

## PORT AUTHORITY OF NSW HERITAGE INVENTORY

### State Heritage Inventory

SHI Number: 4560062		Study Number: N/A	
Item Name: White Bay Power Station (Inlet) Canal			
Location: Robert Street, Rozelle			
Address: Robert Street, Rozelle		DUAP Region: Sydney South	
Suburb / Nearest Town: Rozelle 2039		Historic Region: Sydney	
Local Govt Area: Inner West		Parish: Petersham	
State: NSW		County: Cumberland	
Other/Former Names: White Bay Inlet Canal, White Bay Power Station Water Cooling Conduit			
Area/Group/Complex:		Group ID:	
Aboriginal Area: Wangal clan			
Curtilage/Boundary:			
Item Type: Built	Group: Utilities – Electricity	Category: Electricity Generator/Power Station – coal/gas/oil	
Owner: Port Authority of New South Wales			
Current Use:			
Former Uses: An inlet conduit (although called an inlet canal) to provide water to the White Bay Power Station			
Assessed Significance: State		Endorsed Significance:	
Statement of Significance:			
<p>The significance of the canal is derived from the significance of the White Bay Power Station complex. The canal is an integral part of the White Bay Power Station and its cooling system. The canal now also forms part of the ecosystem of the White Bay and Black Wattle Bay areas (for the Statement of significance for White Bay Power Station see SHR listing #01015 on State Heritage Inventory Database).</p> <p>The White Bay Power Station is listed on the State Heritage Register and the White Bay Power Station (Outlet) Canal running from the Power Station to Rozelle Bay is listed on the Port Authority of NSW S170 Register. Together with the White Bay Power Station (Inlet) Canal they form the critical components of the White Bay Power Station's cooling system, as the choice of site for the power station depended on the supply of water for cooling of the steam condensers.</p> <p>The White Bay Power Station (Inlet) Canal has historic significance at a State level, and associational significance at a State level, as an integral element critical to the operation of the White Bay Power Station.</p> <p>The existence of the canal is rare, especially in the context of the intact qualities of the surviving White Bay Power Station and the White Bay Power Station (Outlet) Canal. Any potential aesthetic significance of the White Bay Power Station (Inlet) Canal is not known, as the structure is not accessible or visible.</p>			

Although not visible, the inlet canal (technically a conduit) is an integral part of the White Bay Power Station and as such exhibits the technical significance of this station. The canal is likely to possess archaeological features which will add to our understanding of the site.

Historical Notes or Provenance:

Construction of the White Bay Power Station (Inlet) Canal or Cooling Water Conduit began in 1912 as part of Phase 1 of the construction of the White Bay Power Station Complex.

The White Bay Power Station was one of four original Sydney Power Stations. Phase 1 was constructed between 1912 and 1917 by the New South Wales Railway Commissioners to serve the rapid expansion of the electric tramway system and the anticipated electrification of the city's railways. It involved the construction of the first half of the turbine hall, the switch house and one boiler house. Further construction phases of the White Bay Power Station were completed in 1925-28 and 1945-1958.

The site for the power station at White Bay was chosen partly because it had unlimited circulation water access with the possibility of separating inlet and outlet, thus avoiding local heating problems. Two cooling water canals were cut to White Bay Power Station—the inlet canal entering from White Bay and the discharge canal (the Outlet canal) emptying into Rozelle Bay.

The NSW Railway Commissioners constructed the first Power Station at Ultimo in 1899. This was followed by Sydney Municipal Council's (SMC) Pyrmont Power Station in 1904 and the Electric Light and Power Supply Corporation's (ELPC) Balmain Power Station in 1909. These four power stations formed the backbone of the Sydney electricity supply system until 1930 when the SMC completed the first stage of the Bunnerong Power Station. Until 1950 these power stations remained largely independent.

The formation of the Electricity Commission of NSW (ECNSW) in 1950 united NSW's electricity supply system and over the next 6 years the ECNSW took control of all the existing Sydney Power Stations. Pressure to close the Sydney power stations because of pollution grew and in 1983 Pyrmont and White Bay were the last of the original five to be decommissioned. White Bay was the longest serving power station in Sydney having 70 years' continuous generation within one building.

The cooling water system was an integral part of the power station operating complex where exhausted steam was converted to water in the massive cast-iron condensers. Cooling water may have been taken directly from the canal or the canal could have discharged into a tidal pool adjacent to the power station from where it was pumped into the condensers. It was normal practice for either static or dynamic screens to be constructed to prevent the ingress of any solid material, and it is possible that White Bay had an electrically powered rotating screen or bucket screen similar to the ones employed at Ultimo or Balmain Power Stations, but no evidence of the original screen remains.

