

LIVERPOOL WASTEWATER TREATMENT WORKS OUTFALL,

Merseyside

**Archaeological Desk-based
Research**



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United Utilities

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SUMMARY

United Utilities has proposed a new outfall pipe into the River Mersey from Sandon Half-Tide Dock (NGR SJ 33195 92638 to SJ 32917 92575) in Liverpool. Due to the close proximity of the proposed outfall to historic docks, and a World Heritage Site, United Utilities commissioned Oxford Archaeology North (OA North) to undertake a programme of desk-based research in order to determine the presence or otherwise of historic features on the riverbed or at the landward end of the proposed outfall pipe. This was carried out in October and November of 2011.

The study area for the desk-based research comprised the footprint of the proposed outfall plus a 250m radius surrounding it. Sources consulted during the research included a search of both published and unpublished records held by the NMR, United Utilities, the Receiver of Wrecks, the United Kingdom Hydrographic Office, and the archives and library held at OA North.

The searches found no known sites within the riverbed. Whilst it is possible that ships have been wrecked within this area, it appears that these have been routinely salvaged and cleared in order to provide safe shipping routes. The map regression identified several features at the landward end of the outfall, including sluices, chain boxes, a swing bridge and sheds associated with the historic Wellington Half-Tide Dock. Whilst these features are not shown as extant on current mapping it is possible that elements of them survive. A culverted watercourse known as Beacon's Gutter is also located in this area.

It is recommended that a watching brief is maintained during the groundworks at the landward end of the outfall pipe.

ACKNOWLEDGEMENTS

OA North would like to thank Sarah Jakubiak at United Utilities for commissioning the project. Thanks are also due to Lorraine Beale, Wrecks Officer at the United Kingdom Hydrographics Office, Graham Deacon at the National Monuments Record (NMR), and Graham Dean of the Daniel Adamson Preservation Society (DAPS), for their assistance with this project.

Kathryn Blythe undertook the desk-based research and Mark Tidmarsh produced the drawings. Alison Plummer managed the project and also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 United Utilities has proposed a new outfall into the River Mersey from Sandon Half-Tide Dock (NGR SJ 33195 92638 to SJ 32917 92575) in Liverpool. Oxford Archaeology North (OA North) were commissioned to undertake archaeological desk-based research in order to determine the presence or otherwise of historic features on the seabed, or at the landward end of the proposed outfall pipe. This was carried out in October and November 2011.
- 1.1.2 The study area for the desk-based research comprised the footprint of the proposed outfall pipe plus a 250m radius surrounding it (Fig 1). A search was undertaken of both published and unpublished records held by the National Monuments Record (NMR), United Utilities, the Receiver of Wrecks, the United Kingdom Hydrographic Office, and the archives and library held at OA North.
- 1.1.3 The Sandon Half-Tide Dock is located beyond the northern limit of The Maritime Mercantile City of Liverpool World Heritage Site Boundary; however, the proposed outfall pipe route falls partially within the Buffer Zone.

1.2 LOCATION

- 1.2.1 The proposed outfall pipe extends from the south-western corner of Sandon Half-Tide Dock (NGR SJ 33195 92638), out into the River Mersey for 316m (to SJ 32917 92575). The proposed outfall is aligned east-north-east/west-south-west (Fig 1).

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The desk-based research was carried out in accordance with the relevant IfA and English Heritage guidelines (Institute for Archaeologists 2008, *Standard and Guidance for Archaeological Desk-based Assessments*; Institute for Archaeologists 2010 *Code of Conduct*; English Heritage 2006, *Management of Research Projects in the Historic Environment* (MoRPHE)) and generally accepted best practice.

2.2 DESK-BASED RESEARCH

2.2.1 The aim of the desk-based research is not only to give consideration to the potential for archaeological remains along the outfall route, but also to place the site into its archaeological and historical context. A search was made for all statutory and non-statutory sites within a 250m radius of the outfall route. The sources consulted are listed below:

2.2.2 **National Monuments Record (NMR):** the NMR, maintained by English Heritage, holds records of archaeological sites, including shipwrecks, within the country. There are no known wreck sites within the study area.

