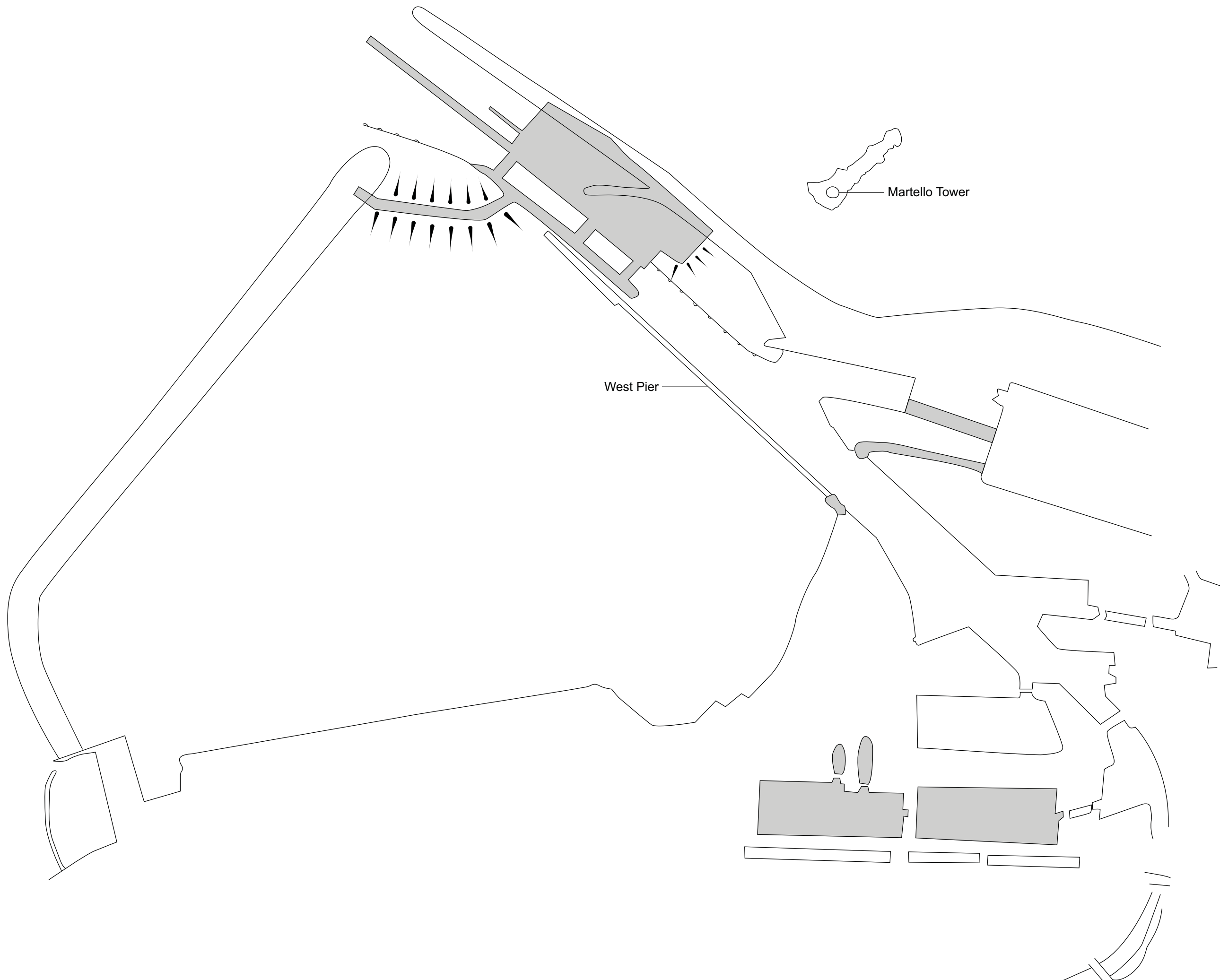
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Fig. No: 13 Revision: A

Title:
1848 map of Leith Docks

Project:
Six Times Project: West Pier,
Leith Docks

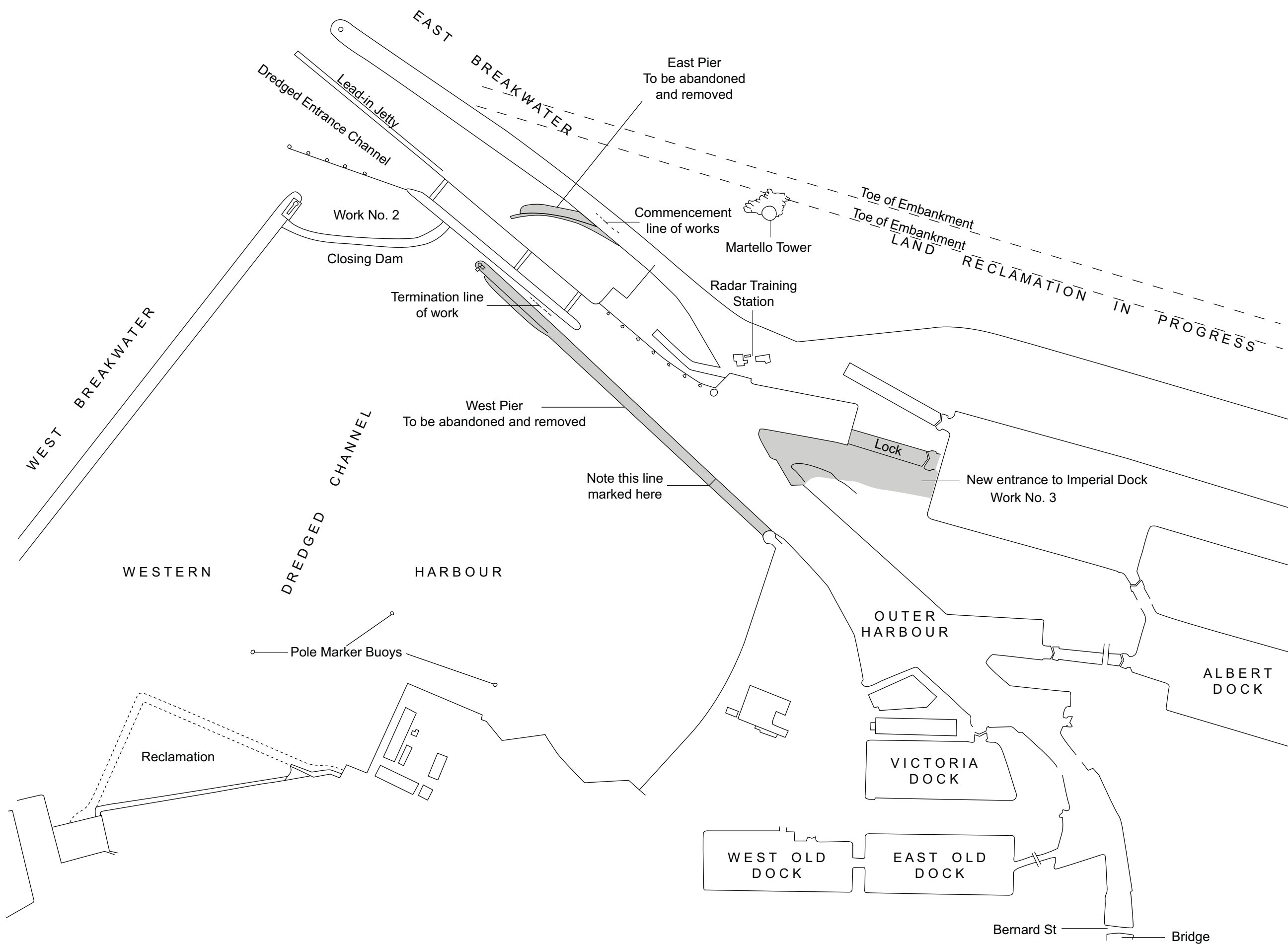
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Fig. No: **14** Revision: **A**

Title:
1961 map of Leith Docks

Project:
Six Times Project: West Pier, Leith Docks

Scale:
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Client:
National Galleries of Scotland

Drawn by: **SW** Report No: **1759**



Figure 15 - View of Leith Docks today

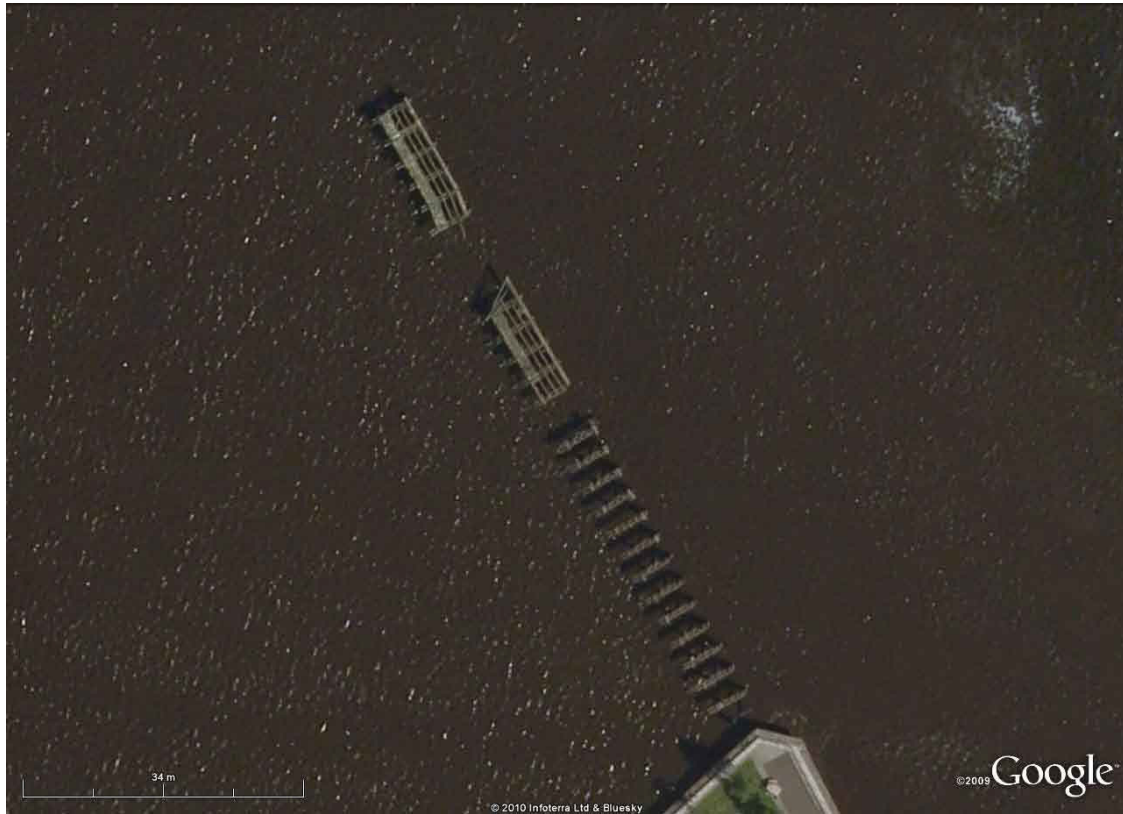



Figure 16 - Current Google view of the West Pier

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LONGITUDINAL SECTION AT GRID LINE C

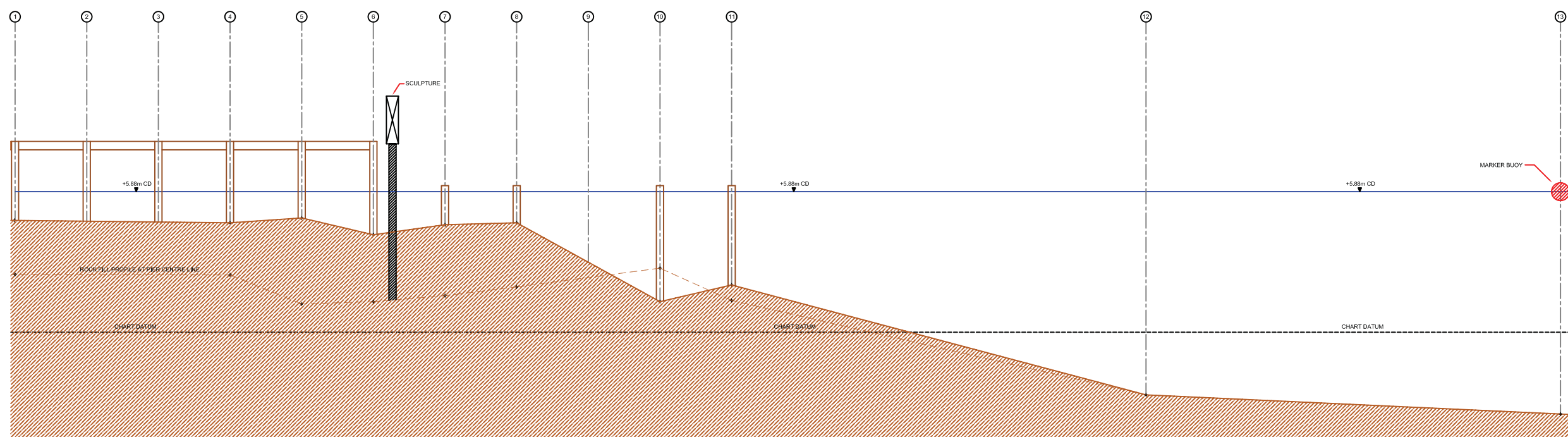
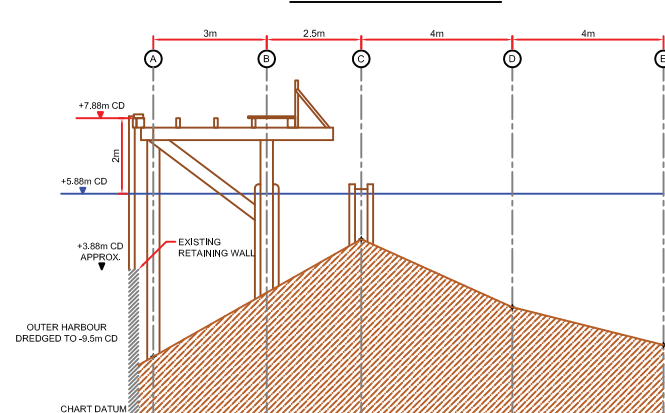
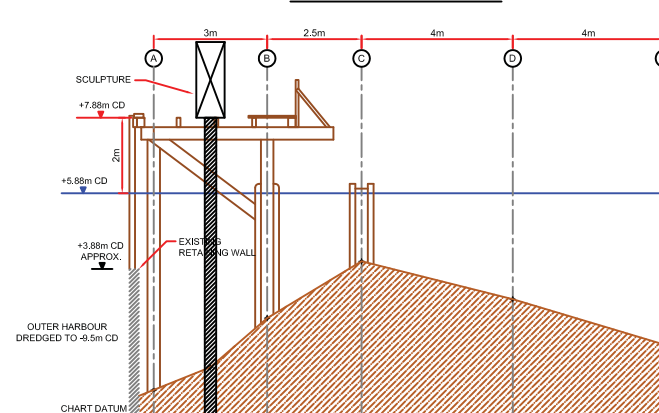


Figure 17 - Longitudinal section of existing pier

CROSS-SECTION AT GRID LINE 1



CROSS-SECTION AT GRID LINE 6



CROSS-SECTION AT GRID LINE 8

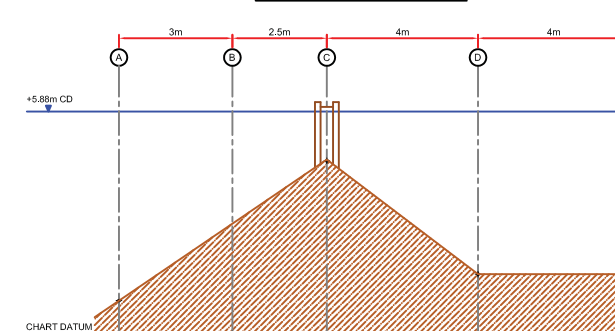


Figure 18 - Cross sections of existing pier