

AN ARCHAEOLOGICAL ASSESSMENT  
OF THE COKE OVENS,  
COKE OVENS BROOK CONNECTION,  
TAR PONDS AND SYDNEY LANDFILL SITES  
MUGGAH CREEK REMEDIATION PROJECT

SYDNEY, NOVA SCOTIA

JWEL-2



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## 1.0 INTRODUCTION

The Sydney Tar Ponds and the former Coke Ovens site in Sydney, Nova Scotia have long been recognised as significant environmental concerns. Studies are currently being conducted that will facilitate the clean-up of these sites. This work is being jointly funded by federal and provincial agencies. Due to the involvement of the federal government, the proposed clean-up project requires assessment under the Canadian Environmental Assessment Act (CEAA). As part of the requirements under CEAA the project requires an archaeological assessment of the sites and the possible impacts of the clean-up activities. Conestoga-Rovers and Associates (CRA), the overall management consultant for the Muggah Creek Remediation Project, contracted Jacques Whitford Environment Limited (JWEL) to undertake a Heritage Resources Impact Assessment (HRIA) of the Coke Ovens site, a portion of the Sydney Landfill site, the Tar Ponds, and the Coke Ovens Brook Connection (Figure 1.1).

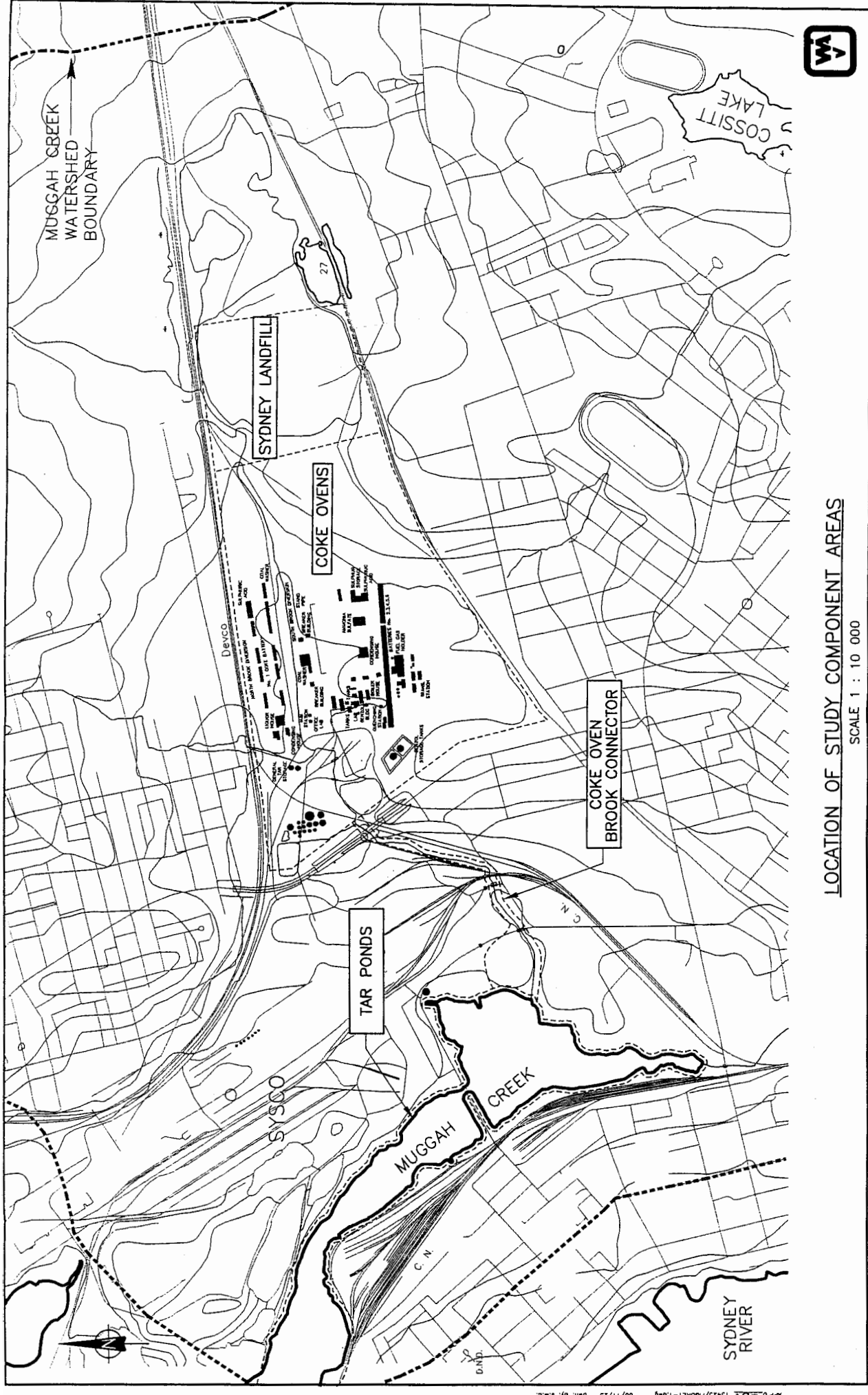
Colin Varley, M.A., Archaeologist and Heritage Planning Consultant, Maritimes Region and Ontario, with JWEL conducted the background research and archaeological reconnaissance of the study area, and prepared the report. A Heritage Research Permit (Archaeology) was requested and granted (A2000NS41) and the archaeological field work was conducted on October 24, 2000. Since final clean-up options are as yet not defined, the current study has been conducted as a heritage overview assessment. Therefore, this report is structured differently from the general guidelines provided by the Nova Scotia Museum (NSM).

## 2.0 PROJECT DESCRIPTION

The Muggah Creek Remediation Project comprises a number of smaller component programs, including: Phase II and III Environmental Site Assessments of the Coke Ovens and Tar Ponds; demolition of various buildings at the Coke Ovens site; and, leachate management at the Sydney Landfill, to name but the most relevant to this report. The overall goal of these programs is to facilitate the remediation of the Muggah Creek watershed area.

Due to the ongoing nature of the environmental studies a final decision has not been made on what is the best procedure for the remediation of the watershed. It is likely that more than one process or option will be required for site remediation. Depending upon what the final remediation plan includes, there are significant differences in what effects the remediation might have on archaeological and heritage resources on the sites. Our assessment and recommendations make allowances for the possibility that there may be some significant removal of soil from any of the sites.