2.2.3 **Receiver of Wrecks:** the Receiver Of Wrecks holds records of protected Wrecks in the UK, Wrecks designated as Scheduled Monuments, and Wrecks designated as military remains (<http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-receiverofwreck/mcga-protectedwrecks.htm>). None of these wrecks was located within the study area.

2.2.4 **United Kingdom Hydrographic Office (UKHO):** the database of wrecks held by the UKHO was searched, however no known sites were located within the study area.

2.2.5 **United Utilities:** ADCP data from readings taken at spring and neap tides was provided by the client. United Utilities also provided a copy of the *Cultural Heritage Desk-Based Assessment and Heritage Assessment of Wellington Dock* prepared by Jacobs Ltd (2011a). This report, which included a search of the Merseyside Historic Environment Record (HER), was prepared in advance of a proposed extension to the Wastewater Treatment Works at Sandon Dock and includes Sandon Half-Tide Dock within its study area.

2.2.6 **Daniel Adamson Preservation Society (DAPS):** Graham Dean of the DAPS provided information of known wrecks in the Sandon Dock area.

2.2.7 **Oxford Archaeology North:** OA North has an extensive archive of secondary sources relevant to the study area, as well as numerous unpublished client reports on work carried out both as OA North and in its former guise of Lancaster University Archaeological Unit (LUAU). These were consulted where necessary.

2.3 ARCHIVE

- 2.3.1 Copies of this desk-based research will be deposited with the Merseyside HER for reference purposes.

3. HISTORICAL BACKGROUND

3.1 INTRODUCTION

- 3.1.1 The following section presents a summary of the historical background of the study area, beginning with the Medieval Period, in order to place it into a wider historical and archaeological context.

3.2 BACKGROUND

- 3.2.1 **Medieval Liverpool (1066-1500):** the establishment of the town of Liverpool is well documented. The name '*Liuerpol*' is first mentioned in a charter of 1190-4, with the town forming a part of the hundred of West Derby (Nicholson 1981). In 1207, a further charter was granted by King John which effectively elevated the settlement from a fishing and farming village to a royal borough (OA North 2009). The town then consisted of seven streets arranged in an 'H'-shaped street plan. These streets survive in the modern plan of the town, although they have been much widened.
- 3.2.2 The town was positioned next to the Pool, a prominent topographical feature and natural inlet of the River Mersey. The ancient shoreline of the River Mersey is now marked by The Strand. The Pool is believed to have formed an important part in the town's life and in its maritime trade, acting as an area where cargoes would have been unloaded, and ships built and repaired. However, no medieval records survive relating to the use of the Pool (Stewart-Brown 1932, 89).
- 3.2.3 **Post-Medieval Expansion (1540-1710):** the earliest references to the Pool as an entity date to the late sixteenth century, when there are reports of people going or being sent from Water Street, Castle Street, Dale Street and other places to go and dig a ditch at the Pool in the 1560s (Picton 1873, 52). Other references from the Town Books record that in the later seventeenth century the 'lower pool' and Waterside were indeed used for boat and shipbuilding.
- 3.2.4 In the 1660s a major Liverpool landowner, Sir Edward Moore, referred to the importance of the Pool for future shipping, '*if ever the Pool be cut navigable*', indicating that it was not suitable at that time (Stewart-Brown 1932, 90). By the turn of the eighteenth century, the Pool was probably shallow and unusable by anything other than relatively small ships (*op cit*, 105). Until the construction of the Old Dock, ships on the River Mersey had a number of difficulties to contend with in order to unload their cargoes: the tidal range of the river, at 30', was exceptionally large, and rendered ships incredibly unstable in a river that was already dangerous from strong under-currents, sand spits and strong north-westerly winds (MacLeod 1982, 3; Stammers 2007, 55). With the demise of Chester's trade due the silting of the River Dee by the late 1600s, Liverpool's trade began to rise in prominence, although, due to its problems, it still faced competition from ships anchoring in the relatively safer waters of the River Sloyne on the Cheshire side (MacLeod 1982, 4; Picton 1873).
- 3.2.5 The limitation of the Pool brought increasing demand for better accommodation for ships. In 1707, the scheme for an enclosed wet dock was

set out, and in 1710 the construction of the Old Dock began (MacLeod 1982, 7). The impact of the opening of the Old Dock was immense and its success was the catalyst for the subsequent, hugely ambitious campaign of dock construction and singularly innovative dock engineering which followed (OA North 2011).