According to the 'White Bay Power Station Conservation Management Plan' (2004, volume 5, page 32), the water entered the inlet conduit through a fixed grill screen to filter large materials, then through a set of revolving screens to filter any other materials: 'The conduits included silt wells and control valves. In the Turbine Hall, a Circulating Water Pump for each condenser drew water from individual pump section wells fed from the Inlet Conduit and pumped it through the body of the condenser, the outflow dropping into the Outlet Conduit.'

The full extent of the alignment of the original canal and the replacement conduit is shown on plans at images 12 and 13. The section of the cooling water conduit adjacent to Roberts Street was initially cut as an open canal but appears from photographic evidence to have been covered over in the 1930s or 40s. The conduit leading from White Bay is believed to have been constructed to allow for the erection of the coal storage platform and conveyers which were constructed in the early 1960s. At this time, it is most likely that new screens were erected in a screen house of which some evidence exists today at the edge of White Bay.

Themes:	National Theme: 3. Economy	State Theme: Technology	Local Theme: (none)
	4. Settlement	Utilities	(none)
Designer:			
Maker / Builder: New South Wales Railway Commissioners			
Year Started: 1912	Year Completed: 1917	Circa: No	
Physical Description:  The inlet canal is not currently visible above ground. The only evidence above ground is a set of metal plates and two sluice gate shafts with a geared collar and square threads which once protruded about 2m above the concrete wharf platform (now bent over). This assemblage would have formed the remnant floor of the screen house or sluice house that would have existed at the edge of White Bay.			
Physical Condition:  The condition of the canal is unknown, as it is completely enclosed. The condition of the sluice gates and mechanism within the canal is expected to be poor or perhaps non-existent, given the above-ground appearance and the lack of use. It is expected that the canal will have a high likelihood of containing industrial archaeological artefacts; however these will be under water.			
Modification Dates:  1920-25 – construction of the Turbine Hall and Switch House (phase 2) 1945-58 – demolition of the first boiler house and construction in two stages of extant Boiler House. 1930s-40s – The Roberts Street section of the original canal was covered over in the 1930s or 40s. 1983 – White Bay Power Station decommissioned and ceased operations on 25 December. Late 1980s to early 1990s – the station was stripped of everything except elements identified for heritage conservation. 2000 – the power station was sold by Pacific Power to the (former) Sydney Harbour Foreshore Authority.			
Recommended Management:  Retain in situ and conserve  That further GIS mapping be undertaken, using existing aerial photos, to determine the exact sequence of the construction and demolition or, infilling of, cooling water canals and conduits.  The conduit should be surveyed by electromagnetic radiation methods and by lowering of a camera into the conduit. In addition, the sluice gates should be further investigated by removal of the metal plates, and preparation of measured drawings. This survey and additional documentary research are to inform an update of the existing SHI form and subsequent recommended management policy. However, these actions are not critical for establishing the significance of the canal.  Preparation of a Maintenance and Conservation Works Schedule to ensure acceptable condition and assist in long-term conservation after preparation of survey			
Management: Statutory Instrument			
Further Comments:			