**LOCATION OF STUDY COMPONENT AREAS**

SCALE 1 : 10 000

FIGURE 1.1

### 3.0 STUDY AREA

The present study considers four areas of the Muggah Creek Watershed: the Coke Ovens Site; the Sydney Landfill; the Coke Ovens Brook Connection; and the shoreline of the Sydney Tar Ponds (Figure 1.1). All of these areas fall within the boundaries of the former City of Sydney, Cape Breton, Nova Scotia. However, only the west side of the Tar Ponds is connected with peninsular Sydney.

Peninsular Sydney is the oldest part of the modern city, and although there are no registered archaeological sites in the area, it is likely that there was prehistoric use of the peninsula by the Mi'kmaq and their ancestors, due to the high resource base that would have been present. Permanent European settlement of the area began in 1784 on the east side of Muggah Creek (MacKinnon, 1918:5), although the area had likely been utilised by the Spanish to some degree previous to the 18<sup>th</sup> century, as modern Sydney Harbour was known as Spanish Bay or Spanish River well into the 18<sup>th</sup> century (Dawson, 1988: 69-71; MacKinnon, 1918:1).

In an effort to attract Loyalist settlement after the American War of Independence Cape Breton was made a separate colony from Nova Scotia, and initial clearing and settlement of the peninsula was begun by a few hundred new settlers and government officials in 1785 (Condon, 1994:189; MacKinnon 1918: 15). The first governor of the colony, J.F.W. DesBarres, drew up official plans for the town (PANS, 1785), although only some portions of that plan were followed (Dawson, 1988:126; Hornsby 1992:25). The settlement of Sydney in the late 18<sup>th</sup> century was not particularly successful and the population of Sydney dwindled to 121 in 1785 (MacKinnon, 1918:17) and 120 by 1795 (Hornsby, 1992:25). It was only at the turn of the century that the population of Sydney, and the development of the town, took an upturn due to the influx of emigrants from the Scottish Highlands (MacKinnon, 1918: 19). In 1800 the population of Sydney was approximately 200 (Wynn, 1994: 210), and by 1840 had reached 500 (MacKinnon, 1918: 126). The majority of Sydney's inhabitants lived on the peninsula until well into the 19<sup>th</sup> century, and historic mapping shows only sporadic occupation of the east side of Muggah Creek.

During the 20<sup>th</sup> century, however, the extensive development of the steel industry in Sydney, including the Coke Ovens and Sydney Landfill sites, and the subsequent growth of the population, has resulted in a much changed physical environment. Much of Muggah Creek has been filled in as a result of industry in the city. This is made evident from historic mapping (Figure 3.1), the results of geotechnical borehole drilling throughout the study area, and the creation of the Ferry Street Causeway, which has required filling to a depth of nearly 4 m below sea level (JWA, 1999). Clearly this recent alteration to the peninsula masks a great deal of the historic landscape, particularly the east side of Muggah Creek where slag has been deposited along the shoreline to depths of about 15 metres (CBCL-CRA, 1998: Figure 2-1).







## 4.0 METHODOLOGY

The assessment of the heritage potential of the four study components (Tar Ponds, Coke Ovens, Sydney Landfill, Coke Ovens Brook Connection) was based primarily on archival research, particularly of historic mapping and photography of Sydney and area, as well as old drawings of Dominion Steel Company facilities. This information was supplemented with a visual reconnaissance of each of the areas. Given the amount of fill and pavement it was not possible to excavate any useful subsurface archaeological test pits at the Tar Ponds, the connector or the landfill sites. The high toxicity of the Coke Ovens site did not allow for excavation of archaeological test pits.

### 4.1 Background and Archival Research

Records of the Maritime Archaeological Resource Inventory were examined at the Nova Scotia Museum to check for the presence of registered archaeological sites within the study area. No archaeological sites, prehistoric or historic, are documented for the study component areas (MARI 2000). No other unregistered archaeological materials are known from the general area (D. Christianson, pers. comm.).

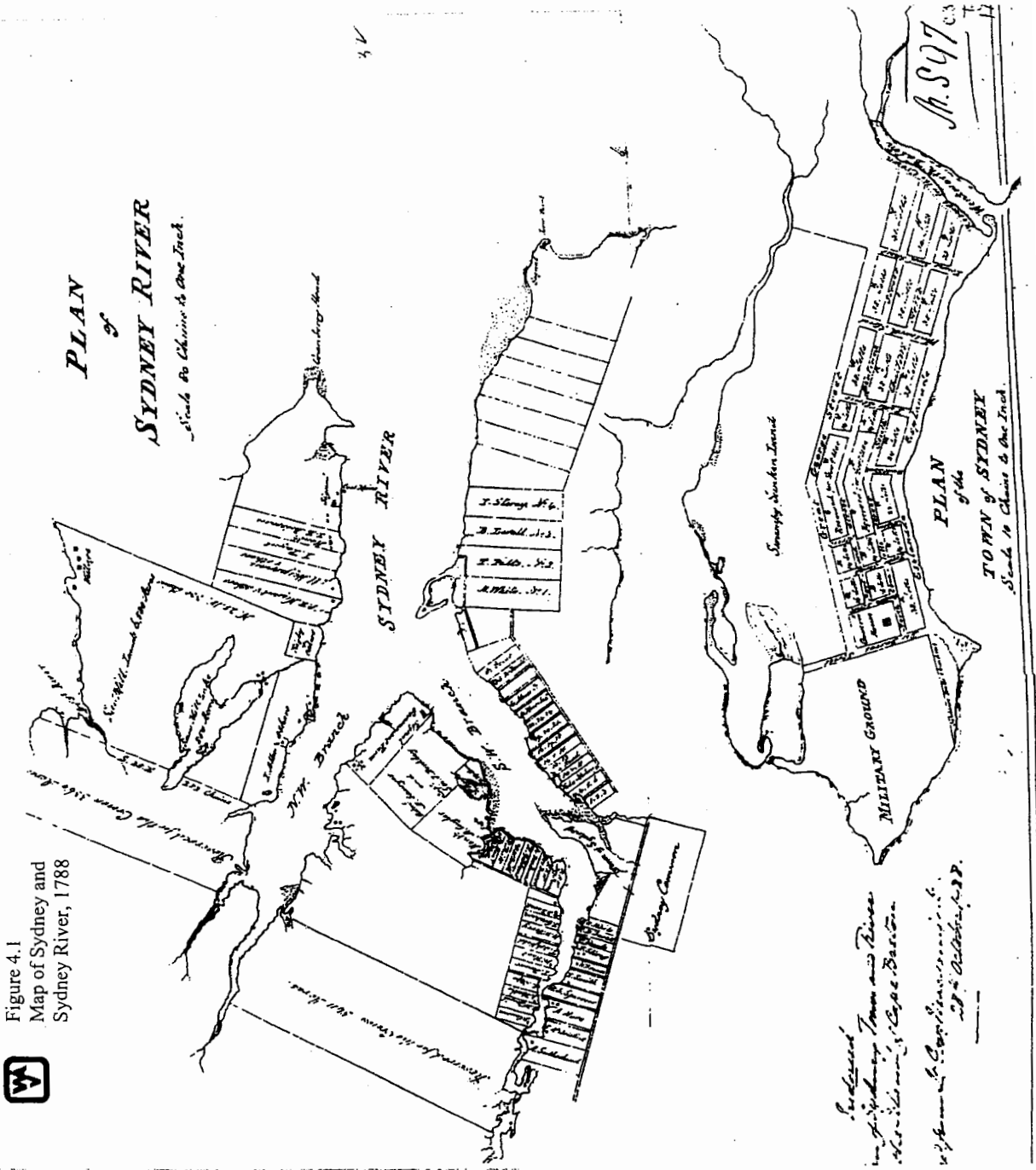
A number of historic maps were located at the Public Archive of Nova Scotia (PANS) in Halifax and at the Beaton Institute (BI) in Sydney. The earliest map relevant to this study is a 1788 map (Figure 4.1) (BI, 1788) which shows that the entire east side of Sydney peninsula was a low, wet area, and unsuitable for use at that time. Also notable is the large pond and extensive marshy area south of the pond at the north end. Further, the shading of the map on the larger plan of the Sydney River suggests that the area of Muggah Creek was marshy, unsuitable either for navigation or for habitation or farming.