- 3.2.6 **Wellington Dock:** Wellington Dock, and the accompanying Wellington Half-Tide dock (Fig 2), which was later replaced by Sandon Half-Tide Dock, were designed and built by Jesse Hartley between 1848 and 1851 (Baines 1859, 84).
- 3.2.7 In 1859, the bulk of shipping entering and leaving the Wellington Dock was bound for the coast of West Africa. The dock was used by the African Steam Ship Company, who operated services from Wellington Dock to numerous West African ports, including Bathurst, Cape Palmas, Monrovia, Accra, Lagos, Benin, and Old Calabar. Also operating from the dock were smaller companies, including the Londonderry Steam Boat Company (services to Londonderry, Ireland) and steam ship passenger services to Hamburg (Hurlstone and Coltman 1862, 331).
- 3.2.8 The 1890s saw a significant period of alteration to the docks. This included the alteration and reconstruction of Huskisson Dock, Sandon Dock, Sandon Basin and Wellington Half-Tide Docks. The six graving docks at Sandon Dock were replaced by an extension of a new branch dock as part of Huskisson Dock, and Wellington Half-Tide Dock and Sandon Basin were replaced by Sandon Half-Tide Dock, which opened in 1901-2 (Jacobs 2011a; Jacobs 2011b, 6).
- 3.2.9 Whereas early docks had one set of gates, to allow ships through when the water level was the same on both sides, later docks with two sets of gates allowed ships to enter from a lower level and the dock could then be filled to the other level; the second set of gates would then be opened to allow the ship through. Half-tide docks were a variation of this, acting as a large lock, where there was a basin between the docks and the river. They could not be used during all states of the tide, due to the large amount of water they contained. The gates to these docks had sluices, to top up the water levels (Stammers 2007, 64). Two such sluices are shown on the 1849 First Edition OS map (Fig 2).
- 3.2.10 The Dock Engineers AG and GF Lyster built Sandon Half-Tide Dock, although stretches of Hartley's 1840s dock do survive, particularly in the south-east corner of the dock. Hartley's construction was characteristically of cyclopean masonry, with large, irregular ashlar coping stones over fair-faced rubble. However, the Lyster's construction was of concrete, incorporating large, irregular granite blocks in the dock face (Jacobs 2011a; Stammers 2007, 59).
- 3.2.11 Following the First World War, trade and shipping continued to expand and Liverpool played a strategic part in the war efforts of both World War I and then again in World War II. However, the city was targeted for its strategic importance during World War II and, as a result, suffered heavily as the city was bombed extensively during a series of air raids between August and November 1940. The docks and the surrounding area were targeted and

suffered from structural damage as a result, with large areas adjacent to the waterfront being levelled (OA North 2011).

- 3.2.12 In 1989, the Sandon Dock, to the east of Sandon Half-Tide Dock, was in-filled to facilitate the construction of the Liverpool Wastewater Treatment Works (*ibid*). The double entrance to the River Mersey is now closed (Jacobs 2011a).