<p>Should GIS overlays of the various canals and stormwater channels evident on the site in the various mid-twentieth-century aerial photos be correlated, then it may be possible confirm the exact sequence of events of the opening and closing of canals.</p> <p>The White Bay Power Station (Inlet) Canal, runs through the listed curtilage of the White Bay Power Station (SHR No. 01015) State Heritage Item, subsequently, the site must be managed accordingly.</p>			
<p>Criteria a) The White Bay Power Station (Inlet) Canal has historic significance at a State level as an integral element critical to the operation of the White Bay Power Station. The choice of site for the power station depended on the supply of water for cooling the steam condensers. White Bay Power Station was the longest serving Sydney power station and is the only extant steam driven power station in Sydney. It retains within its fabric, and in the body of associated pictorial, written archives and reports and oral history recordings, evidence for the development of technology and work practices for the generation of electrical power from coal and water. (Design 5, 2004)</p>			
<p>Criteria b)</p>			
<p>Criteria c) Any potential aesthetic significance of the White Bay Power Station (Inlet) Canal is not known, as the structure is not accessible or visible.</p>			
<p>Criteria d)</p>			
<p>Criteria e) The actual technical significance of the White Bay Power Station (Inlet) Canal is not known, as the structure is not accessible or visible. However it is considered to have a high potential for technical significance as a major component of the infrastructure of the power station. It is likely to exhibit technological achievements of its time. The White Bay Power Station (Inlet) Canal is also likely to contain industrial archaeological artefacts.</p>			
<p>Criteria f) The existence of the canal is rare, especially in the context of the intact qualities of the surviving White Bay Power Station.</p>			
<p>Criteria g)</p>			
<p>Integrity / Intactness:</p> <p>The integrity of the canal and the sluice gate shafts is unknown. The screen house or sluice house that would have been constructed where the temporary steel security plates now sit has been demolished. The massive threaded shafts which raise and lowered the sluice gates, although still extant, had been bent through 90 degrees and all supporting evidence of their operation has been removed.</p>			
References:	Author:	Title:	Year:
	Department of Lands	Aerial Photographs	
	Mark Dunn	White Bay Power Station, The Dictionary of Sydney, <a href="https://dictionaryofsydney.org/entry/white_bay_power_station">https://dictionaryofsydney.org/entry/white_bay_power_station</a>	2008
	Leichhardt Library	White Bay Power Station	
	Railway Commissioners	Album P3405, White Bay Power Station Construction Photographs	1912
	Sydney Water	Metropolitan Detail Series Plan Balmain Sheet 51	1920
	Maritime Services Board of NSW	Balmain Coal Loader Upgrading: Environmental Impact Statement	1978

	Design 5 Architects	Heritage Interpretation Strategy, Bays West Sub-Precincts White Bay Power Station and Robert Street			15/02 /22
Studies:	Author: Godden Mackay Logan PL		Title: Sydney Ports Corporation White Bay Power Station (Inlet) Canal	Number: 4560062	Year: 2011
	Design 5		White Bay Power Station Conservation Management Plan Volumes 1–5		2004
Parcels:	Parcel Code:	Lot Number:	Section:	Plan Code:	Plan Number:
Latitude:			Longitude:		
Listings:	Name: Heritage Act – S.170 NSW State agency heritage register		Title: White Bay Power Station (Inlet) Canal	Number: 4560016	Date: 2004
Data Entry:	Date First Entered: 22/07/2011		Date Updated: 11/01/2023		Status: Basic

Image: 1



Caption: View of what appears to be the original cooling water canal under construction, taken 1/5/1912 looking northeast towards White Bay. This appears to be the section of the inlet close to Robert Street.

Copyright: Museum of Applied Arts and Sciences

Image By: Commissioner for Railways

Image Date: 1/05/1912

Image File: 4560062b4.jpg

Image: 2



Caption: View of what appears to be the conversion of the west section of the cooling water canal to a conduit

Copyright: Museum of Applied Arts and Sciences

Image By: Commissioner for Railways

Image Date: 14/11/1912

Image File: 4560062b5.jpg



Image: 3



Caption: Aerial photograph of the White Bay Power Station. There is no evidence of the original cooling water canal as the coal owning facilities have now encroached completely on its former location