A map dated 1792 of the Spanish River (Sydney Harbour) shows a series of surveyed properties and presumably the locations of buildings along the east shore of Muggah Creek (Figure 4.2)(BI, 1792). In fact, it would appear that three buildings in the southernmost lot would be located near the study area, although at the scale of the map precise location of these buildings is not feasible. Nonetheless, even if there were buildings in this location their remains have likely been destroyed by subsequent industrial development. Also of interest is the designation of lands below what would become Coke Oven Brook as "School Lands".

A much more detailed map from 1795 (Figure 4.3)(BI, 1795) shows a number of interesting features. Near Ferry Street is an isolated building (number 20 in the key) inhabited by a single individual on what must have been a very poor piece of land. In 1849 there were significantly more inhabitants and houses in Sydney, although the town remained west of George Street, with essentially no development on the east side of the peninsula (Figure 4.4)(BI, 1849). However, a house still remained on the east side, where building # 20 was identified.



Figure 4.1  
Map of Sydney and  
Sydney River, 1788





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Figure 4.2  
Portion of Map of Sydney, 1792



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Col. Cox, C.B.  
166. 70. A. 497

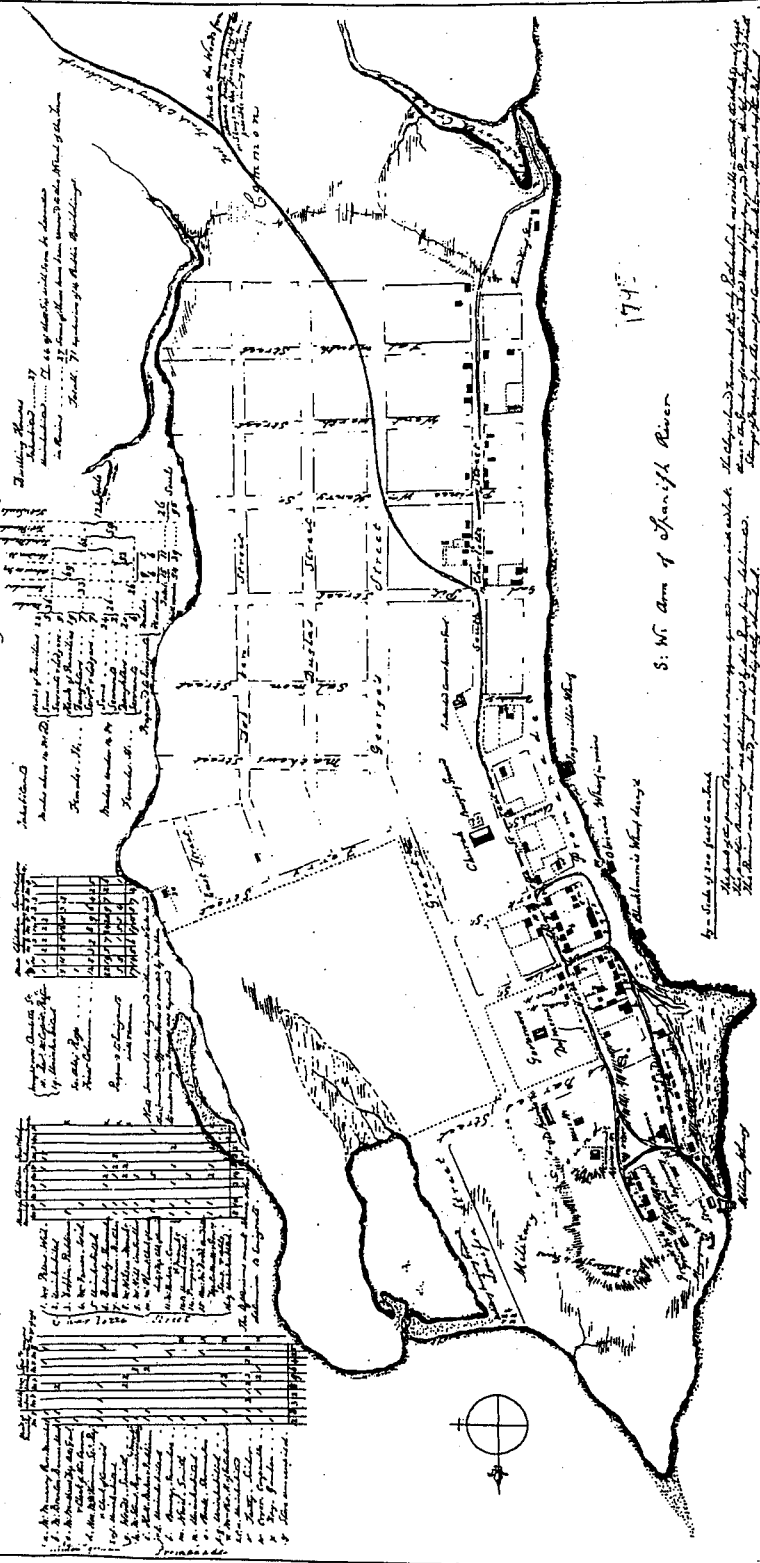
Enlarged - Map of the Town of Sydney  
In N. Collins's Atlas 1672, p. 24, 1797