3.3 MAP REGRESSION

- 3.3.1 Bennison's 1835 map of Liverpool (*Appendix 1*), shows the study area as undeveloped. The northernmost dock at this time is Clarence Dock, and a short distance north of this a sea wall bounds this developed area. North again, in the area of the later Sandon and Wellington Docks, the area is shown as mudflats with creeks running out into the Mersey. One of these is Beacon's Gutter (see *Section 3.4.4*) which was located within the current study area.
- 3.3.2 The 1848 map which accompanied the Table of the Liverpool Docks (*Appendix 1*) shows both the Sandon Basin and the Wellington Half-Tide Dock. The key to the plan indicates them as '*in course of formation*'. The map shows the shape and orientation of Wellington Half-Tide Dock and Sandon Basin. Both were small irregular-shaped structures, with only the Sandon Half-Tide Basin having a gate linking it to the river (OA North 2011).
- 3.3.3 An extract from the 1849 OS map (Fig 2) shows a number of features in the area connecting Wellington Half-Tide Dock in the north to Bramley Moore Dock in the South. This area is in close proximity to the later double entrance to Sandon Half-Tide Dock and the proposed start point of the outfall pipe. A sluice is shown on either side of the passage between the two docks, and flanking these are four chain boxes on each side.
- 3.3.4 The 1851 OS Map (*Appendix 1*) is similar to the 1848 and 1849 maps, though a bridge is now shown just south of the two sluices on the passageway from Wellington Half-Tide Dock to Bramley Moore Dock.
- 3.3.5 The 1893 OS map marks the bridge at the south entrance to Wellington Half-Tide Dock as a swing bridge. Sheds are now shown flanking the west sides of both the Wellington Half-Tide Dock and Bramley Moore Dock.
- 3.3.6 By the time of the OS Map of 1910 (*Appendix 1*) the extensive Sandon Half-Tide Dock spanned the entrances of both Wellington and Sandon Dock, creating a larger, more easily navigable stretch of inland waterway. The dock was linked to the river by a double, gated entrance in its south-west corner (Farrer and Brownbill 1911, 41-3). Whilst the swing bridge is still marked on this map, the sheds, chain boxes and sluices are not shown on this or later maps. The swing bridge is marked on the OS map of 1991 but not the OS map of 1999.

3.4 ARCHAEOLOGICAL SITES WITHIN THE STUDY AREA

- 3.4.1 No shipwreck sites were identified within the study area, although one site was identified in the nearby area. On December 22nd 1940 the Rea Towing

Company tug, 'Polgarth' hit a mine and blew up off Sandon Dock/Canada Dock. Parts of this wreck were taken away. Other wrecks in the wider area have had parts salvaged, in order to keep the area clear for its continual use (Graham Dean pers comm; <http://www.teesbuiltships.co.uk>). Whilst the exact location of this wreck is not known, its description as being sunk off South Canada Dock would suggest that it was north of the current study area.

- 3.4.2 The area of the start point of the outfall pipe on land is now at the entrance of Sandon Half-Tide Dock. The map regression (*Section 3.3*) has shown that this was previously near the southern entrance to Wellington Half-Tide Dock from Bramley Moore Dock. Several features were located in this area, including sluices, chain boxes, a swing bridge and sheds. Whilst these features are not shown as extant on current mapping it is possible that elements of them survive below ground. In addition, one feature pre-dating the dock construction was identified in the study area. Beacon's Gutter (SJ 33549 92767) was a small watercourse, which historically formed the boundary between the parishes of Liverpool and Kirkdale, and exited into the River Mersey in the area now known as Boundary Street. During the 1840s dock construction, Beacon's Gutter was culverted and routed between Wellington and Sandon Docks and then below Wellington Half-Tide Dock and Sandon Basin. By the nineteenth century it was in use as a sewer, before being replaced by the Liverpool WwTW in the late twentieth century. Site investigations at Wellington Dock revealed the buried remains of the brick culvert, which measured *c* 1.8m by 1.3m, and was located *c* 5m below ground. The culvert is now in use as a drain and has a concrete lining (Jacobs 2011a).

4. CONCLUSIONS

- 4.1.1 The searches found no known sites within the study area for the proposed outfall pipe into the River Mersey. Whilst it is possible that ships were wrecked within this area, it would appear that these have been routinely salvaged and cleared, in order to provide safe shipping lanes.
- 4.1.2 The map regression identified several historic features at the landward end of the outfall pipe, including two large sluices, chain boxes, a swing bridge and sheds. Whilst these features are not shown as extant on current mapping it is possible that elements of them survive. A culverted watercourse known as Beacon's Gutter is also located in this area.
- 4.1.3 It is therefore recommended that a watching brief is maintained during the groundworks at the start point of the outfall pipe.

5. BIBLIOGRAPHY

5.1 CARTOGRAPHIC SOURCES

Bennison's Map of the Town and Port of Liverpool, 1835 (taken from Jacobs 2011a)

Map accompanying The Table of Liverpool Docks, 1848 (taken from Jacobs 2011a)

Ordnance Survey Map of Liverpool, 1849, 6" to 1 mile

Ordnance Survey Map of Liverpool, 1851, 6" to 1 mile

Ordnance Survey Map of Liverpool, 1893, 6" to 1 mile

Ordnance Survey Map of Liverpool, 1910, 6" to 1 mile

Ordnance Survey Map of Liverpool, 1991, 1:10,000

Ordnance Survey Map of Liverpool, 1999, 1:10,000

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<http://www.teesbuiltships.co.uk/smiths/19161929/poolgarth1923.htm>

6. ILLUSTRATIONS

LIST OF FIGURES

Figure 1: Site location

Figure 2: Extract from the Ordnance Survey First Edition 6” to 1 mile map, 1849

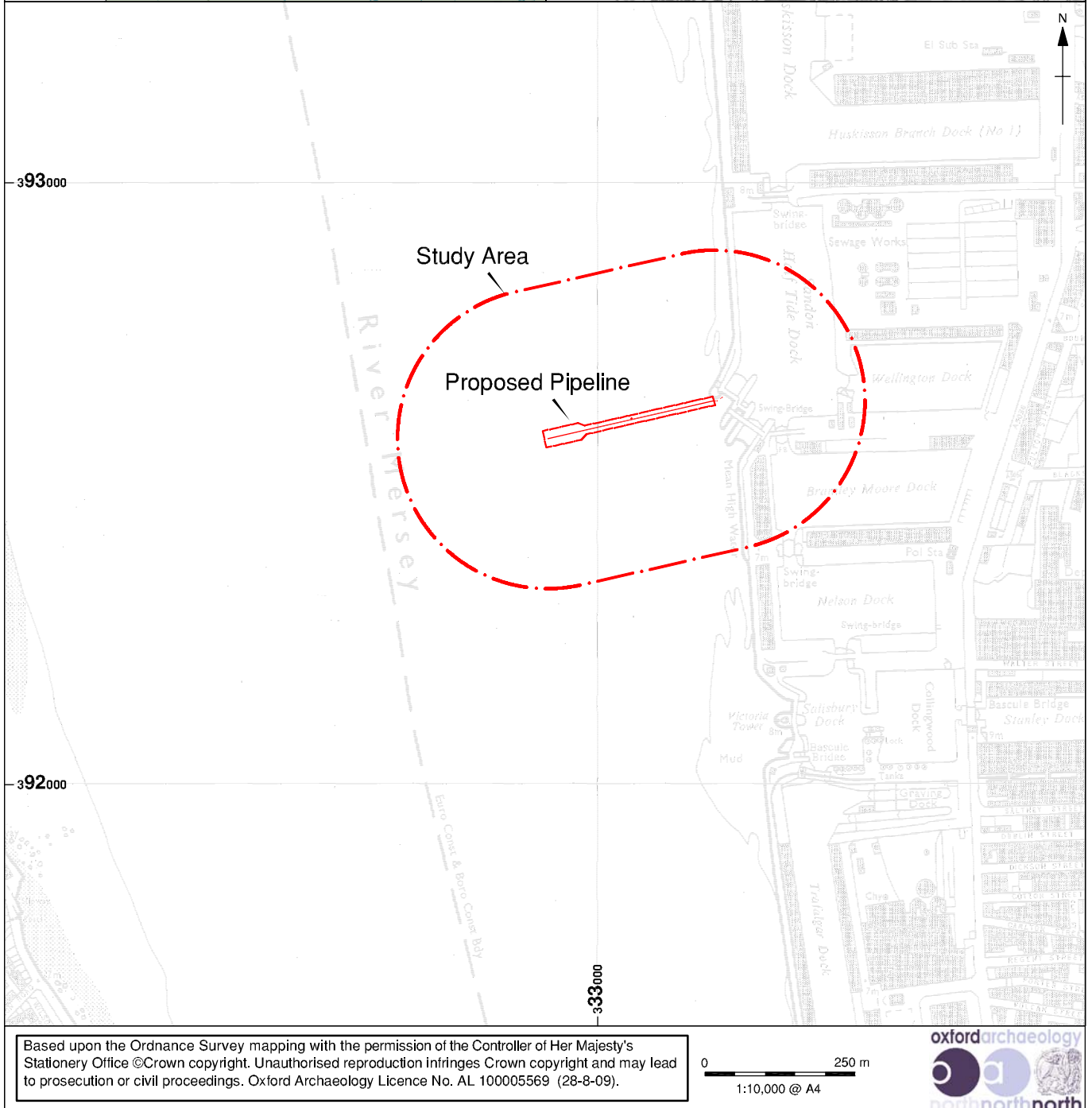
LIST OF FIGURES WITHIN APPENDIX 1

Extract from Bennison’s Map of the Town and Port of Liverpool, 1835 (taken from Jacobs 2011a)

Extract from the map accompanying The Table of Liverpool Docks, 1848 (taken from Jacobs 2011a)

Extract from the Ordnance Survey 6” to 1 mile map, 1851(taken from Jacobs 2011a)

Extract from the Ordnance Survey 6” to 1 mile map, 1910 (taken from Jacobs 2011a)



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Figure 1: Site location



Figure 2: Extract from the Ordnance Survey first edition 6" to 1 mile map, 1849

APPENDIX 1: HISTORIC MAPS

Legend



Approximate location of study area

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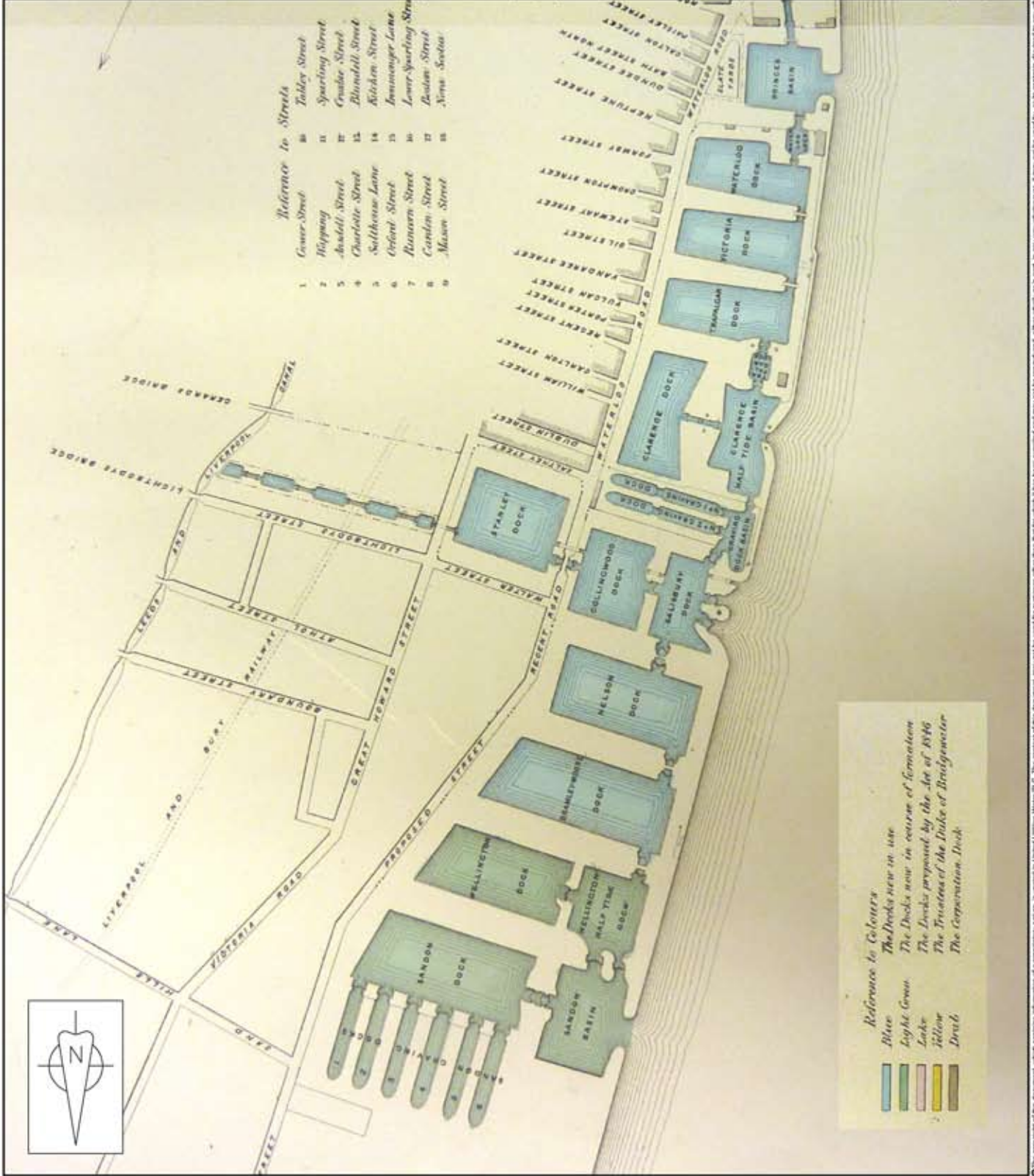
Figure 2

Extract from Bennison's Map of the
Town and Part of Liverpool
1835

SCALE	NTS	SHEET SIZE
		A4
DRAWING NUMBER		REVISION
B1600AK/CH/02		0



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Reference to Streets

1	Lower Street	30	Tabley Street
2	Hopping	31	Spurling Street
3	Abadell Street	32	Crabbe Street
4	Charlotte Street	33	Blindfold Street
5	Southouse Lane	34	Kitchen Street
6	Orford Street	35	Jennings Lane
7	Barnum Street	36	Lower Spurling Street
8	Carlton Street	37	Leeson Street
9	Mason Street	38	North Street

Reference to Colours

- Blue The Docks now in use
- Light Green The Docks now in course of formation
- Yellow The Docks proposed by the Act of 1846
- Dark Green The Trustees of the Docks of Bridgewater

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Planning Application

Figure 3

Extract from the map accompanying
The Table of the Liverpool Docks

1848

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DRAWING NUMBER		REVISION
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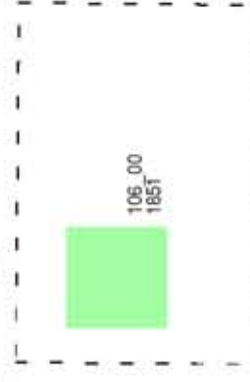
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**Lancashire And Furness
Published 1851**

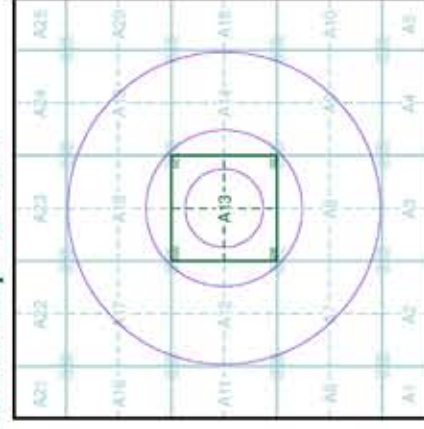
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas, these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overlaid with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



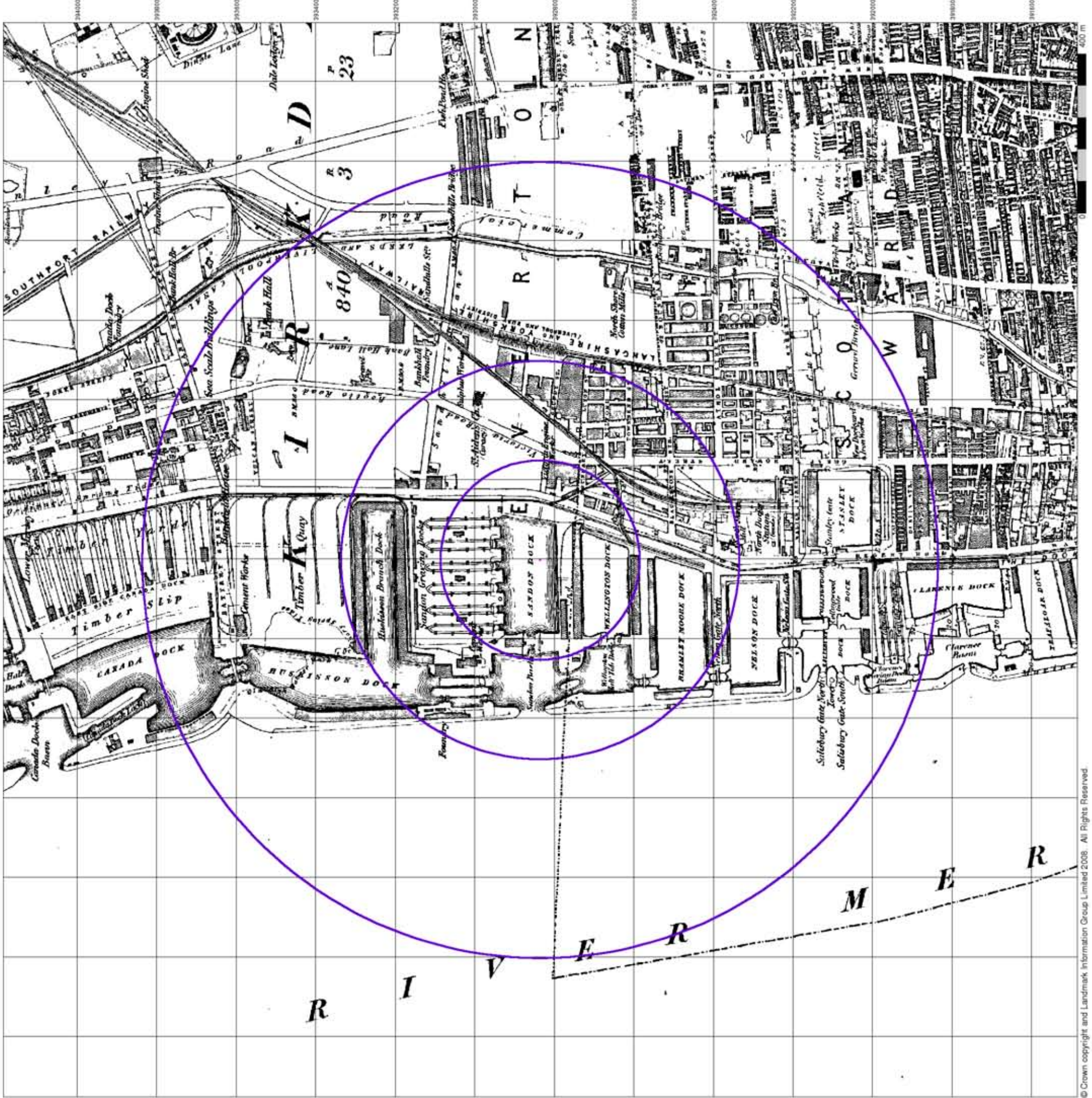
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Order Number: 24914883_1_1
Customer Ref: Liverpool WwTW (Sandon)
National Grid Reference: 333600, 392840

Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

Site at 333400, 392800



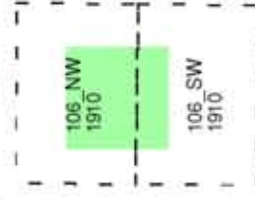
Lancashire And Furness

Published 1910

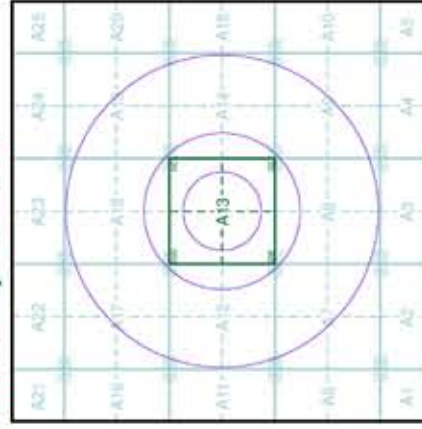
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 24914883_1_1
Customer Ref: Liverpool WwTW (Sandon)
National Grid Reference: 333600, 392840

Slice: A
Site Area (Ha): 0.01
Search Buffer (m): 1000

Site Details

Site at 333400, 392800