Copyright: Department of Lands

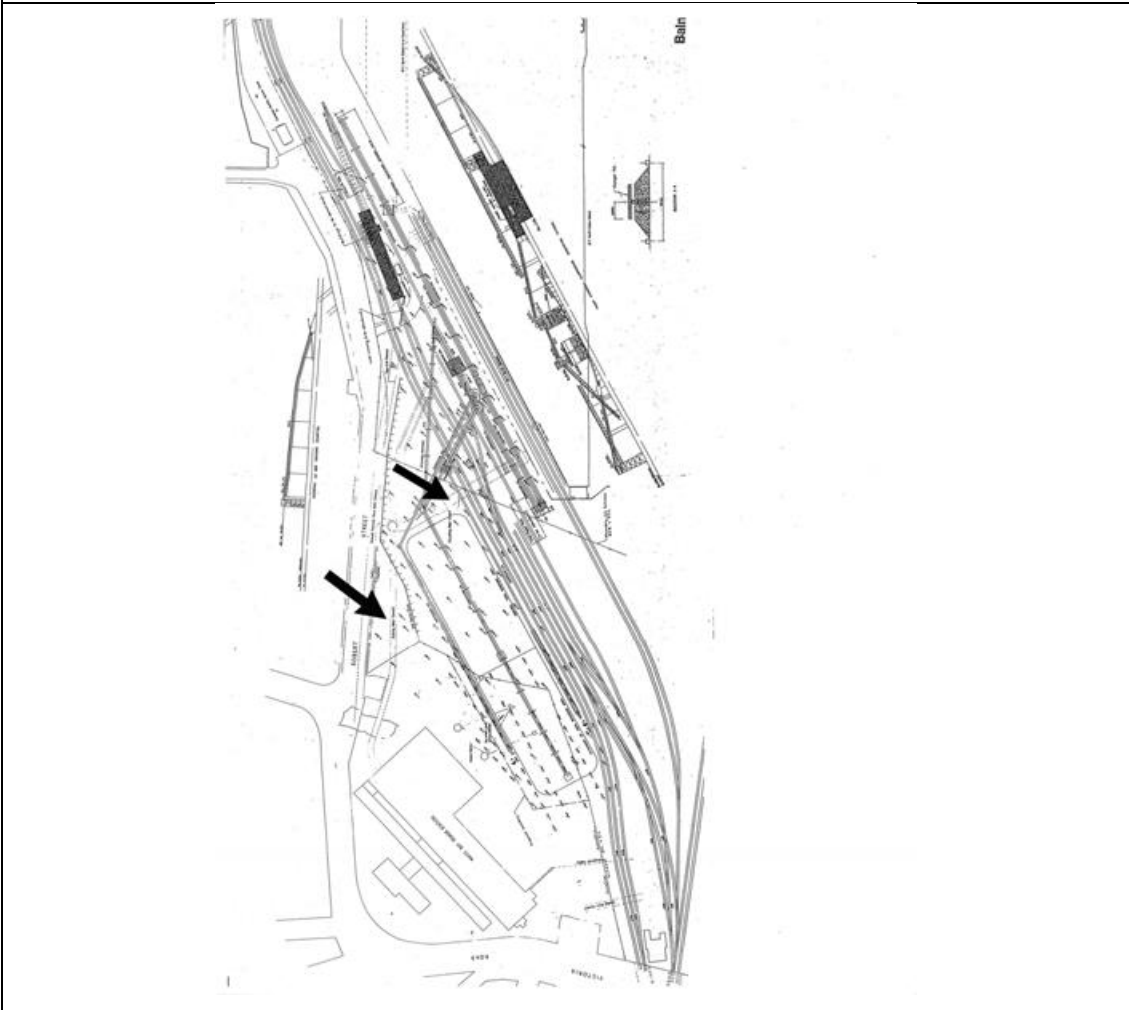
Image By:

Image Date: 1/04/1968

Image File: 4560062b11.jpg



Image: 4



Caption: Plan of the White Bay Power station 1978. Arrow points to the dotted lines of the existing cooling water conduit. Above this, are the dotted lines of the storm water channel which runs beside Robert St. By this time the channel has been entirely enclosed.

Copyright: Leichhardt Local Studies Library

Image By: The Maritime Services Board of NSW

Image Date: 1978

Image File: 4560062b12.jpg

Image: 5



Caption: Site of conduit Entry at White Bay

Copyright: Port Authority of New South Wales

Image By: Godden Mackay Logan Pty Ltd

Image Date: 22/07/2011

Image File: 4560062b2.jpg

Image: 6



Caption: Site of conduit Entry at White Bay

Copyright: Port Authority of New South Wales

Image By: Godden Mackay Logan Pty Ltd

Image Date: 22/07/2011

Image File: 4560062b3.jpg

Image: 7



Caption: View of what appears to be the cooling water conduit under construction, looking south west towards Victoria Road.

Copyright: Museum of Applied Arts and Sciences

Image By: Commissioner for Railways

Image Date: 7/11/1912

Image File: 4560062b6.jpg



Image: 8



Caption: View of the what appears to be the original cooling water canal looking northeast