Agility, presented a his Grace the Duke of Portland, the Majesty's Principal Secretary of State for the Home Department, by his Grace's most Excellent and Honourable Council. James Walker  
London, July 16, 1795

### Plan of Sydney as Capital of the State of Cape Breton

List of the principal Buildings of the Town.

Summary



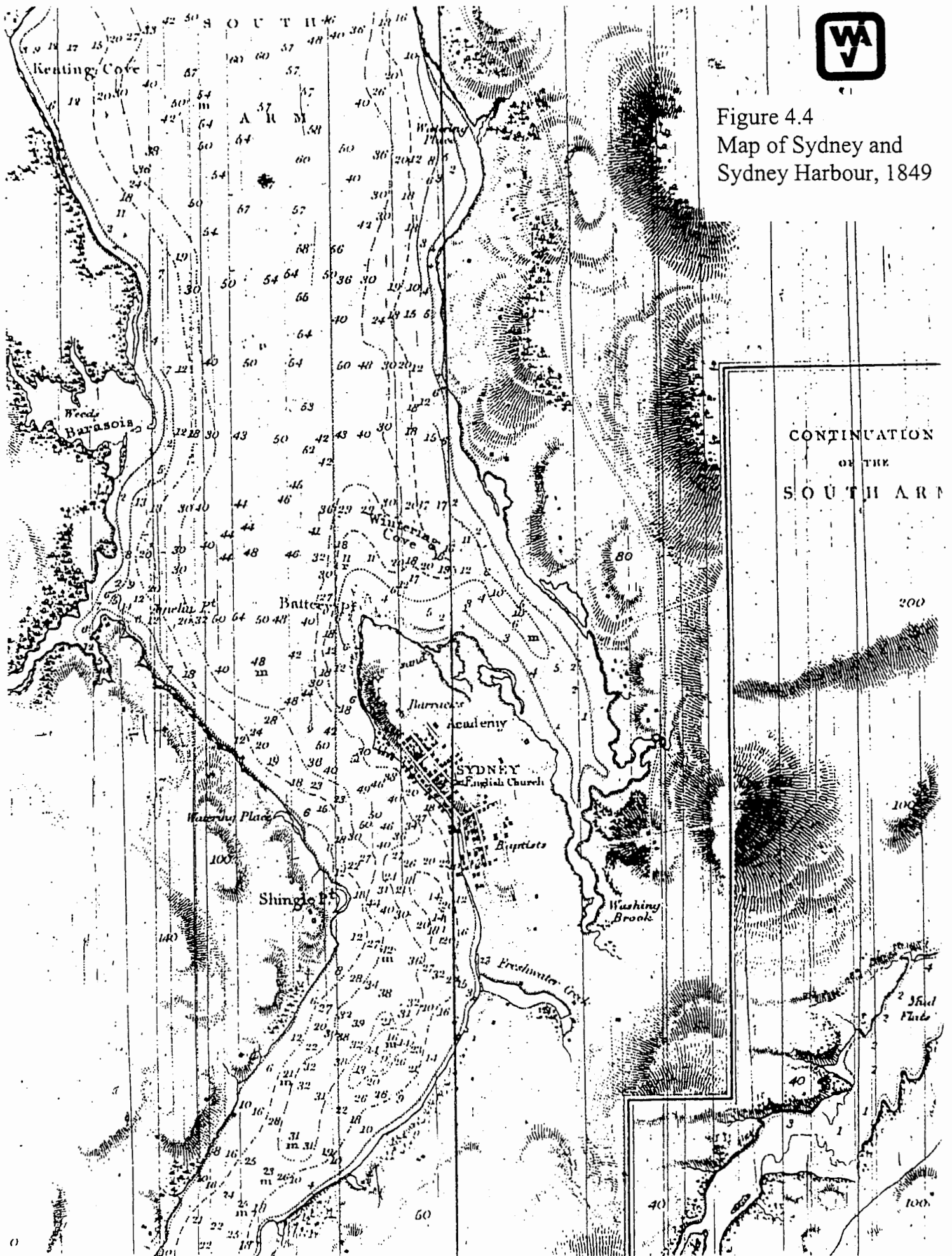
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Figure 4.3  
Map of Sydney, 1795



Figure 4.4  
Map of Sydney and  
Sydney Harbour, 1849



Fifteen years later, when Ambrose Church (PANS, 1864) published his map of Cape Breton County (Figure 4.5) and the Town of Sydney (Figure 4.6), Ferry Street is again depicted on the map, and C. Muggah is noted as having possession of the Ferry Street house. Also new to Sydney is the Marine Hospital near Sand Pond in the north end, and the Cape Breton Companies rail line which ran from Clyde Mines and Glace Bay to the coal shipping pier in Sydney (Figure 4.6). A number of homes, including one belonging to C. Muggah are identified along the Victoria Road (Figure 4.5), although only one appears to be within the study area. This house lies between Victoria Road and the east shore of Wintering Cove (Muggah Creek), and may be located close to the path of the Coke Oven Connector rail line.

It is not until the turn of the 20<sup>th</sup> century, however, that there is any significant development of the lands on the east side of Muggah Creek (Figure 4.7)(BI, 1900). This development was entirely the result of the Dominion Coal and Steel Company which had begun operations in 1900 (Heron, 1988:42). Significant filling and development of the east side of the peninsula had taken place, as well as on the east side of Muggah Creek.

A 1901 plan of the Dominion Iron and Steel Co. Ltd (BI, MG12-24) reveals both the original shoreline of the east side of Muggah Creek as well as the location of the first coke ovens and associated facilities at the site (Figure 4.8), which had begun producing coke the year before (CBCL-CRA, 1998). These facilities are shown as lying between the rail line and the north bank of Coke Ovens Brook.

In 1905 the Sydney Cement Company established a plant on the east side of Muggah Creek, on the west side of the Coke Oven Connector line (CBCL-CRA, 1998). An updated map (Figure 4.9)(BI, 1910) clearly shows the location of the cement plant, the Intercolonial Railway (I.C.R.) station along Dodd Street, and a building on the east side of the Ferry Street causeway, used as a hospital for injured steelworkers.

In 1911 Coke Oven Battery No. 2 begins operation, and Battery No. 3 comes online in 1918, much further south, and near the southern edge of the current Coke Ovens site. Coke Oven Battery No.1 is demolished in 1920 (CBCL-CRA, 1998), and in a 1927 plan of the site, just before the construction of Battery No. 4, the area of the original coke oven has been turned into a pair of brick plants and a coal storage area. This map also indicates that the existing sulphuric acid building had been built during this period. From this point forward, until initial clean-up work, the site of the original coke ovens continued to be used as a coal storage area. Also in this plan the existing Byproducts building is shown, indicating that it was built sometime between 1911 and 1927.



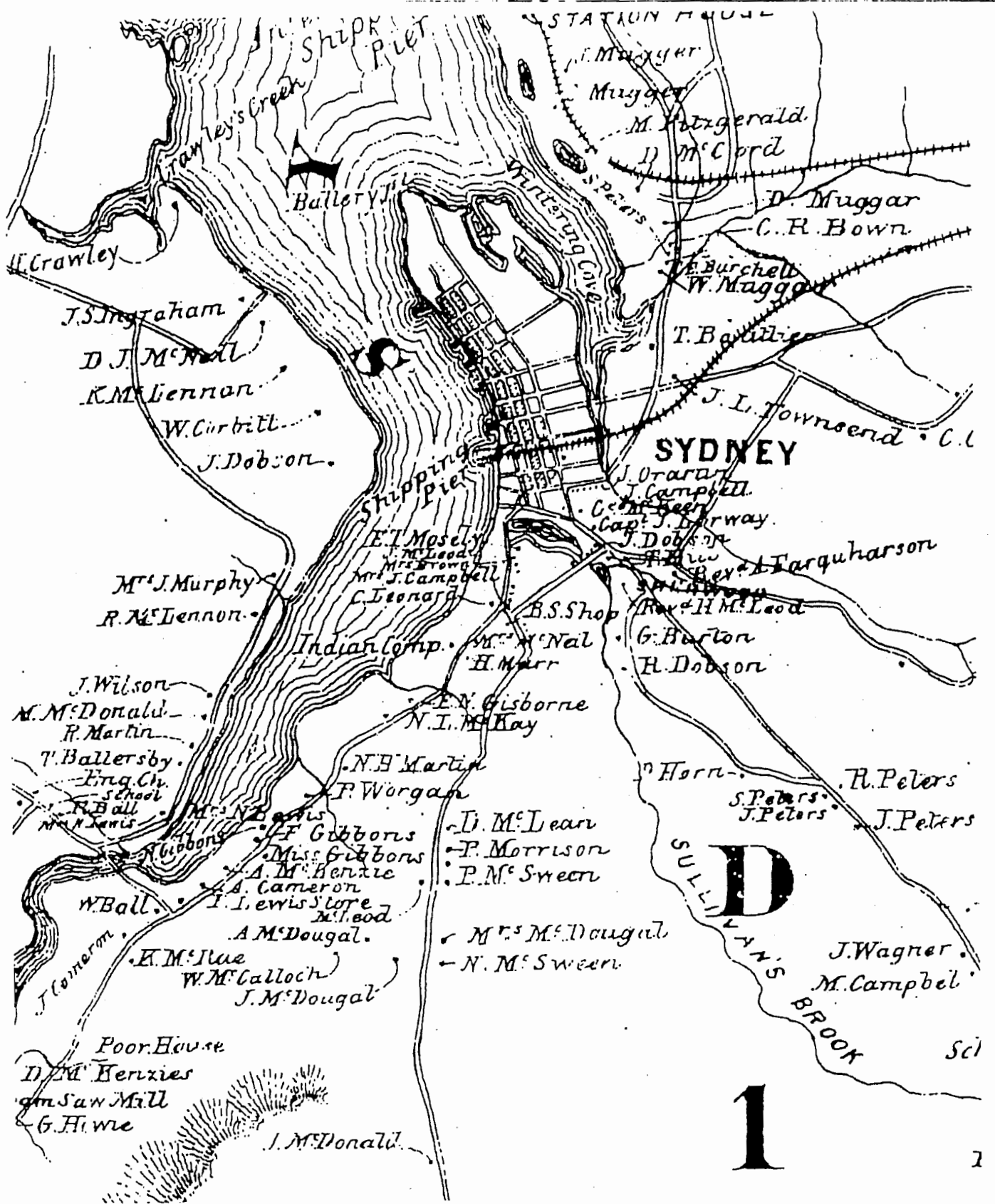
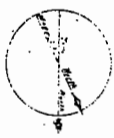


Figure 4.5  
Detail from A.F. Church Map, 1864



Figure 4.6  
Map of Sydney  
A.F. Church, 1864



Scale 8 Chains to 1 Inch.

# SYDNEY TOWN

S Y D N E Y  
H A R B O R

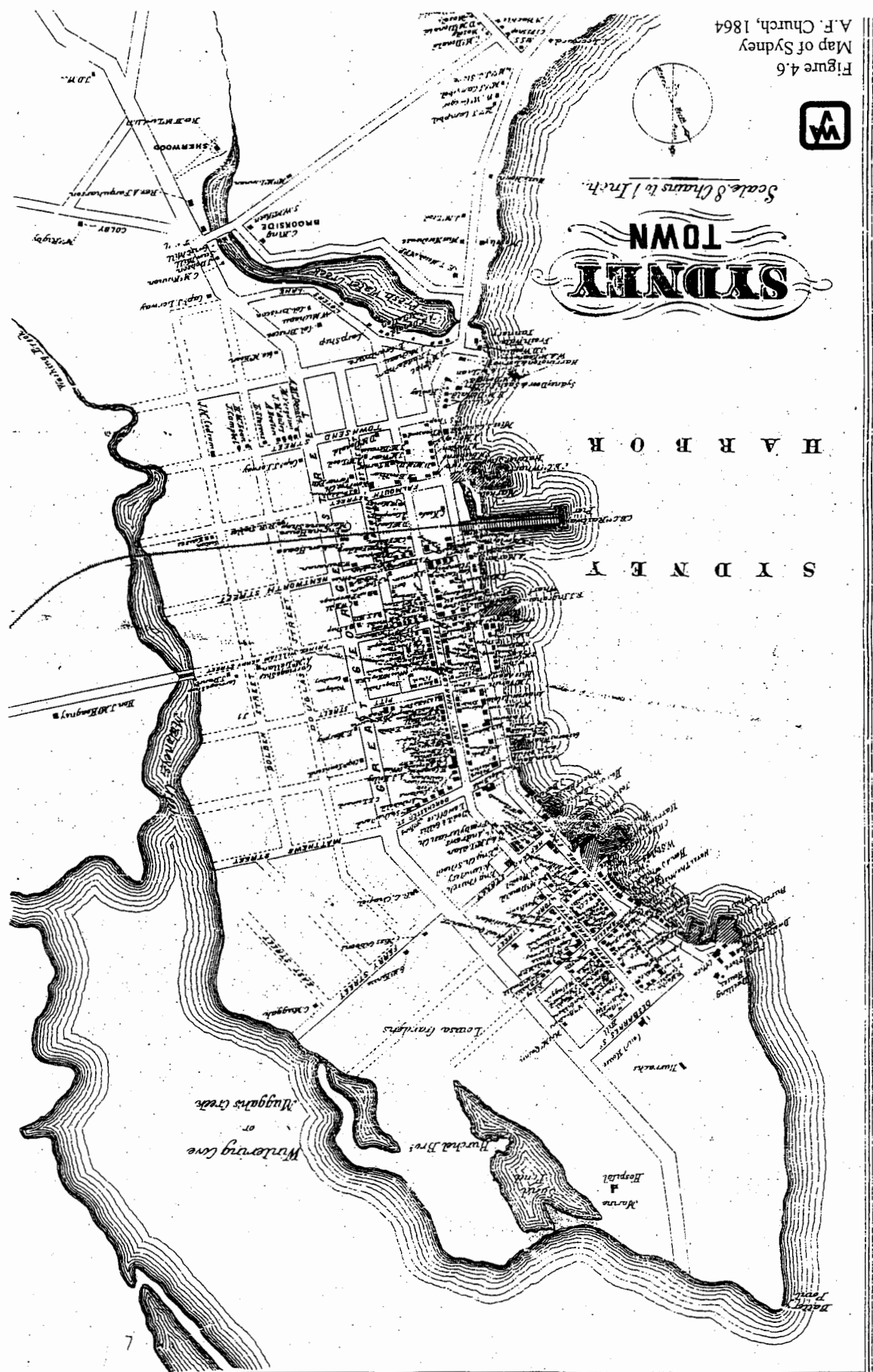






Figure 4.7  
Map of Sydney, 1900



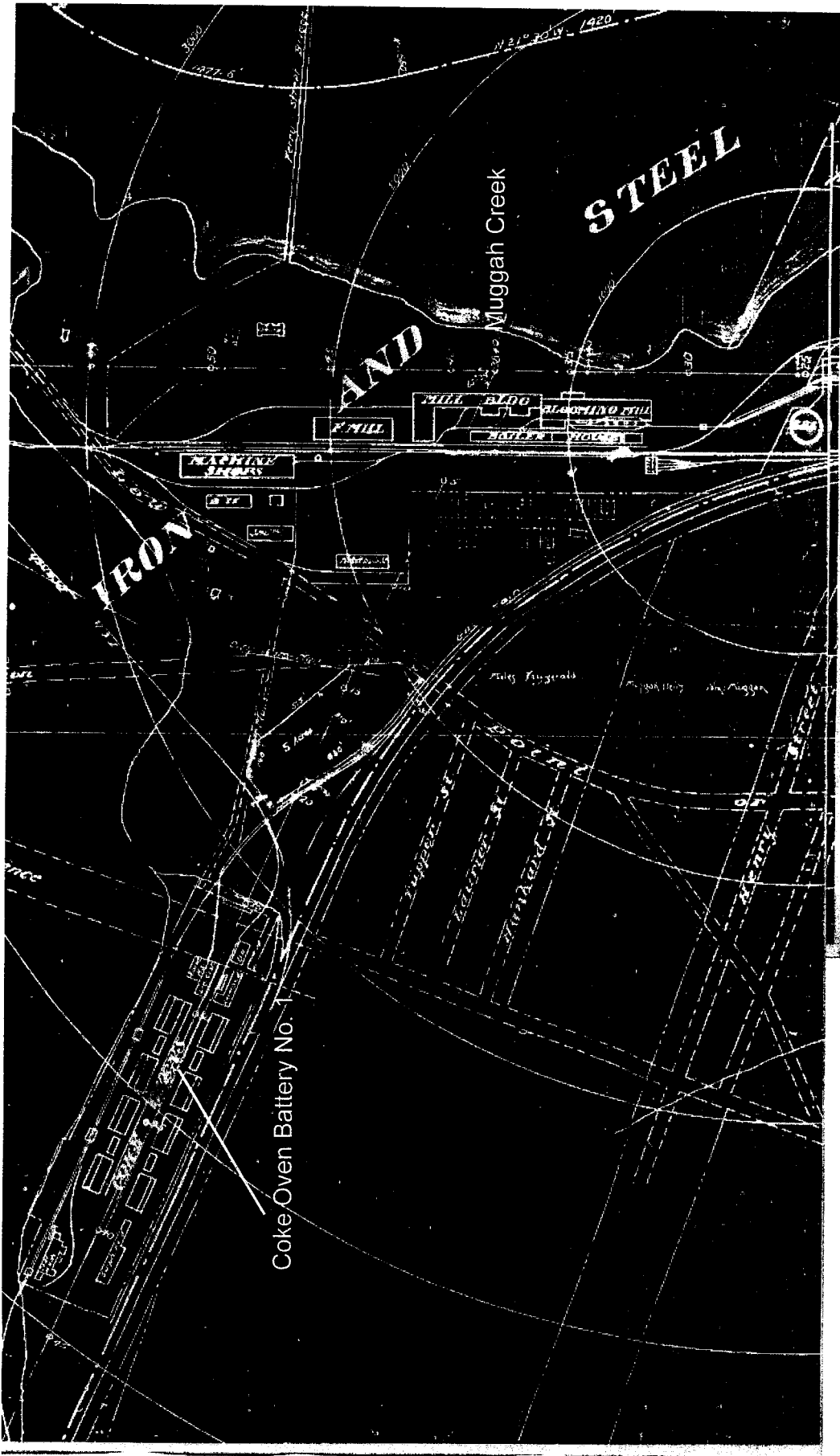


Figure 4.8 Location of Original Coke Oven, 1901



Figure 4.9  
Map of Sydney, 1910



## 4.2 Visual Reconnaissance

### *Coke Ovens Brook Connection*

Background research indicated that only two potential heritage resources might be located along the Coke Ovens Brook Connection; a house as shown on the 1864 Church map (Figure 4.5) and the Sydney Cement Company plant (Figure 4.8). The visual reconnaissance of the area of the Coke Ovens Brook Connection area showed clearly, however, that these areas have been subject to a significant amount of landscape alteration, particularly the area of the cement plant, as there is currently a car dealership and office building in that area. It is unlikely that significant archaeological or heritage remains have survived the redevelopment of the area.

### *Sydney Landfill*

The Sydney Landfill site is the highest point of land within the Muggah Creek watershed, and in its natural grade is roughly 25 m above sea level (CBCL-CRA, 1998: Figure 2-1). The west portion of the site slopes steeply (roughly 10 m drop over 200 m) down to the Coke Ovens site. While there may be some potential for prehistoric sites on the top of the hill, which would have provided an excellent vantage point, this was impossible to assess since there is up to 3 m of landfill above natural grade. Portions of the site within the study area continue to be used for landfill purposes.

### *Tar Ponds*

As indicated from the historic mapping, the bulk of the current shoreline of the Tar Ponds site along Muggah Creek is the result of infilling. This is particularly true of the section north of the steel mill, where slag fill has added up to 650 m of land to the east side of Muggah Creek, to a depth of 15 m or more. Similarly, the east side of peninsular Sydney has been subject to significant infilling. Boreholes drilled for the sewer project indicate that between Prince Street and Ferry Street the natural grade is only a few centimetres above sea level, and that from Ferry Street north to the area of the railway turnabout natural grade is actually below sea level.

Nonetheless, there are some historic structures still standing and/or visible along the shore of the Tar Ponds. There is the Old Steelworkers Hospital which still stands, although it is not currently in use, at the corner of Ferry and Inglis Streets on the Sysco side of the Tar Ponds (Plate 4.1). This building is shown on the 1910 map (Figure 4.9) as being the general office, and should be considered a heritage resource. On the peninsula side there are the remains of an old railway platform south of Ferry Street along Intercolonial Street (Plate 4.2). Finally, the former I.C.R. station was located along Dodd Street, between Pitt and Dorchester, and subsurface remains of the station may still exist.



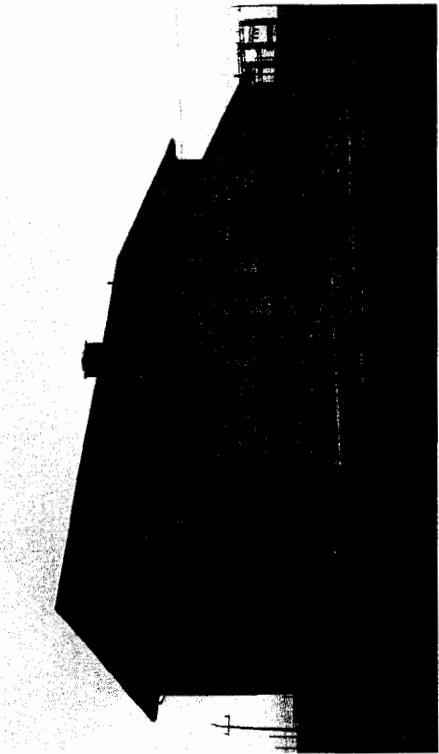


Plate 4.1 Old Steelworkers Hospital, Tar Ponds



Plate 4.2 Railroad Loading Platform, Tar Ponds

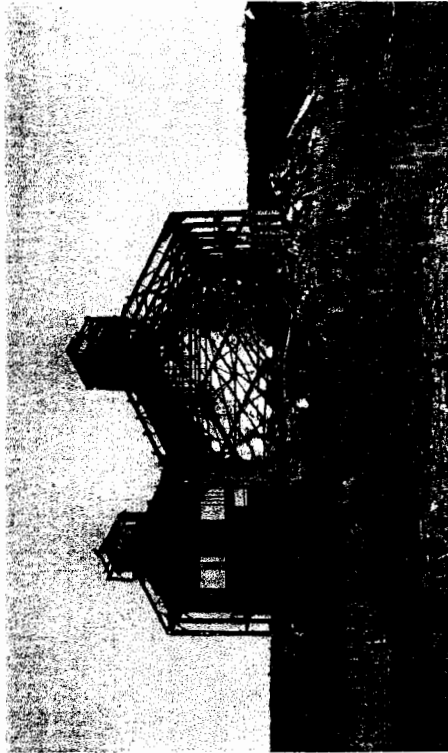


Plate 4.3 Byproducts Building, Coke Ovens Site



Plate 4.4 Coal Washing Building, Coke Ovens Site



In general, however, the Tar Ponds portion of the study area consists of extensive fill and/or heavy disturbance.

### *Coke Ovens Site*

The visual reconnaissance of the Coke Ovens site made clear that, although the site has been subject to periods of extensive redevelopment, there are in fact large sections of building foundations and some above ground standing remains from most of the coke batteries and their associated facilities. In particular, the Byproducts building, which has already been partially demolished, dates from the first twenty-five years of coke productions and should be considered to have some heritage value (Plate 4.3). Although the coal washing facilities subsequently constructed over Coke Oven Battery No.1 (Plate 4.4) do not date to the earliest period of the industrial site, there may still be some of the original remains from the coke ovens and the buildings associated with it below these structures. Moreover, the continual redevelopment of the site makes it a particularly intriguing location for reconstructing the use life of an industrial site. For the most part, however, the building remains scattered across the site date from the mid to late 20<sup>th</sup> century, and have limited heritage value, except as they relate to the history of coke, iron and steel production in the Sydney area.

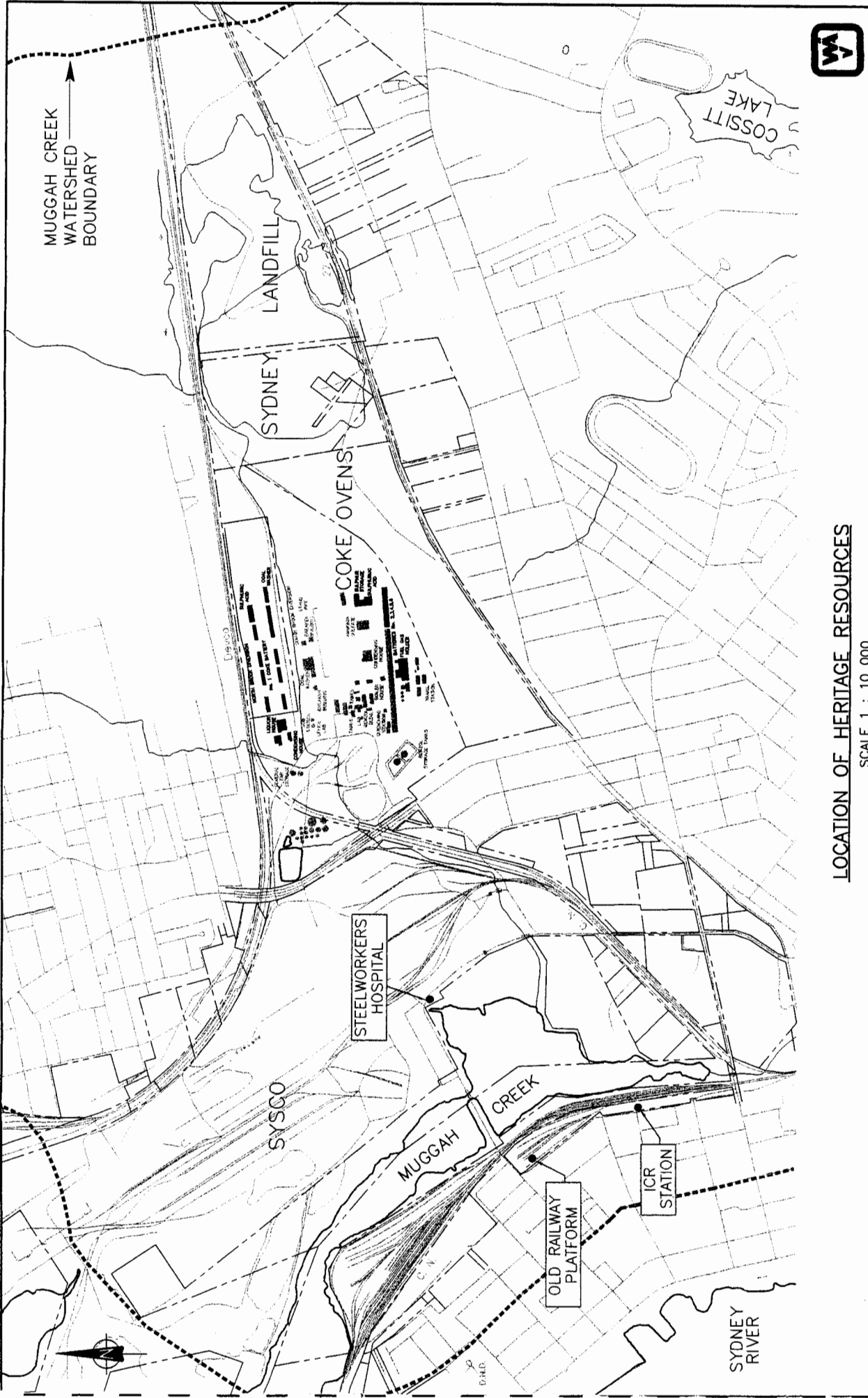
However, any value ascribed to the remains must be tempered by the fact that the site is covered by a uniform layer of fill and slag and other materials from the period of coke production. A great deal of this material is extremely toxic. Moreover, the area of Coke Oven Battery No. 1 is still covered by a large amount of coal, making determination of whether there are any original remains there impossible.

## **5.0 RESOURCE EVALUATION**

Although in general there is either little heritage potential in, or no opportunity to effectively assess the significance of, the four component areas of the study area, a few areas of potential heritage significance do exist (Figure 5.1). Likely the most significant area is the Coke Ovens Battery No. 1 facility. As well, building remains associated with the development of Battery No's 2 and 3, including the Byproducts building, would also have moderate heritage value.

The area around the Tar Ponds contains three areas of heritage potential: the old railway platform; the area of the former I.C.R. station; and, the Old Steelworker's Hospital. These resources would be rated as having moderate heritage value.





**LOCATION OF HERITAGE RESOURCES**

SCALE 1 : 10 000

FIGURE 5.1

## 6.0 IMPACT IDENTIFICATION AND RECOMMENDATIONS

It is difficult at this stage to assess the potential effects of project interaction with the identified heritage resources, simply because no final remediation program has been detailed. Again, it is likely that more than one process/option will be utilised to remediate the site. Recommendations will be made by the Joint Advisory Group to the government partners following the site investigation phase of the project.

If complete removal of toxic materials is prescribed the impact on heritage resources could be significant, depending upon which areas will be subject to material removal. If total removal of toxic materials is the recommended remediation for the Muggah Creek project a series of resource specific mitigation plans will need to be developed, depending on the amount of disturbance anticipated.

The other general option, removal of some material and capping, is the preferred option since this will in all likelihood preserve the majority of the heritage resources. Again, specific recommendations will need to be developed depending on what areas will be subject to material removal.

At a minimum, the standing built heritage at the Coke Ovens site (the Byproducts building, stacks, the remainder of the sulphur plant building, and the coal washing buildings over Coke Battery No. 1) are scheduled to be demolished. Since much of these buildings has already been torn down what remains is both unstable and dangerous and, due to the soil contamination, there is little possibility that the site could be redeveloped as a heritage tourism destination. We recommend that prior to demolition a detailed photographic record be made of the remaining structural components. Detailed mapping of the structures would not be required as the locations of each of the buildings are already recorded in detail through air photography, GIS, and historic mapping. We recommend that the photographic recording of the structures occur as soon as possible, before they deteriorate further.

Once a remediation program is developed for the Muggah Creek watershed, specific mitigation for the individual visible and below grade heritage resources can be developed. At the very least, archaeological monitoring of excavation work at heritage locations would be required to ensure that any early foundations or other heritage features are properly documented and recorded prior to their removal.





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## 7.2 Personal Communications

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