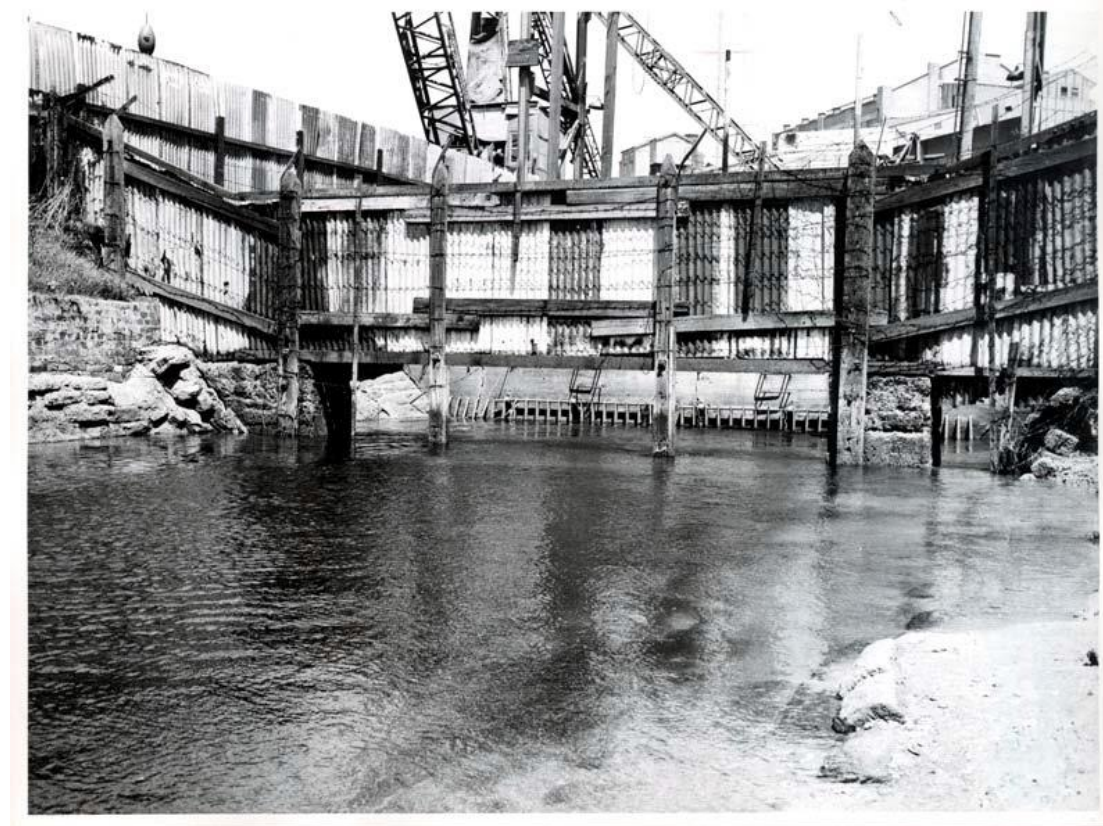
Copyright: Leichhardt Local Studies Library

Image By:

Image Date: 1930s

Image File: 4560062b7.jpg

Image: 9



Caption: Junction between the cooling water canal and the covered (conduit) section beyond, near the north elevation of the Boiler House

Copyright: Leichhardt Local Studies Library

Image By:

Image Date: 1930s-40s

Image File: 4560062b8.jpg

Image: 10



Caption: Aerial photograph of the White Bay Power Station. Stormwater Canal (red). Original Inlet Canal (Blue). Location of current inlet (black)

Copyright: Department of Lands

Image By:

Image Date: 1/05/1951

Image File: 4560062b9.jpg



Image: 11



Caption: Aerial Photograph of the White Bay Power Station. The new cooling water conduit now appears to be in operation as the old inlet canal is being progressively infilled to allow for the expansion of the coal loading facilities.

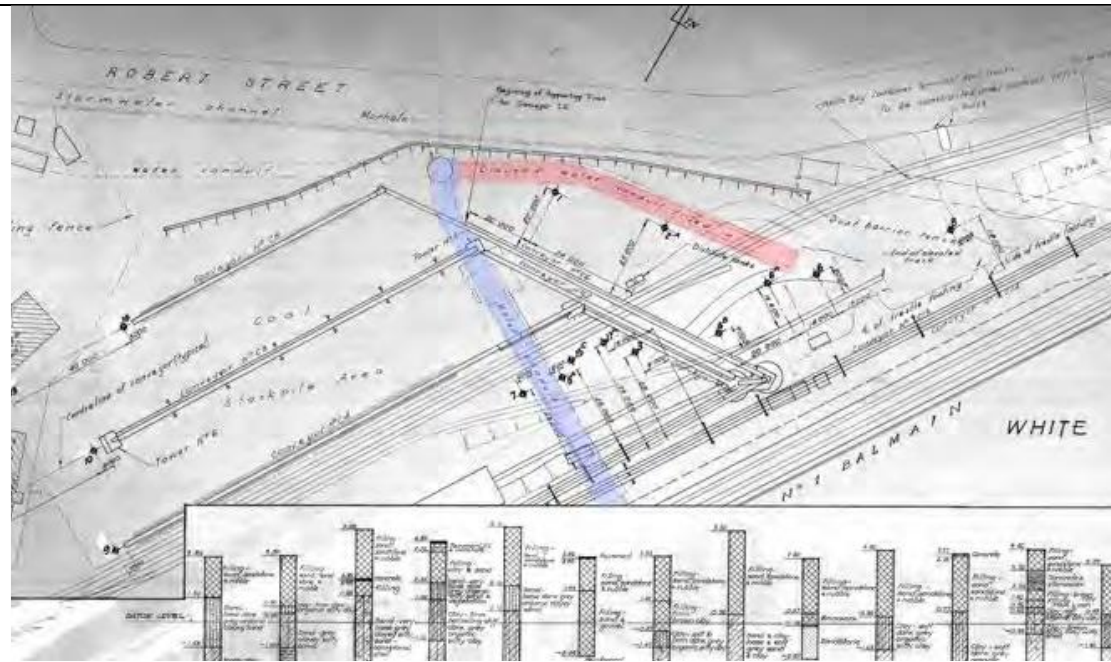
Copyright: Department of Lands

Image By:

Image Date: 1961

Image File: 4560062b10.jpg

Image: 12



Caption: Site Plan showing outline of White Bay Power Station Inlet canal – location of the old inlet canal shown red and the current inlet canal (conduit) shown blue

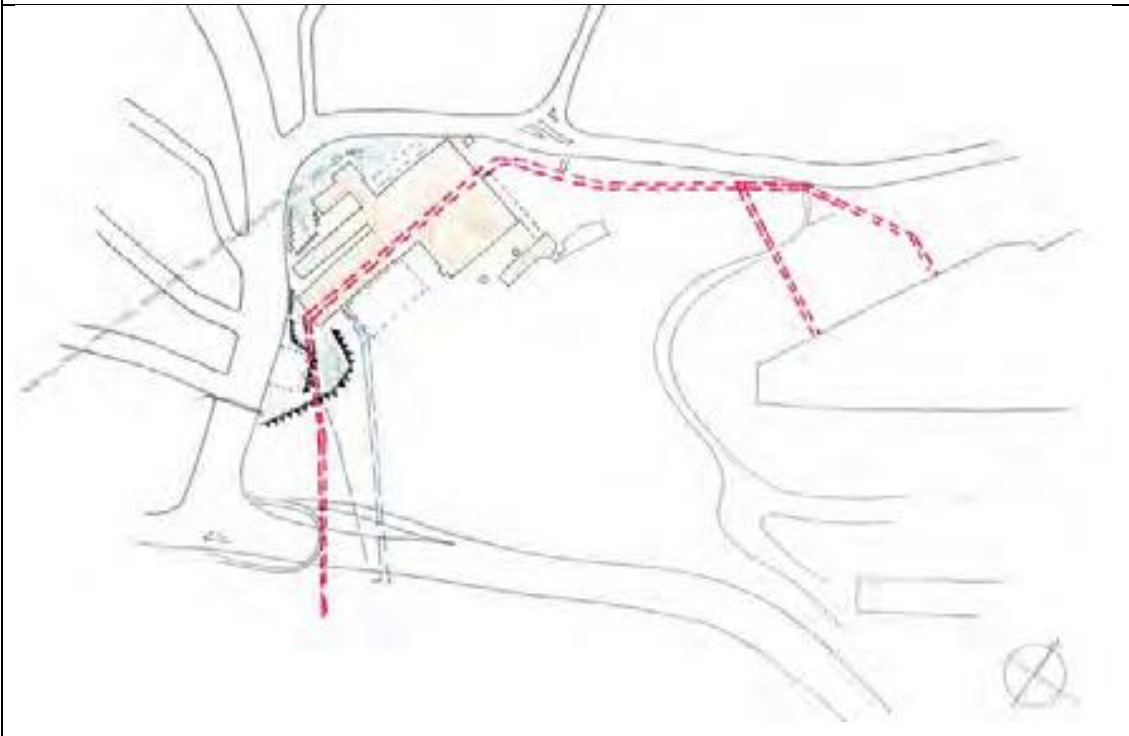
Copyright:

Image By: Extract of 1951 plan of the Coal Loader

Image Date:

Image File:

Image: 13



Caption: Plan of the White Bay Power Station Inlet Canal (old and 1951 alignments) leading from White Bay and the Outlet Canal leading south to Rozelle Bay

Copyright: Design 5 Architects, 15 February 2022

Image By: Design 5 Architects

Image Date:

Image File: