



Walka Water Works

Historical Archaeological Assessment

Maitland City Council

eco
logical
AUSTRALIA
A TETRA TECH COMPANY

Document Tracking

Project Name:	Walka Water Works
Project Number:	24NEW8045
Project Manager:	Dr Gary Marriner

Version	Prepared by	Reviewed by	Approved by	Status	Date
v1	Dr Gary Marriner	Karyn McLeod	Konrad Grinlaubs	Draft	29/11/2024
v2	Dr Gary Marriner	Karyn McLeod	Konrad Grinlaubs	Draft	30/05/2025
V3	Dr Gary Marriner	Karyn McLeod	Konrad Grinlaubs	Final	19/09/2025

This report should be cited as 'Eco Logical Australia 2025, *Walka Water Works Historical Archaeological Assessment*, Prepared for Ramboll.'

Acknowledgements

This document has been prepared by Eco Logical Australia Pty Ltd with support from Roland Chanin-Morris and Charyssa Lawrence at Ramboll, and Isaac Conway at Maitland City Council.

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and Ramboll. The scope of services was defined in consultation with Ramboll, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up-to-date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Abbreviations

Abbreviation	Description
AACo	Australian Agricultural Company
ARD	Archaeological Research Design
AT&CJ	Australia Town and County Journal
CHL	Commonwealth Heritage List
CLM Act	Crown Lands Management Act 2016
CMP	Conservation Management Plan
DCP	Development Control Plan
DP	Deposited Plan
EHR	Engineering Heritage Register
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GovGaz	Government Gazette
HAA	Historical Archaeological Assessment
HCA	Heritage Conservation Area
HDWB	Hunter District Water Board
ICOMOS	International Council on Monuments and Sites
LEP	Local Environment Plan
LRegNo	Crown Land Information Database unique identifier number
LGA	Local Government Area
MCC	Maitland City Council
MM	Maitland Mercury
MM&HRGA	Maitland Mercury and Hunter River General Advertiser
NHL	National Heritage List
NMH&MA	Newcastle Morning Herald and Miners' Advocate
RNE	Register of National Estate
SEPP	State Environmental Planning Policies
SHR	State Heritage Register
SHI	State Heritage Inventory
SSD	State Significant Development
SOHI	Statement of Heritage Impact
SydGaz	Sydney Gazette
SydHerald	Sydney Herald
SydTimes	Sydney Times

Contents

1. Introduction	1
1.1. Project Background	1
1.2. Site Location.....	1
1.3. Proposal.....	1
1.4. Methodology.....	3
1.5. Limitations.....	5
1.6. Authorship.....	5
2. Legislative Context	6
2.1. Environment Protection and Biodiversity Conservation Act 1999	6
2.1.1. National Heritage List.....	6
2.1.2. Commonwealth Heritage List	6
2.2. Heritage Act 1977	6
2.2.1. State Heritage Register	7
2.2.2. Section 170 Heritage and Conservation Register	7
2.2.3. Relics Provisions	7
2.2.4. Conservation Management Plans	8
2.3. Environmental Planning and Assessment Act 1979.....	8
2.3.1. Maitland Local Environmental Plan 2011	8
2.3.2. Maitland Development Control Plan 2011	8
2.4. Crown Lands Management Act 2016.	8
2.5. Non-Statutory Registers	9
2.5.1. Register of the National Estate.....	9
2.5.2. Engineering Heritage Register	9
2.5.3. National Trust (NSW) Register.....	9
2.6. Summary	9
3. Assessment Methodology	11
3.1. Overview	11
3.2. Assessment of Archaeological Potential.....	11
3.3. Assessment of Heritage Significance	12
3.4. Research Themes.....	13
3.5. Assessment of Impact	14
4. Historical Context	15
4.1. Pre water works.....	15
4.2. Construction and operation of Walka Water Works	17
4.3. Post Water Works and Power Station	27
5. Archaeological Context	30
5.1. Purpose	30
5.2. Archaeological Studies in the Vicinity.....	30
5.3. Heritage Studies of Similar Sites	31
5.4. Site visit	32
6. Assessment of potential and significance	55
6.1. Historical archaeological potential	55
6.2. Recognised Heritage Significance	62
6.2.1. State Heritage Register	62

6.2.2.	Register of the National Estate (non-Statutory).....	62
6.2.3.	Engineering Heritage Register (non-statutory)	63
6.3.	Significance of the archaeological resource	63
6.4.	Archaeological Statement of Significance	66
7.	Results & Recommendations	67
7.1.	Results	67
7.2.	Recommendations.....	67
8.	Bibliography	68

List of Figures

Figure 1:	The Walka Water Works Master Plan.....	2
Figure 2:	The Project Site in its environmental context	4
Figure 3:	Heritage listings in the vicinity of the Project Site	10
Figure 4:	Undated plan showing location and details of original grantees of land. Note the original size of Walka lagoon. The two grants to the north are those made to Jamison and Wilkinson	16
Figure 5	Approximate layout of the site in 1887	20
Figure 6	Approximate layout of the site in 1893	21
Figure 7	Approximate layout of the site in 1900	22
Figure 8	Approximate layout of the site in 1951	23
Figure 9	Pipework layout	24
Figure 10:	The Chief Engineer's Residence in 1883. Photo supplied by Maitland City Council	25
Figure 11:	Construction of the setting tank in 1885. Showing the construction methods and materials employed. Photo supplied by Maitland City Council.....	25
Figure 12:	The Project Site in 1938 showing the configuration at the time. Numerous features including the Sand washing plant, change sheds and Pumphouse No 9 are visible. NAA Item ID 12082050, Film MAP2392 Run 10W Frame 12138	26
Figure 13:	1947 image of the Cler Water Tank showing the internal roof supports. The roof of the Change Sheds is visible in the background. Photo supplied by MCC	27
Figure 14:	Post-1951 view of the main complex. The cooling towers have been erected over Filter Beds 2 and 4 and Pumphouse No 9 is visible in the foreground. Photo supplied by MCC	29
Figure 15:	Power Station at the commencement of demolition in January 1978. Image taken from Corkery Consulting 2009	29
Figure 16:	Main Pumphouse (A) and Western Pumphouse (F)	33
Figure 17:	Internal space in Main Pumphouse (A). Note the original columns with 1950s floors and internal divisions in conversion to offices.....	33
Figure 18:	First Floor of Main Pumphouse with original floors and bearing blocks (A)	34
Figure 19:	Rear room of Main Pumphouse (A) with 1950s concrete floor and timber partitions. The elevation in floor level is evident.....	34
Figure 20:	Eastern face of the main building showing the Main Pumphouse (A), Eastern Annexe (D) and Boiler Room (B).....	35
Figure 21:	Internal Boiler Room (B) with replace Columns and ornate brickwork over windows	35
Figure 22:	The Chimney (C).....	36
Figure 23:	Eastern face showing Boiler Room (B) and Eastern Annex (D)	37
Figure 24:	Internal space within the Eastern Annex (D)	37

Figure 25: The Workshop / Coal store (E)	38
Figure 26: Internal space within the Workshop / Coal Store showing chutes (E).....	38
Figure 27: Internal space within the Western Pumphouse (F)	39
Figure 28: Space where the Boiler Room Addition (G) was located. Note the voids in the northern wall of the Boiler Room that would have supported the roof. The embankment in the background is the location of Pumphouse Number 6 (R).....	39
Figure 29: The Settling Tank (H)	40
Figure 30: Close up of the brick work in the settling tank (H).....	40
Figure 31: Filter Bed 1 (I-1)	41
Figure 32: Filter Bed 2 (I-2)	41
Figure 33: Filter Bed 3 (I-3)	42
Figure 34: Filter Bed 4 (I-4)	42
Figure 35: Filter Bed 5 & 6 (J-5 and J-6)	43
Figure 36: Filter Bed 7 (K-7)	43
Figure 37: Clear Water Tank (L)	44
Figure 38: Reservoir Wall (M)	44
Figure 39: Outlet tower (M).....	45
Figure 40: Examples of the Pipe Access Pits (N)	45
Figure 41: Example of above ground pipe access (N)	46
Figure 42: Exposed footings of the Chief Engineer's Cottage (O-1)	46
Figure 43: Approximate location of the Workmen's Cottages (P-1).....	47
Figure 44: Footings of the Second Engineer's Cottage (Q)	47
Figure 45: Location of the Rapid Filter Bases. It appears the base has been repurposed for use as a garden (S).....	48
Figure 46: Approximate location of Pumphouse No 9 (T).....	48
Figure 47: Approximate location of Eastern Sand washing (U) plant and beyond, Change Sheds (V)	49
Figure 48: Location of Western Sand washing Plant. Note the promontory indicating a subsurface feature (U)	49
Figure 49: Approximate location of the Power Station (W).....	50
Figure 50: Location of the Power Station with kerbing visible (W)	50
Figure 51: Middle section of the Byewash (X)	51
Figure 52: Inlet of the Byewash at the Reservoir (X).....	51
Figure 53: The Northern Cleared Area (Y).....	52
Figure 54: Example of one of the railway cuttings (Z).....	52
Figure 55: Example of one of the small railway bridges with repurposed track (Z)	53
Figure 56: Area of one of the Unknown Buildings (AA).....	53
Figure 57 Inventory Map.....	54
Figure 58 Archaeological Potential.....	60
Figure 59: Current status of historical features	61

List of Tables

Table 1: Heritage listings in relation to the Project Site	9
Table 2: Archaeological potential gradings (Based on Heritage Office 1996)	12

Table 3: Criteria for assessing heritage significance in NSW	12
Table 4: Historical research themes applicable to the Project Site	14
Table 5: Details of the grantees who received land within the Project Site	16
Table 6: Key events in the construction and operation of the Project Site	18
Table 7: Heritage listed water works in NSW	31
Table 8: Integrity and potential assessment	55
Table 9: Significance of the potential archaeological resource	64

1. Introduction

1.1. Project Background

Eco Logical Australia was commissioned by Ramboll, on behalf of Maitland City Council (MCC), to prepare this Historical Archaeological Assessment (HAA) of the Walka Water Works site located in Oakhampton Heights, in the Hunter Valley, NSW. This assessment has been prepared as part of a suite of documents intended to inform upgrades to the site and provide vision for its long-term management and use.

Walka Water Works is considered to be one of the most significant and intact late 19th century public industrial works in NSW and has significance under multiple criteria at the state level, as indicated by its listing on the State Heritage Register.

The site is Crown Land, reserved for the purpose of the preservation of historical sites and buildings, and currently managed by MCC. The site is appreciated by the community as an important historical and recreational asset and to meet the needs of the community, MCC are preparing to undertake a variety of improvements to the site. This HAA is intended to provide an assessment of the historical archaeological potential and significance across the entire site to inform future development and design.

1.2. Site Location

The Walka Water Works is located on unceded Wonnarua Country in the Lower Hunter Valley. The site occupies approximately 64 hectares of land at 55 Scobies Lane, Oakhampton Heights in Maitland Local Government Area (LGA) (Figure 2). It occupies Lot 455 DP 722263 and is a Crown Reserve (LRegNo – R97511) for the purpose of the preservation of historical sites and buildings. In addition, MCC owns two small parcels of land which adjoin the Crown Reserve to the southeast that they manage as part of the Walka Water Works site. These are Lots 1 and 2 DP 1063520. These two small portions contribute a further 0.5ha of land to the site.

The site generally is a gently sloping area of slightly elevated land that slopes from all sides down towards Walka Lagoon. The only exception being the land south of the Reservoir Lining Wall which slopes steeply to the southeast away from the reservoir. The site is bounded to the north by the gardens of residences along Forest Hill Drive, to the south and east by farmland, and to the west by the North Coast Railway.

1.3. Proposal

The vision for the Walka Water Works site is:

Walka Water Works: The Heart of Healthy Maitland

A revitalised open space and community destination combining heritage, nature, and wellness. Walka Water Works celebrates its past while offering diverse recreational opportunities that strengthen community connections and enhance wellbeing for both residents and visitors.

Figure 1 shows the proposed Master Plan. This includes the following key proposals:

1. Remediation: remediate asbestos contaminated areas as a priority to allow safe reopening of the site

2. Revitalised Pumphouse Complex: with adaptive reuse for café, functions, and wellness activities
3. Pedestrian Street & Forecourt: a new gathering space at the heart of the site, connecting the Pumphouse and reservoir
4. South Lawn Recreation Area: family space with picnic facilities and water play
5. Interpretive Landscaping of Historic Filter Beds: landscape treatment revealing former water filtration functions
6. Nature-Based Adventure Play: potential low-impact adventure activities
7. Reactivated Miniature Railway: reactivation and potential extension
8. Upgraded Path and Trail Network: including all-weather surfaces, signage and seating
9. Environmental Enhancements: including riparian restoration and habitat creation
10. Open Areas: Spaces for large groups to meet, socialise, and enjoy recreational activities.
11. Main Entry: including signage and information centre
12. New Access Points: new entry points improving connectivity and emergency access
13. Morpeth to Walka Shared Pathway: connection to dedicated cycle and pedestrian path
14. Reconfigured Parking: including new offsite parking area



Figure 1: The Walka Water Works Master Plan

1.4. Methodology

This HAA has been prepared in accordance with DPE (2023), *Assessing heritage significance*, NSW Heritage Office (1996), *Archaeological Assessment Guidelines. Heritage Office*, and NSW Heritage Branch (2009) *Assessing Significance for Historical Archaeological Sites and 'Relics'*.



Figure 2: The Project Site in its environmental context

1.5. Limitations

This Historical Archaeological Assessment is prepared with reference to historical heritage (i.e., archaeological evidence of occupation and use of the landscape post-1788). A separate Aboriginal Archaeological Assessment has been prepared that speaks to Aboriginal Cultural Heritage.

1.6. Authorship

Dr Gary Marriner (Associate Heritage Consultant) prepared this report with assistance from Karyn McLeod (Principal Heritage Consultant) who has provided additional technical input. Dr Marriner and Ms McLeod are both suitably qualified heritage consultants and archaeologists and meet the NSW Heritage Council's Excavation Director criteria. Gary holds a PhD in archaeology, has 15 years' experience and has been a nominated secondary excavation director on local and State significant archaeological excavations. Karyn has over 30 years' experience and has been nominated as primary excavation director on numerous State and locally significant archaeological excavations.

2. Legislative Context

2.1. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the principal environmental legislation at a Commonwealth level. It provides for the protection and management of matters of national environmental significance as defined in the Act. Matters of national environmental significance include but are not limited to flora, fauna, ecological communities, and heritage places of national and international importance.

In addition, the EPBC Act applies to actions with a significant impact on the environment where the actions affect, or are taken on, Commonwealth land, or are carried out by a Commonwealth agency (even if that significant impact is not on one of the nine matters of 'national environmental significance').

The EPBC Act requires approval from the Australian Minister for the Environment for actions with a significant impact on places included on the National Heritage List or Commonwealth Heritage List.

2.1.1. National Heritage List

The National Heritage List was established under the EPBC Act to protect places of outstanding significance to Australia.

There are no places on the NHL within or near to the Project Site.

2.1.2. Commonwealth Heritage List

The Commonwealth Heritage List (CHL) was established under the EPBC Act to protect places owned and managed by Commonwealth agencies.

There are no places on the CHL within or near to the Project Site.

2.2. Heritage Act 1977

The NSW *Heritage Act 1977* (the Heritage Act) is the principal legislation for the management of NSW's environmental heritage. It establishes the State Heritage Register (SHR) and includes protection provisions for Interim Heritage Orders, Orders to Stop Work and managing disturbance to archaeological relics (both on land and underwater within the limits of the State). It also requires government agencies to maintain a Heritage and Conservation Register.

To assist management of NSW's environmental heritage, the Heritage Act distinguishes between assets of state and local heritage significance:

- State significance refers to significance to the state in relation to the historical, archaeological, architectural, cultural, social, natural or aesthetic value of an item
- local significance refers to significance to an area in relation to the historical, archaeological, architectural, cultural, social, natural, or aesthetic value of an item.

Items may be of State and local significance. Items of local significance may or may not be of significance to the State.

2.2.1. State Heritage Register

The State Heritage Register (SHR) is a statutory register of environmental heritage, with heritage values that have been confirmed as demonstrating importance to the whole of NSW under specific criteria. Listing a place on the register means that prior approval from the NSW Heritage Council is required for major changes to ensure its heritage significance is retained. Section 57 of the Heritage Act outlines what works require approval, and approvals are granted under Section 63 of the Act.

The Project Site is listed on the SHR as Walka Water Works (SHI #00466).

2.2.2. Section 170 Heritage and Conservation Register

Section 170 of the *Heritage Act* requires government instrumentalities to establish a Heritage and Conservation Register that identifies all assets of environmental heritage that it owns or occupies. Government agencies are required to provide the NSW Heritage Council prior notice of any intention to make the following changes to items listed on the Section 170 Heritage and Conservation Register:

- remove an asset
- transfer ownership of an asset
- cease to occupy an asset
- demolish an item.

Assets must be maintained with due diligence in accordance with the *State Agency Heritage Guide* (NSW Heritage Office, 2005). Proposals to alter, dispose or demolish assets of State heritage significance (that are listed on the SHR) must be referred to the NSW Heritage Council for comment.

Walka Water Works is not listed on any Section 170 register.

2.2.3. Relics Provisions

Historical archaeological resources or 'relics' are defined by Section 4 of the Heritage Act. as:

Any deposit, object or material evidence:

- (a) *which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) *which is of State or Local significance." It should be noted that not all remains that would be considered archaeological are relics under the NSW Heritage Act.*

Section 139 of the *Heritage Act* protects certain (historical archaeological) 'relics' from activities that would disturb or excavate land including causing them to be 'discovered, exposed, moved, damaged or destroyed'. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological evidence may be affected by the disturbance or excavation of the land. It applies to all land in New South Wales that is not included on the SHR. Relics are also protected when listed on the SHR but are subject to different regulatory requirements. A relic is an archaeological deposit, resource or feature that has heritage significance at a local or State level as per regulatory guidelines (e.g. NSW Heritage Branch, 2009).

Under Section 146 of the *Heritage Act*, a person who has discovered or believes they may have discovered a relic must cease work, notify Heritage NSW, and provide details.

2.2.4. Conservation Management Plans

Conservation Management Plans (CMPs) are prepared to provide guidance on best practice care for heritage places. A new CMP for Walka Water Works is currently being prepared. Previously the Management of the site was controlled by:

- *The Conservation Plan for Walka Water Works* (Tresev 1986).
- *The Walka Water Works Draft Concept & Management Plan* (Suters Busted Corner Clode 1987).

2.3. Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) provide the statutory basis for planning and environmental assessment in NSW. The EP&A Act provides the framework for environmental planning and development approvals. The EP&A Act includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision-making process.

The EP&A Act contains two parts that impose requirements for planning approval. These are generally as follows:

- Part 4 provides for the control and assessment of ‘development’ that requires development consent. This includes local, regional and State significant development (SSD).
- Part 5 provides for control and assessment of ‘activities’ that do not require development consent (Division 5.1) and declared State significant infrastructure (Division 5.2).

The need or otherwise for development control and the relevant approval authority is set out in environmental planning instruments – consisting of local environmental plans (LEPs) and State environmental planning policies (SEPPs).

2.3.1. Maitland Local Environmental Plan 2011

The Project Site is in an area administered by the Maitland Local Environmental Plan (LEP) 2011. The Maitland LEP 2011 sets out various planning, development, and environmental controls for the Maitland LGA. Schedule 5 of the LEP identifies heritage items important to the LGA.

Walka Water Works is listed under Schedule 5 of the LEP (Maitland LEP Item No. I222).

2.3.2. Maitland Development Control Plan 2011

The Maitland Development Control Plan (DCP) 2011 works with the LEP and provides detailed planning and design guidance. The Maitland DCP provides guidance for five Heritage Conservation Areas (HCA) within the LGA.

The Project Site is not within any HCA.

2.4. Crown Lands Management Act 2016.

The *Crown Lands Management Act 2016* (CLM Act) drew together the *Crown Lands Act 1989* and various other separate pieces of legislation. Under Section 1.3 of the CLM Act environmental, social, cultural heritage and economic considerations are to be taken into account when making decisions about Crown Land.

2.5. Non-Statutory Registers

Non-Statutory listings exist in the most part to reflect specific interest areas and are created by organisations that represent professionals in those fields. Whilst they have no legal standing, they often provide a great deal of specialist information and critically, are a key indicator of Criterion (d) of the heritage significance as they are clear evidence of very strong community association.

2.5.1. Register of the National Estate

Walka Waterworks and Pumping Station, Willards Lane, Oakhampton Heights, NSW, Australia (Place ID #1250) was registered on the Register of the National Estate (RNE) in 1978. Key to the listing was it being one of the biggest public industrial undertakings in the valley. The architectural significance of the buildings, and the completeness of the complex, including pipes, beds, tanks, and engines, were also noted.

The RNE listing emphasises that the heritage significance of the place comes in a large part from its completeness and industrial architecture.

2.5.2. Engineering Heritage Register

The Engineering Heritage Register (EHR) is maintained by Engineers Australia through the Engineering Heritage Recognition Program. The site was original registered as ‘*Walka Water Supply Scheme*’ in December 2015 and updated the following year to ‘*Newcastle's First Water System - the Walka Scheme, 1886*’ (EHR 196). It is marked with an Engineering Heritage National Marker meaning it is considered to be of national significance.

2.5.3. National Trust (NSW) Register

The National Trust (NSW) maintains a register of places considered to be culturally significant and that are worth of conservation. The registered was opened in 1946 and has over 13,000 items listed. These included significant landscapes, buildings, townscapes, cemeteries.

The ‘*Walka Waterworks and Pumping Station*’ was classified by the National Trust (NSW) on 31 May 1976. The ‘reasons for listings’ provided on the National Trust (NSW) register are identical to the statement of significance on the RNE.

2.6. Summary

The heritage listings in relation to the Project Site are summarised in Table 1 and shown in Figure 3. This is limited to heritage items within 50 metres of the Project Site boundary.

Table 1: Heritage listings in relation to the Project Site

Name	Register	ID	Significance	Location
Walka Water Works	SHR	00466	State	The Project Site
Walka Water Works	Maitland LEP 2011	I222	State	The Project Site
Walka Waterworks and Pumping Station	RNE	1250	State	The Project Site
Newcastle's First Water System - the Walka Scheme, 1886	EHR	196	National	Includes the Project Site
Walka Waterworks and Pumping Station	National Trust (NSW)	NTN.05/77	State	The Project Site

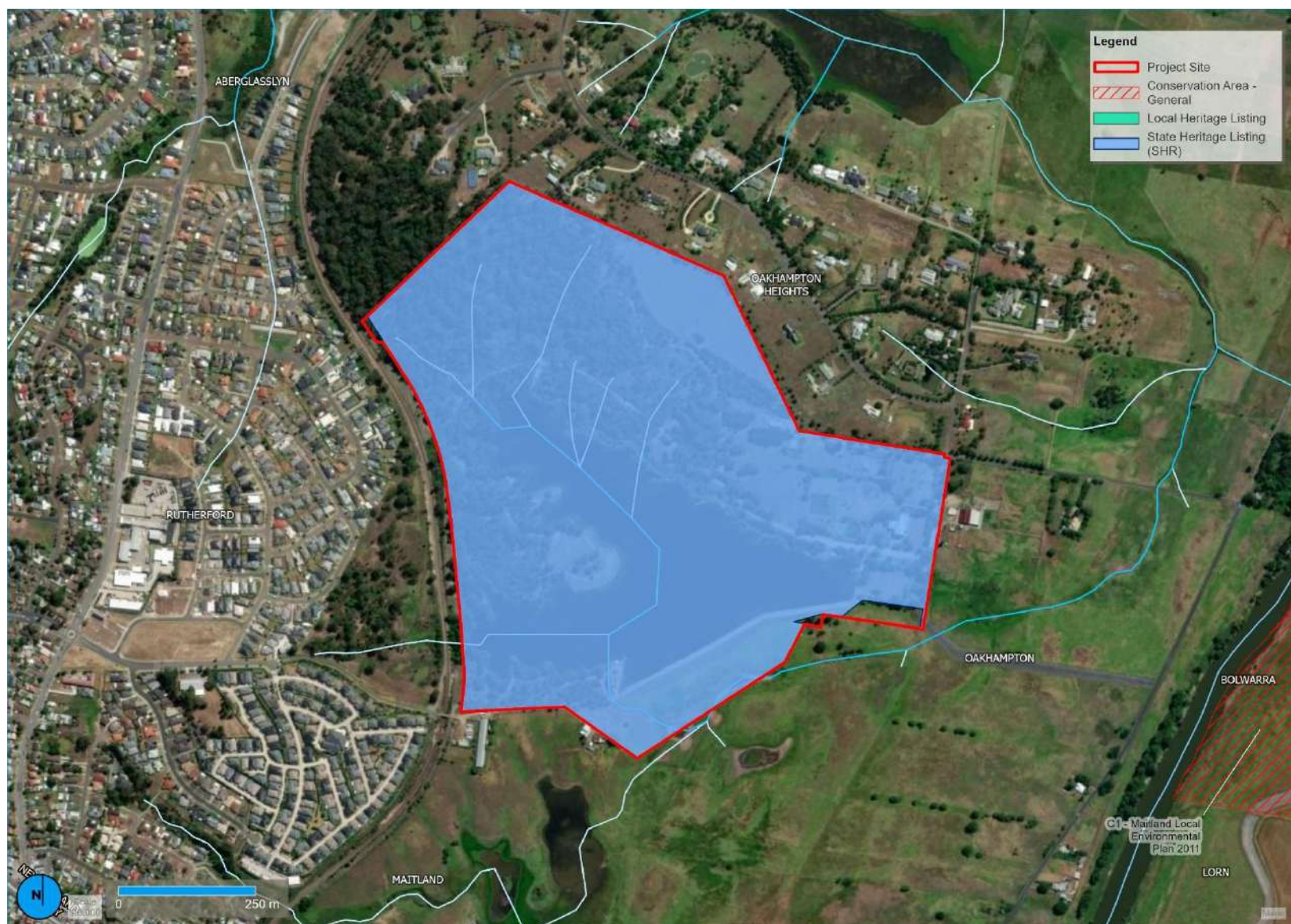


Figure 3: Heritage listings in the vicinity of the Project Site

3. Assessment Methodology

3.1. Overview

The management of heritage sites in NSW should conform to best practice conservation approaches as well as guidelines including

- *Australia ICOMOS Burra Charter, 2013*, Australia ICOMOS 2013
- *Archaeological Assessment Guidelines*, NSW Heritage Office, Department of Urban Affairs & Planning, 1996.
- *Assessing Significance for Archaeological Sites and 'Relics'*, Heritage Branch, Department of Planning, 2009.
- *Assessing Heritage significance*, Department of Planning and Environment 2023
- *NSW Heritage Manual*, NSW Heritage Office, Department of Urban Affairs & Planning, 1996.
- *Historical Archaeological Investigations: A Code of Practice*, NSW Department of Planning, 2006.

This archaeological assessment has been prepared in accordance with the above.

3.2. Assessment of Archaeological Potential

Archaeological potential is an assessment of how likely it is for evidence of past activity to have survived into the present day, considering the whole life history of a site including recent impacts. It is not an appraisal of the significance of any potential evidence, although it does have implications for significance. The assessment of potential for the project was informed by reviewing historical land use (Section 4) and an investigation of sites in the vicinity of the Project Site (Section 5). Several assumptions and principles were used to assess historical archaeological potential.

Two key questions inform all assessments of archaeological potential:

- has the area been used in the past in such a way that will have left a recognisable archaeological resource?
- have subsequent activities on the site removed any or all traces of these past activities?

This assessment assumes that structural evidence such as pipes, postholes, wall footings, pads, wells, cisterns, and cesspits etc. that can be identified on historic plans and in historic images, are likely to survive in the ground if no later activity has impacted upon them.

The interrogation of this assumption primarily relies on examining the history of the site as a guide to how it has been used over time. It also assumes that later phases of landscape use are likely to have impacted on previous evidence including the possibility of total removal. This includes, but is not limited to, the erection of buildings that have foundations and their subsequent demolition, landscaping and gardening, the construction of roads, rails, and other transport routes, and trenching for utilities. When available, the blueprints of existing or previously constructed buildings can be consulted. Where possible, the present-day site can also be visited to provide further information not recorded in more formal documents. Following consideration of the available evidence outlined above, the archaeological potential of all areas of the Project Site has been graded on a scale from nil to high as shown in Table 2.

Table 2: Archaeological potential gradings (Based on Heritage Office 1996)

Grade of potential	Events that determine grading
Nil	Past activity left no discernible impact on the landscape and caused practically no material culture to be deposited. Later activity has removed wholesale any indication of previous use of the site. There is no indication in historical accounts of activity at the site.
Low	Past activity left only minor impacts to the landscape and only minimal amounts of material culture to be deposited. Later activity has caused widespread damage to the archaeological resource. Historical accounts indicate activity in the general area but are unclear or imprecise
Medium	Past activity left a moderate impact on the landscape and caused some material culture to be deposited. Later activity has impacted the landscape but in isolated areas or to depths that have only removed some of the resource. Historical accounts provide some precision and clarity on the activity undertaken at the site.
High	Past activity left a large impact on the landscape and caused plentiful amounts of material culture to be deposited. Later activity has had virtually no impact on the resource. There are clear and precise historical accounts of where activity occurred within the site.

3.3. Assessment of Heritage Significance

Once the potential for archaeological evidence to be present has been established, it is necessary to assess whether that evidence has any cultural significance as only evidence with significance is protected. This assessment of significance has been guided by the principles of The Burra Charter and legislation in the Heritage Act. It is supported by relevant guidelines produced by the Heritage Council of NSW/Heritage NSW including, but not limited to, *Archaeological Assessment Guidelines* (Heritage Office, 1996), *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch, 2009) and *Assessing heritage significance* (DPE, 2023).

The Burra Charter, defines cultural significance as meaning:

Aesthetic, historic, scientific, and social value for past, present and future generations.

Section 4 of the Heritage Act defines two levels of significance: local and State, noting that an item of State significance can also be of local significance however an item that is primarily of local significance may not necessarily be of State significance. In the Act heritage significance means significance to either the State or area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of a place, building, work, relic, moveable object or precinct.

Heritage NSW has defined a series of specific criteria for the assessment of heritage which have been used here and shown in Table 3.

Table 3: Criteria for assessing heritage significance in NSW

Criterion	Definition
(a) Historic significance	an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area)
(b) Historical Association	<i>an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the local area)</i>
(c) Aesthetic/creative/technical achievement	<i>an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)</i>

Criterion	Definition
(d) social, cultural, and spiritual	<i>an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area)</i>
(e) Research potential	<i>an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the local area)</i>
(f) Rare	<i>an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area)</i>
(g) Representative	<i>an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (or the local area).</i>

The significance of an archaeological resource is tied directly to events that have occurred on a site in the past. This means that various human activities can occur in the same vicinity at the different periods in time and leave behind archaeology of varying levels of significance. A key consideration of significance is research potential (Criterion (e)) which is the most relevant criterion for assessing archaeological sites. Included within assessment of this criterion is the question of whether the study of the material recovered would contribute to answering research questions (Heritage Office, 1996). This report assessed the significance of individual phases of activity within each suburb individually to allow for both State and locally significant archaeological resources to be present in the same location.

In addition to the clearly established criteria outlined above, other factors including intactness, site history and potential have been considered when assessing significance to ensure a broader approach to archaeological significance (Heritage Branch, 2009, DPE 2023). This includes an acknowledgement that the significance of an archaeological resource can change prior to, during, and following excavation based on these attributes.

3.4. Research Themes

It is critical that any archaeological excavation takes place within a comprehensive and well considered research framework to maximise the potential for new information any relics encountered can provide. One of the criteria used to assess a site's significance, criteria (e), refers to an item's potential to yield information that will contribute to cultural or natural history of a place which is further refined as an item's archaeological research potential. The kinds of places or objects that this includes are identified in DPE 2023 as those that

- have the potential to yield new or further substantial information (such as scientific, archaeological, architectural)
- are an important benchmark or reference site, place or type
- contribute evidence to our understanding of past natural and cultural patterns, development or activity that is unavailable elsewhere.

One of the most successful ways to examine research potential is through a framework of themes that can be widely applied. This facilitates intra and inter-site comparisons and ensures that the most important aspects of heritage significance are not overlooked. The in-depth application of research themes to the potential archaeological resource is outside the scope of this report and would be prepared should an Archaeological Research Design become necessary. Historical themes published by the Heritage Council of NSW in 2001, and based on the Australian Heritage Commission Framework, often guide research in this area and when considering the significance of any potential archaeological resource it is worth bearing the appropriate themes in mind. The key themes identified for the Project Site are shown in Table 4. Not all of these themes are applicable to the entire site.

Table 4: Historical research themes applicable to the Project Site

Australian Theme	NSW Theme
Developing local, regional and national economies	Health
	Industry
	Pastoralism
	Science
	Technology
Building settlements, towns and cities	Towns, suburbs and villages
	Utilities
Working	Labour
Governing	Government and administration
Developing Australia's cultural life	Domestic
	Leisure

3.5. Assessment of Impact

This HAA is being prepared to support general master planning of the Walka Water Works site and as such no specific impacts have been identified. Once established, the impacts will be managed through a Statement of Heritage Impact that will be prepared in accordance with *Guidelines for preparing a statement of heritage impact* (DPE, 2023).

4. Historical Context

The following historical context is drawn from the forthcoming Conservation Management Plan (ELA 2024).

4.1. Pre water works

The first British expedition up the Hunter River took place in June 1791. After initially exploring the harbour and its numerous islands, William Paterson, James Grant and Aboriginal man Bungaree explored 30 miles inland along the river's course. Grant described the place as one of abundance with coal, fish, ores and a vast array of timber. Members of the party travelled upstream on 28th June noting that they

...found the country on both sides for the most part level and swampy near the river, but with distant views which were delightfully pleasant. The river made a very serpentine course, and for many miles up appeared to be as broad as the Thames at Kingston. (Grant 1803, p.160).

Timber getting, being a key resource accessible to the new settlement, occurred in many areas of the Lower Hunter, especially those where boats could be easily moored. This led to small shelter sites being established at Maitland and Morpeth potentially as early as 1810 (City of Maitland, 1965).

Governor Macquarie first visited the Lower Hunter in January 1812. Macquarie again visited the area in 1818, first checking on farmers along the Paterson River and then continuing on upstream. His party reached the area around Maitland on the 31 of July, and in honour of then Newcastle Commandant Wallis, Macquarie duly dubbed the area Wallis Plains stating that he:

...examined the Land of both sides of this River which appeared to be of excellent quality both for cultivation & grazing (Macquarie, 1818).

Having been impressed with the success of the farms on the Paterson River, Macquarie further permitted the first settlement of Wallis Plains in 1818 leaving Wallis himself to work out the details (Keys 2023).

From 1822 to 1827 Henry Dangar travelled extensively across Newcastle and the Hunter Valley surveying much of the land for the first time. This included the first plan of Wallis Plains in 1822 and marking out the first road from Newcastle to Wallis Plains in 1824 (Gray 1966). In 1823 he produced the first substantial description of the settlement at Wallis Plains. At this time there were 22 farms between 11 and 60 acres, most houses were wattle and daub with only four having been built from weatherboard, and one farm having a 'log hut'. All farms had huts and barns, almost all had pigs, but only around half kept cattle. Most had gardens to grow vegetables and peach orchards (Dangar 1823 in Gray 1966).

The first land grants within the Project Site were given in the 1830s (Figure 4). The Project Site was occupied by four landholders discussed in Table 5. Of these grants, most of the Project Site is in that given to Houston Mitchell. Mitchell acknowledged that the land was used by Aboriginal people prior to his arrival and used their language to name his new estate, writing in his diary:

The Aboriginal name for the hilly part of my grant is Walka and the lake is called Potay. This information I distinctly received from about 50 natives who were seated at their respective fires on the prettiest part of Walka. (Mitchell 1831).



Figure 4: Undated plan showing location and details of original grantees of land. Note the original size of Walka lagoon. The two grants to the north are those made to Jamison and Wilkinson

Table 5: Details of the grantees who received land within the Project Site

Grantee	Size	Name	Date granted
Walter B. Wilkinson	1000 acres	Oakhampton	13 June 1832
Wilkinson arrived per the <i>Thalia</i> in 1821 and by July 1822 he had secured permission to proceed to Newcastle. Originally from Devon, he provided Oakhampton with its name (Berthold 1978). He was active through the 1830s including giving money for a church (SydGaz 11Nov1834 p.1) and being a committee member of the Patrick Plains Turf Club (SydGaz 09Apr1836 p.3). In financial difficulties during the depression of the 1840s (NSW GovGaz 07Mar1845 p.262) which lists him as being out of the colony. By 1879 he was in ill health and was remanded for 'Lunacy' in 1879 (MMHGA 04Oct1879 p.16) being committed to the Lunatic Reception House at Darlinghurst (MMHGA 11Oct1879 p.3)			
Houston Mitchell	416 acres	Walka	27 November 1833
Arrived per the <i>North Briton</i> in 1829 (SydGaz 13Oct1829 p.3). He was the brother of Sir Thomas Mitchell. Appointed magistrate of the colony on 24th December 1832 (NSW GovGaz 26Dec1832 p.481) by which time the name Walka had been associated with his holdings. The land being granted to him the following year (NSWGaz Gov 27Nov1833 p.493). He played a role in petitioning for the new church in 185 (SydTimes 02Jan1835 p.3) going as far as to offering an acre of land for a cemetery. By 1842, it was unclear whether Mitchell was alive and a court case he was involved in was ongoing (SydHerald 11Feb1842 p.2). A notice was placed in the NSW Government Gazette in July 1843 stating that he was not a shareholder of the Alliance Assurance Company (NSW GovGaz 14Jul1843 p.905), and another in July 1844 stating he had sold his shares in the Union Bank of Australia (NSW GovGaz 05Jul1844).			
William Purnell	50 acres	Botanic Garden	25 April 1836
Arrived as a convict per the <i>Larkins</i> in 1817 having been convicted of larceny (SydGaz 22Nov1817). He received his ticket of leave in 1824 (SydGaz 04Mar1824 p.1). At this time he was working for Jonathan Hassall in Parramatta. He petitioned for a land grant in 1824 desiring permanency in the colony and was eventually granted land in 1825. He was convicted for receiving stolen goods in 1826 having in his possession numerous tools that belong to Hassall. It is suggested that he never occupied his grant in Maitland and spent his life in and around Sydney (Eureka 2024). He died in 1871 in Lane Cove (NSW GovGaz 12Dec1871 p.2818)			

Grantee	Size	Name	Date granted
John Jamison	300 acres	n/a	06 December 1832
John Jamison was the son of the First Fleet Surgeon's Mate Thomas Jamison. He was born in Carrickfergus, Ireland and served in the navy in his youth. Thanks to his role in curbing scurvy in the Swedish Navy, he was knighted by the King of Sweden, Charles XIII in 1809 and appointed a knight bachelor in the UK in 1813. He inherited property in NSW, largely around Penrith, following the death of Thomas in 1811 and arrived in Sydney per the <i>Broxbornebury</i> in 1814 to take possession. After initially finding favour with the colonial authorities he became a <i>persona ingrata</i> in 1822 after he made unsubstantiated allegations of immorality amongst convicts at Emu Plains. He was eventually restored to favour in 1831 eventually joining the legislative council where he remained a member until 1843. He was active in the public sphere as an eminent settler including being the first president of the Australian Patriotic Association in 1835. He amassed massive land holdings throughout his life including 11,000 at Bathurst and 18,000 at Capertee (Walsh 1967)			

From the 1830s to the 1870s Maitland first grew and flourished as a key town on the Hunter River, surpassing Newcastle in importance for a period. A combination of factors in the 1850s led to Newcastle regaining its role as the key city in the area. First, the demand for coal from Sydney and Melbourne resulting from the goldrush led to massive increases in production. Alongside this demand the Australian Agricultural Company (AACo) monopoly on production was challenged in the 1840s ultimately leading to the surrendering of its position in 1847. This led to a flourishing of new companies increasing production (Docherty 1983). From 1853 the AACo were also permitted to be subdivided and sold allowing the growth of the city west of the original boundary. The arrival of railways into Newcastle, that allowed coal to be transported quickly and reliably from the mines to the port from 1856, also contributed to the expansion of the settlement (Turner 1986). This growth across both cities saw the population increase substantially and with it demands for water for both consumption and used in industry and agriculture.

Little growth was seen within the Walka site, however. Part of the area which was original granted to Purnell and known as 'the Gardens' was settled by Michael Scobie in the 1840s when only a thatched hut had been built there and around 10 acres of land cleared. The cleared land was reported to have been planted with maize with the area of the water works being still wooded (Maitland Weekly Mercury 28Mar1903 p.14). The long-term consequences of multiple flood events seem to have hampered any substantial development of the area including in 1857 (MM&HRGA 07Apr1857 p.2) and 1864 (Freeman's Journal 20Feb1864 p.2), 1866 (MM&HRGA 14Jul1866 p.4), and 1870 (Empire 25Mar1870 p.2). Despite this, there was an attempt in the mid-1850s to establish a brickworks at the site (Empire 19Jul1854 p.1), and by the 1870s the fruit grown on the site was considered prized (AT&CJ 26Feb1870 p.13).

Mitchell's Walka Estate itself was placed for sale in January 1835 (SydHerald 26Jan1835 p.4) at which time it was described as being all fenced-in and divided into three paddocks. It appears not to have sold however, with Mitchell still being named as being 'of Walka' in 1837 (NSW GovGaz 05Jul1837 p.478). Indeed in 1838, Mitchell advertised the land instead for lease at which time it was divided into two paddocks (SydHerald 02Spr1838 p.3). Mitchell appears to have managed to sell the land soon after as in June 1840 it is placed up for sale by John Eales (The Colonist 20May1840 p.3). In 1850 60 acres of land 'known as Walka' is placed up for sale (MM&HRGA 23Nov1850 p.2). At this time it had been subdivided into seven lots and described as 'good grass land' (MM&HRGA 14Dec1850 p.3). John Eales maintained hold of the land however until 1881 when it is resumed by the State Government for the Water Works.

4.2. Construction and operation of Walka Water Works

The need for a regular supply of water to Maitland, Newcastle and the Hunter Valley has been discussed at length (e.g. ELA 2024, Jones 1967 etc.). William Clark, an experienced civil engineer who

worked extensively across the British Empire including projects in Calcutta (Kolkata) and Madras (Chennai), was ultimately selected to design the plan to construct a water works in the Hunter. His work in Calcutta in particular was highly successful where, despite high costs, he was able to vastly improve both water supply and sewerage (Armstrong 1967). Clark was ideally situation for the task being already in the colony having recently completed investigations into a new water supply for Sydney (Jordon 2015). His report, published in November 1877 details his justification for selecting the Walka site. He establishes in great detail the estimated required capabilities of the proposed works calculating the just over one million gallons a day would be required. He stated that there is sufficient supply from the Hunter even in dry times and that the water at the intake at Bolwarra is sufficiently free of salinity. In more general terms, amidst a highly technical report, Clark made clear and direct note of the extensive health benefits of clean water in reducing mortality rates (Armstrong 1967).

Construction of the various components of the water works took place over the 1880s with at least 14 separate contracts being issued for various components (Malnic 1984). Table 6 demonstrates the dates and key events that cover the construction and operational changes that occurred during the working life of the Water Works. The overall construction was managed by the Harbours and Rivers Branch of the NSW Department of Public Works and tenders were regularly placed in the NSW Government Gazette.

Table 6: Key events in the construction and operation of the Project Site

Date	Event
June 1881	79 ha of land resumed 'for the Waterworks, Walka Lagoon and its catchment'
March to September 1882	Tenders sought for the construction of the Chief Engineers Residence (Figure 10)
April to June 1882	Tenders sought for the supply of cast iron pipes and castings
June 1882	Tenders sought for supply and delivery of pumping engines, boiler and pumps
December 1882	Tenders sought for construction of the storage reservoir, filter beds and water tanks
April 1883	Reported that tenders have been accepted by the government but that no work has been started (NMH&MA 30Apr1883 p.3)
May 1883	George Blunt, contractor, began construction of the filter beds and reservoir (Singleton Argus 19Mar1884 p.1) (Figure 11) Many workmen brought their families and lived on sites in tents
March 1884	Singleton Argus reports that work has been ongoing on the reservoir embankment and filter beds (Singleton Argus 19Mar1884 p.1)
June 1884	Tenders sought for carting, delivering, laying and joining the pipes
August 1884	Works reported to be going well (MM&HRGA 12Aug1884 p.6) The Chief Engineers residence was completed by this time and Henry Deane Walsh, the Irish engineer oversaw the construction of the works, was living on the site (Lloyd & Troy 1990)
May 1885	Tender sought for the construction of the Main Pumphouse, and chimney
February 1886	Tender sought for construction of five caretakers' cottages – unclear if these were ever built
January 1887	The Water Works opens (NMH&MA 07Jan1884 p.5) (Figure 5)
June 1890	Tender sought for the construction of four workmen's cottages built to the north of the Pumphouse
1892	Hunter District Water Supply and Sewerage Board constituted and assumed control of the site Eastern Office annex constructed (Figure 6)
1896-1897	Second intake pipe constructed (Figure 7)
1907-1908	Construction of two additional filter beds (Beds 5 and 6)
1912-1913	Construction of Filter bed 7 in addition to a range of other upgrades including the Western Pumphouse and Pumphouse No 6
1916	Installation of the rapid water filters, sand washing plant, and potentially Pumphouse No 9 (Figure 12)

Date	Event
Pre-1920s	Construction of numerous other features including change sheds (Figure 13)
1925	Walka Water Works placed in standby mode

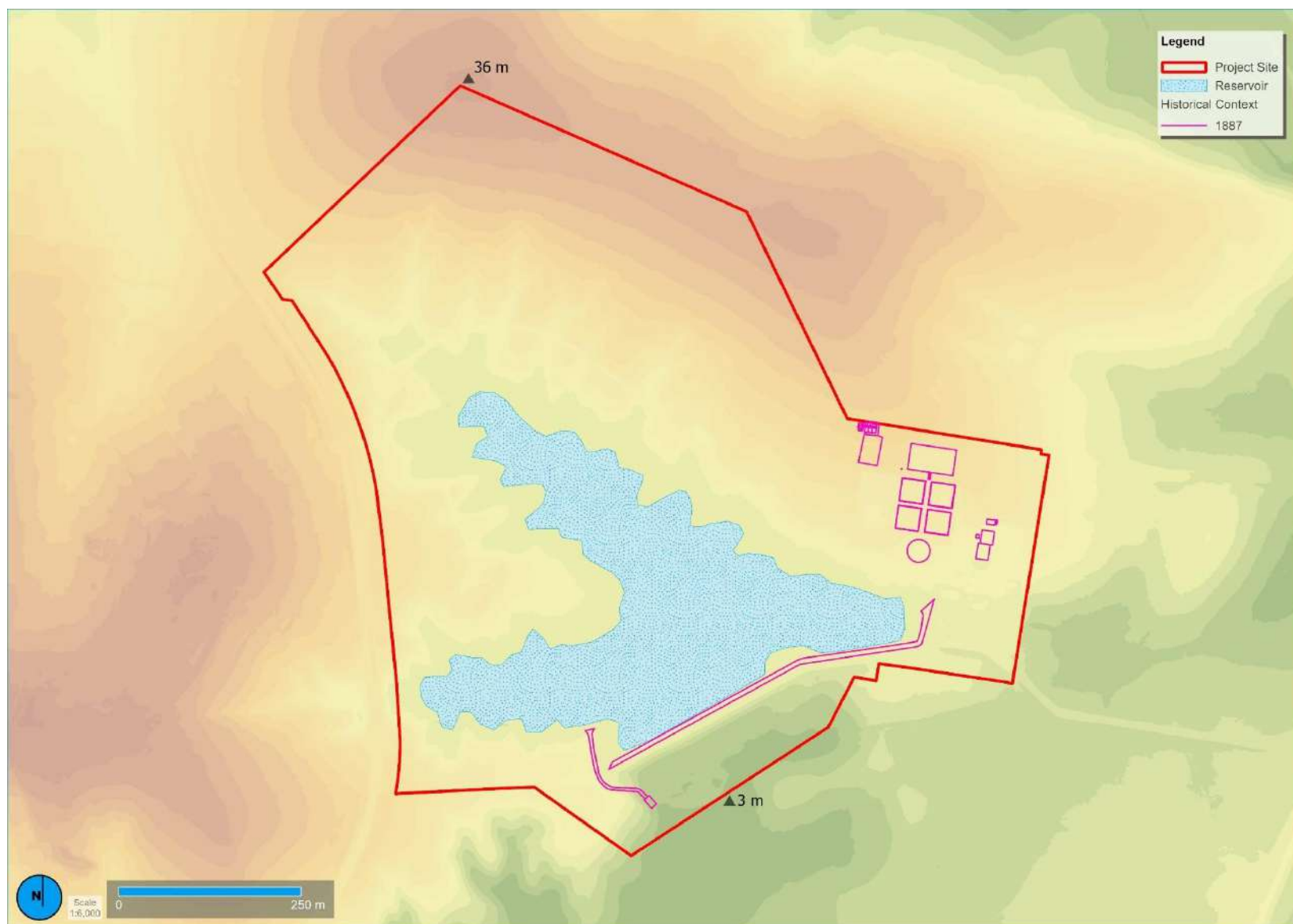


Figure 5 Approximate layout of the site in 1887



Figure 6 Approximate layout of the site in 1893



Figure 7 Approximate layout of the site in 1900



Figure 8 Approximate layout of the site in 1951



Figure 9 Pipework layout



Figure 10: The Chief Engineer's Residence in 1883. Photo supplied by Maitland City Council



Figure 11: Construction of the setting tank in 1885. Showing the construction methods and materials employed. Photo supplied by Maitland City Council



Figure 12: The Project Site in 1938 showing the configuration at the time. Numerous features including the Sand washing plant, change sheds and Pumphouse No 9 are visible. NAA Item ID 12082050, Film MAP2392 Run 10W Frame 12138



Figure 13: 1947 image of the Cler Water Tank showing the internal roof supports. The roof of the Change Sheds is visible in the background. Photo supplied by MCC

4.3. Post Water Works and Power Station

The completion of the Chichester Dam in 1924 meant that Walks Water Works, that had provided the people of the Lower Hunter a reliable supply of fresh water for the very first time was superfluous to need. The following year Walka was placed on standby mode in case of dam failure but work continued so that it could remain as a viable back up service.

Through World War II it was decided that Walka would be retained as an emergency supply if required (NMH&MA 02Jun1943 p.4) but despite this, when being considered for use in an irrigation scheme later that year, the machinery was found to be in a “bad state of repair” (MM 11Dec1943 p.2). With war over, the pumps were finally closed in 1945 and as early as June tenders were advertised to demolish the structure (Newcastle Sun 01Jun1945 p.6). No demolition works were carried out though and in 1946 the Hunter District Water Board (HDWB – former Hunter District Water Supply and Sewerage Board) made the decision to sell off the Walka site suggesting that it would make an ideal location for a park or guest house with baths, tennis courts and bowling greens (MM 06Aug 1947 p.3).

With the site dormant from the late 1930s and the HDWB seemingly keen to dispose of it, an agreement was reached in late 1951 to erect a temporary Power Station at the site. This was in response to widespread power shortages following World War II caused in part by massive increase in demand in the post war world (Chester & Elliot 2019). The NSW Electricity Commission responded to this power shortage by purchasing four prefabricated power plants from the USA in 1951 (Malnic 1984). Walka, Penrith, Casula and Port Kembla were selected to be the sites for the stations (Trese 1987).

When announced it was envisioned that the Power Station at Walks would cost around £3 million and add 25,000 kilowatts to the grid. (NMH&MA 18Dec1951 p.4). It was hoped that the works would be completed by September 1952. Numerous setbacks, including coroner enquiries into deaths on the construction meant that the first power was connected to grid over a year late on 30 Jun 1953 (MM 30Jun1953 p.3).

The main Power Station structure was constructed on the lawn to the south of the Pumphouse. It measured approximately 80 meters by 100 metres and housed four pairs of boilers and alternators (Godden 1987). The existing road network dates from this period, and the branch railway, which ran across the site was also constructed as part of the works.

The Main Pumphouse was converted into offices and amenities and the basement largely filled with rubble (Malnic 1984). Once filled, the Western Pumphouse floor was concreted over restricting access to the basement (Tresev 1987). Major alterations were made to the filter beds which included the construction of cooling towers in beds 2 and 4 and oil storage tanks in beds 5 and 6 (Godden 1987) (Figure 14). A new railway cutting to bring coal to the site was created which ran around the reservoir and between the Pumphouse and new Power Station along the route of the present road.

The Power Station was decommissioned in 1975 and demolition occurred across the site the following years (Figure 15). The demolition works on site were expansive and also included the chief residents and workmen cottages.

In the subsequent decades, landscaping works were undertaken to transform the site into a public amenity. A trust was formed to manage the site in 1984. A Permanent Conservation order (No. 466) was placed over the site in October 1986 (NSW GovGaz 03Oct1986, Issue 156 p.4877). Some of the landscaping and construction works undertaken during this period formed part of the 'work for dole' scheme in the 1990s (Nota 01Oct1998 p.16). Works during this period include the construction of wooden retaining walls around the main buildings, formation of the roadway along to route of the railway track, grading and maintained of the walking track around the reservoir, construction and operation of a miniature railway, and the erection of a children's playground in the vicinity of the old Power Station. For much of this period, the ground floor of the pumphouse was used as a café and housed a small museum that featured a scale model of the waterworks.



Figure 14: Post-1951 view of the main complex. The cooling towers have been erected over Filter Beds 2 and 4 and Pumphouse No 9 is visible in the foreground. Photo supplied by MCC



Figure 15: Power Station at the commencement of demolition in January 1978. Image taken from Corkery Consulting 2009

5. Archaeological Context

5.1. Purpose

An examination of previous archaeological investigations around the Project Site, and of similar site types was undertaken to help contextualise and characterise the Project Site. Each archaeological site has a unique series of site formation processes that include variations in how a site came to be buried and what happened to it after the archaeological resource was formed.

Whilst recognising this, comparative examination of other nearby and related sites is a useful undertaking for multiple reasons:

- it can provide an indication of the nature of the archaeological resource, e.g. is it a deep site, are there a lot of artefacts, is the evidence robust or more transient etc
- it can inform about the kinds of site formation processes, e.g. is there high organic preservation, is there a lot of mixing between stratigraphic units, has the site been regularly truncated etc
- it can help to show the kinds of excavation methods previously undertaken and whether they have either been successful or not.

Archaeology is a constantly evolving field with new methods and technology regularly becoming available which can enhance the data generated and new theories and perspectives which can enhance interpretations. It is also most successful when it builds upon previous work.

Further analysis including detailed examination of site plans, artefact catalogues, and Reduced Levels, would be undertaken as part of any archaeological research design. Likewise, comparative analysis of similar sites external to the vicinity of the Project Site should be undertaken at that stage to understand how rare or representative the resource may be and to devise the most appropriate strategy for managing the archaeological resource.

5.2. Archaeological Studies in the Vicinity

Limited historical archaeological work has been undertaken in the vicinity of the Project Site. The area surrounding the Water Works was largely agricultural for much of the last 200 years and so it is unlikely that any significant historical archaeological sites have developed in the area. That said, the nearby settlements at Telerah, Maitland, Lorn, East Maitland and Bolwarra are well established.

In response to an unexpected find during road works, an archaeological report was prepared for the Bolwarra Public School Site, 1.5 kilometres east of the Project Site in 1999 (Higgenbotham & Associates 1999). The find consisted of a numerous fine-grained yellow-brown sandstone blocks, some of which remained in situ. The blocks were set in a sand bed. Little artefactual evidence was found in direct association with blocks aside from slate, marble and other building materials. These were interpreted as being the remains of the School Masters Cottage erected in 1891. To the northeast multiple refuse pits were found, the largest of which contained a typical 19th century domestic assemblage including glass bottles, transferwares and wire nails. In addition, there were some finer objects such as a hand painted porcelain and gold-trimmed whiteware. The soil horizon was not recorded in detail, aside from noting that a thin layer of brick and mortar fragments was within a dark greyish brown A1 horizon which sat above a thinner grey A2, and subsequent yellowish-brown clay B horizon.

In 2012 excavations were undertaken at the Maitland Hospital Site around 1 kilometre south of the Walka Project Site (AMAC 2012). The anticipated archaeological resource there was largely related to the early 20th century homestead Melbee House. A series of potential postholes and four dry-pressed brick structures were encountered during services trenching work at the site. None of these features were assessed as meeting the threshold of significance and hence were removed. The soil profile generally consisted of older A1 and A2 topsoils over B horizon clay, with the clay being reached around 1 metre below the surface.

Although limited, these reports collectively demonstrate the subsurface evidence of 19th century occupation activities in the vicinity of the site. This includes robust building materials such as stone and brick, biodegradable materials such as wood and often ephemeral features like postholes. The evidence of refuse pits from the Bolwarra Public School Masters Cottage is highly demonstrative of the kinds of significant subsurface features that are not recorded on formal plans.

5.3. Heritage Studies of Similar Sites

The late 19th century was a period of remarkable growth in public infrastructure as utilities became increasingly expected within communities in response to demographic shifts and public health. The Walka Water Works was one of a number of facilities established at this time across NSW to service the needs of a growing population. Three water works in NSW are currently subject to some kind of heritage listing as demonstrated in Table 7.

Table 7: Heritage listed water works in NSW

Site	Level	Listing	Statement of significance
Waterworks, Bathurst Pumping Station and Horse Trough	Local	Bathurst Regional LEP 2014 #1147	Completed in 1886 to provide a reliable water supply for the town, Bathurst Waterworks is one of four substantial Waterworks built for country towns in the 1880s to the design of the noted nineteenth century engineer Edward O. Moriarty. The buildings and well of Bathurst Waterworks survive largely intact and have substantial potential for interpretation of this important example of civic infrastructure. Additions to the waterworks completed in 1924 are important as the work of another notable civil engineer, Ernest Macartney de Burgh. The Bathurst Waterworks is a very good example of the Victorian classical style applied to an important civic infrastructure building. The division of the exterior into well proportioned panels with the use of recessed brickwork, arched openings with contrasting tuckpointed brickwork and sandstone sills are characteristic of the style. The attention to details of the design such as the ceiling of the pump room underline the importance of this civic building to the town of Bathurst (Hubert 2006).*
Goulburn Pumping Station, Marsden Weir & Appleby Steam Engine	State	SHR #00356	The Goulburn Waterworks is of high social, technical and representative significance for an engineered work from the steam era. It is an extremely rare example in Australia of a beam engine in operable condition that demonstrates the culmination of this form of steam engine as originally developed by Thomas Newcomen and James Watt. It is the remaining example of a series of water pumping stations that were installed throughout NSW to supply water to the growing populous. This technology in water supply took town utilities away from the water cart era and into 'on tap' supply state. The water works has a strong association with Goulburn as a growing inland city. Its possession in good order, of all the equipment installed during its upgrading to keep pace with the city's demands and growth up to 1977, provides evidence of the development of water supply technology from steam driven beam engine pumps to electrically driven centrifugal pumps. It is an excellent example of steam era technology and is a significant landmark in industrial archaeological and historical terms. The Goulburn Waterworks has associations with two major public servants of the Colonial era: Edward Orpen Moriarty, the first Engineer-in-Chief Harbours and Rivers of the Public Works Department, and James Barnett, Colonial Architect (Rigden).*

Site	Level	Listing	Statement of significance
Wagga Waterworks	Local	Wagga Wagga LEP 2010 #1273	The Wagga Wagga Waterworks are significant for their association with the provision of a town water service to the city of Wagga Wagga. The waterworks building is an exuberant architectural expression of utilitarian building construction. Local significance.

**Statement taken from source other than the SHI*

The Goulburn Waterworks was assessed for a Historic Engineering Marker in 2003 (Rigden 2003). In the assessment, the 1880s facility was considered for its impact on improving the quality of life of local inhabitants, for it being the only location in NSW with its beam engine surviving, and its pleasant location on a bend of the Wollondilly River. Further its association with locally important engineers (Edward Orpen Moriarty) and designers is noted as contributing to the significance of the place. Being a nomination for engineering heritage, no consideration was given to archaeological potential of the place.

A Conservation Management Plan (CMP) was prepared for the Bathurst Waterworks, also built in the 1880s, in 2006 (Hubert 2006). The assessment of significance notes its role in the local water supply, association with notable local engineers (Moriarty), its creative and technical excellence, and 20th century modifications as being key contributors to the significance of the place. This CMP assessed the archaeological potential of the place as being 'little'. No consideration was given to the integrity of the pipe network or potential for domestic deposits related to the works at the water works.

Although multiple water works sites are listed in NSW, the historical archaeological potential of these is scarcely considered. As such there is only limited comparable information that can be drawn from their listings.

5.4. Site visit

A site visit was undertaken by ELA Associate Heritage Consultant Dr Gary Marriner on the 10th and 11th October 2024. All internal and external areas of the site were inspected with detailed digital photograph of key features being undertaken. The results of the site visit have been incorporated into the assessment of archaeological potential contained in Table 2. Key photographic images are shown below in Figure 16 through Figure 56 and referenced where appropriate in Table 2. Figure 57 provides a location and inventory map of each item.



Figure 16: Main Pumphouse (A) and Western Pumphouse (F)



Figure 17: Internal space in Main Pumphouse (A). Note the original columns with 1950s floors and internal divisions in conversion to offices.



Figure 18: First Floor of Main Pumphouse with original floors and bearing blocks (A)

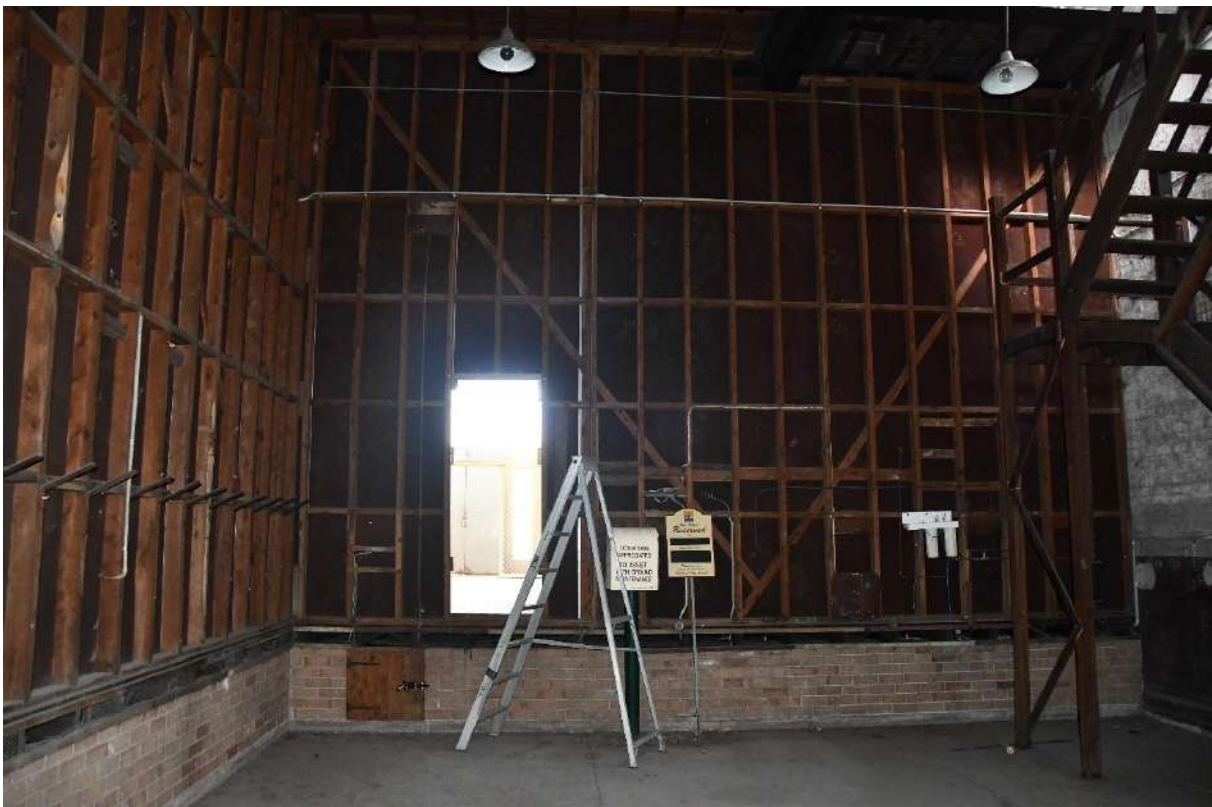


Figure 19: Rear room of Main Pumphouse (A) with 1950s concrete floor and timber partitions. The elevation in floor level is evident



Figure 20: Eastern face of the main building showing the Main Pumphouse (A), Eastern Annexe (D) and Boiler Room (B)

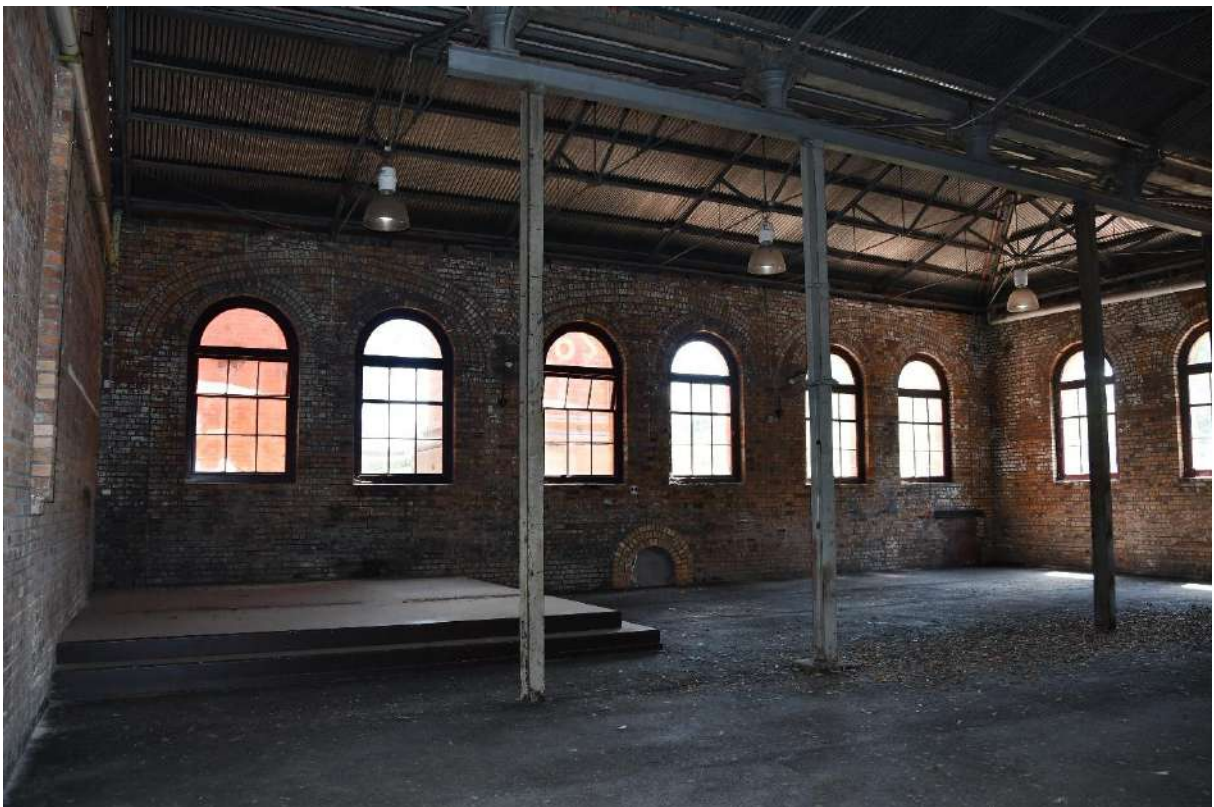


Figure 21: Internal Boiler Room (B) with replace Columns and ornate brickwork over windows



Figure 22: The Chimney (C)



Figure 23: Eastern face showing Boiler Room (B) and Eastern Annex (D)



Figure 24: Internal space within the Eastern Annex (D)



Figure 25: The Workshop / Coal store (E)

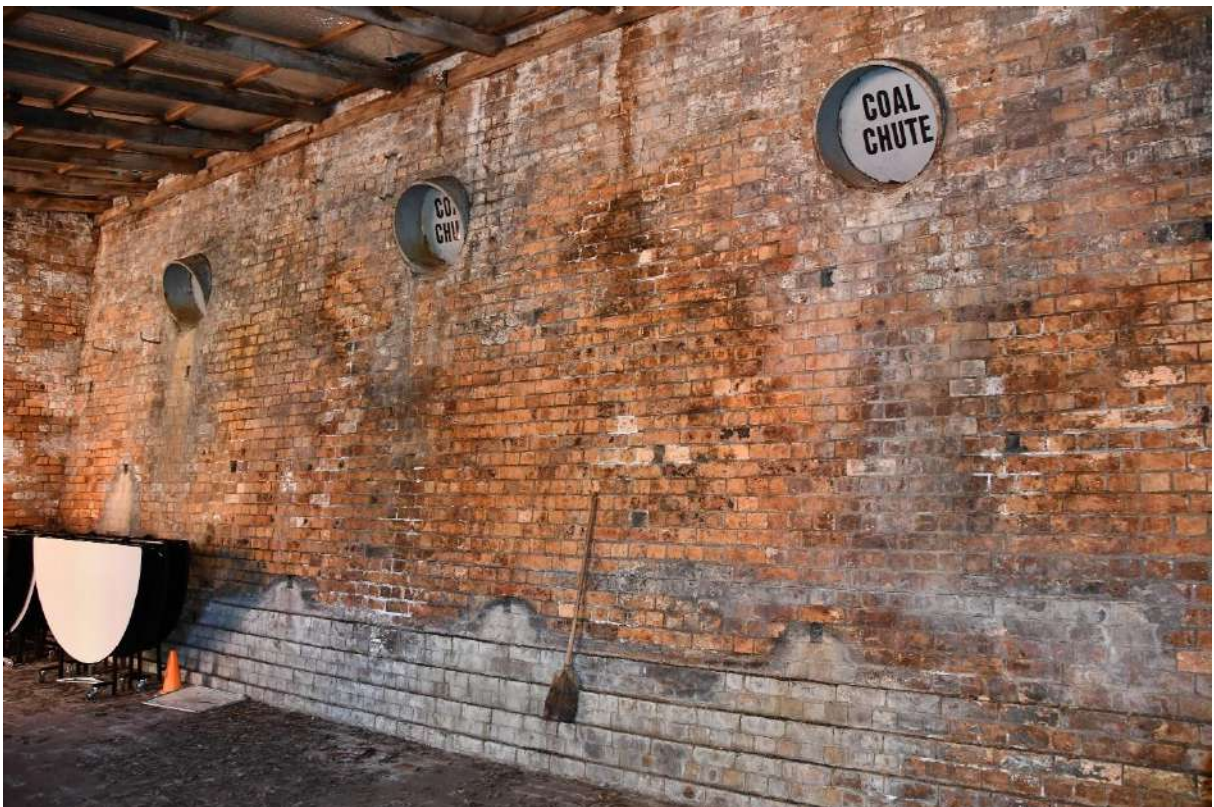


Figure 26: Internal space within the Workshop / Coal Store showing chutes (E)



Figure 27: Internal space within the Western Pumphouse (F)



Figure 28: Space where the Boiler Room Addition (G) was located. Note the voids in the northern wall of the Boiler Room that would have supported the roof. The embankment in the background is the location of Pumphouse Number 6 (R)



Figure 29: The Settling Tank (H)



Figure 30: Close up of the brick work in the settling tank (H)



Figure 31: Filter Bed 1 (I-1)



Figure 32: Filter Bed 2 (I-2)



Figure 33: Filter Bed 3 (I-3)



Figure 34: Filter Bed 4 (I-4)



Figure 35: Filter Bed 5 & 6 (J-5 and J-6)



Figure 36: Filter Bed 7 (K-7)



Figure 37: Clear Water Tank (L)



Figure 38: Reservoir Wall (M)



Figure 39: Outlet tower (M)



Figure 40: Examples of the Pipe Access Pits (N)



Figure 41: Example of above ground pipe access (N)



Figure 42: Exposed footings of the Chief Engineer's Cottage (O-1)



Figure 43: Approximate location of the Workmen's Cottages (P-1)



Figure 44: Footings of the Second Engineer's Cottage (Q)



Figure 45: Location of the Rapid Filter Bases. It appears the base has been repurposed for use as a garden (S)



Figure 46: Approximate location of Pumphouse No 9 (T)



Figure 47: Approximate location of Eastern Sand washing (U) plant and beyond, Change Sheds (V)



Figure 48: Location of Western Sand washing Plant. Note the promontory indicating a subsurface feature (U)



Figure 49: Approximate location of the Power Station (W)



Figure 50: Location of the Power Station with kerbing visible (W)



Figure 51: Middle section of the Byewash (X)



Figure 52: Inlet of the Byewash at the Reservoir (X)



Figure 53: The Northern Cleared Area (Y)



Figure 54: Example of one of the railway cuttings (Z)



Figure 55: Example of one of the small railway bridges with repurposed track (Z)



Figure 56: Area of one of the Unknown Buildings (AA)

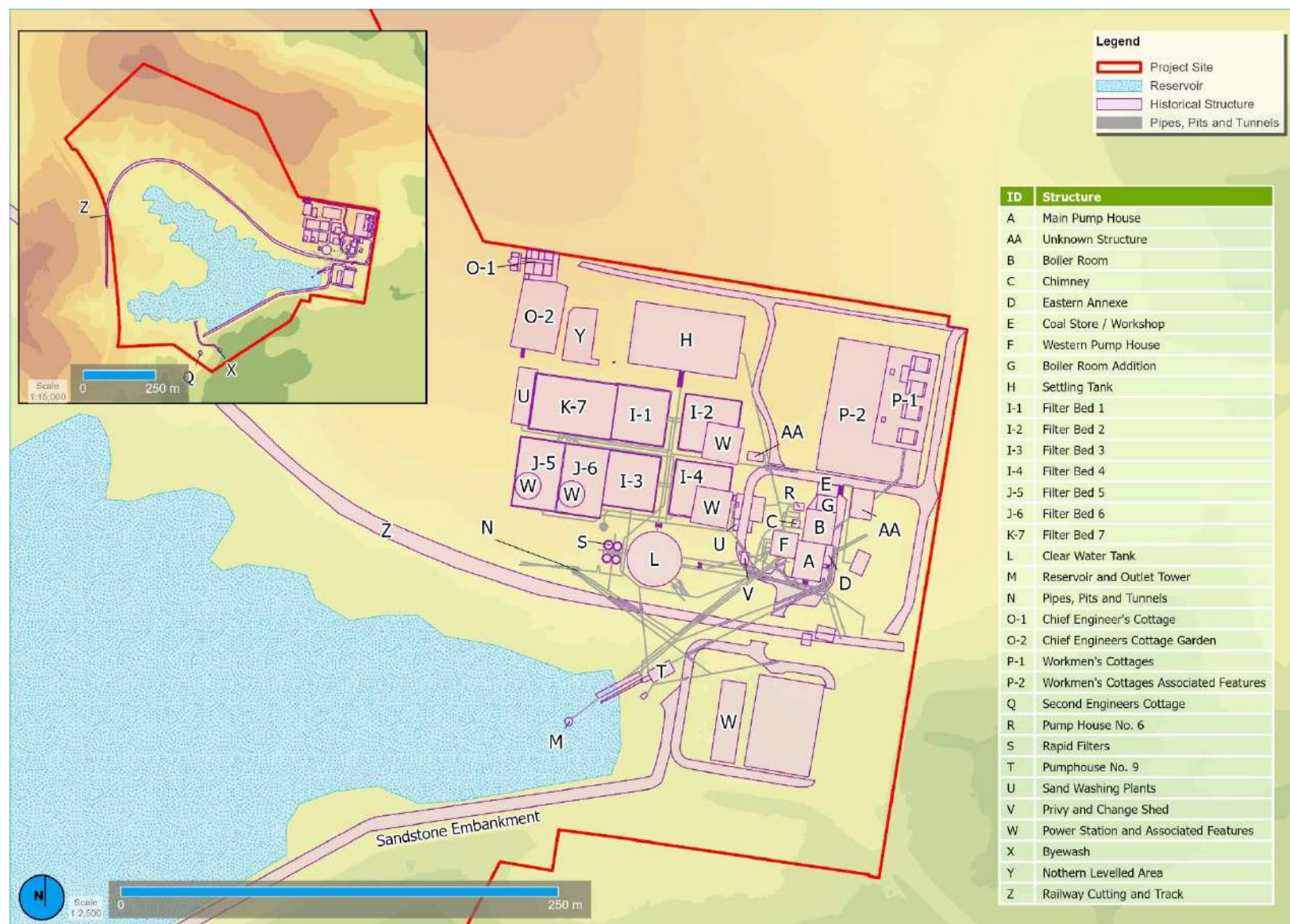


Figure 57 Inventory Map

6. Assessment of potential and significance

6.1. Historical archaeological potential

As demonstrated in Section 4.1, the Project Site was part of the original grants made to various landholders, with most being in possession of Houston Mitchell. Mitchell divided the land into numerous paddocks indicating it was used from grazing purposes. The Scobie family planted various crops in the area they leased. These mid-19th century farming activities are highly unlikely to have left any identifiable archaeological trace that has the possibility of supplying novel or useful information. No indication has been found that any structures were constructed on the site during this time. The archaeological potential from the pre-water works period across the site is therefore considered nil to low.

The industrial archaeological and built heritage features of the site were inventoried as part of the initial conservation plan for the site (Don Godden & Associates 1986) and expanded on recently (Casey & Lowe 2021). Table 8 builds on this previous work and provides an updated assessment of the features of the Project Site, their current integrity and their historical archaeological potential. Potential mapping is included in Figure 58 and Figure 59.

Based on the understanding of the history of the site, the only substantial impacts to the archaeological resource have been the construction and demolition of the Power Station (and associated features) and subsequent landscaping activities in the 1990s. As such it is assumed that in areas away from these direct impacts, the archaeological resource is likely to be intact.

Table 8: Integrity and potential assessment

ID	Item	Date	Description	Integrity	Archaeological potential
A	Main Pumphouse	Built 1886-1887	Two storey polychrome brick building with windows, and ~10m deep basement. Single hipped corrugated iron roof. Housed original pumps. Modified in 1950s to offices and later into café/museum (Figure 16, Figure 17, Figure 18, Figure 19, Figure 20)	Original walls, roof and cast iron internal columns remain. Nearly all water related machinery removed aside from first floor bearing blocks. Original timber first floor remains. Power Station floors and internal divisions remain on ground floor along with lighting and other electrical features. Extant 6-pane windows like post 1949 replacing original 9-pane windows. Main entrance stairs later alteration and addition.	Low potential for an infilled basement to contain remains of brick engine beds, engine bearings, flywheels and other associated elements. Medium potential for 19th century features to remain intact below later floors. Externally, high potential for construction trenches, and original outlet and inlet pipes.
B	Boiler Room	Built 1886-1887	Single storey polychrome brick building built in four bays with double hipped corrugated iron roof. Use to house boilers to provide steam. Converted to store with concrete base in	External walls and roof remain. Cast iron roof support columns replaced but column capitals are original. Door between this and the Main Pumphouse has been bricked up. Evidence of the Economised externally on western wall.	Low potential for 19th century features below the 1950s concrete floor. Low potential for further evidence of the economiser externally.

ID	Item	Date	Description	Integrity	Archaeological potential
			1950s (Figure 21, Figure 23)		
C	Chimney	Built 1886-1887	36 metre tall polychrome brick octagonal chimney with finely corbelled top (Figure 22)	Largely extant. Original iron crown replaced in 1990s.	Nil
D	Eastern Annexe	Built 1893-1894	Single storey polychrome brick addition to Main Pump House. Flat roof 1950s alteration including southern door and stairs (Figure 20, Figure 23, Figure 24)	External walls and roof remain. Internally all original features removed. Extensive 1950s amenities remain including plumbing and electric features.	Low to nil potential for 19th century features below 1950s floor.
E	Coal Store / Workshop	Built 1886-1887	Single storey polychrome brick structure with flat roof (Figure 25, Figure 26)	Largely extant walls and possible floor. Four cast iron chutes on northern wall remain. Eastern stairs intact but closed off. Possible original fencing on roof.	Low to nil. Limited research potential for investigating chutes to the north and from clearing vegetation.
F	Western Pumphouse	Built 1913	Single storey double height polychrome brick building with basement and corrugated iron monitor roof (Figure 16, Figure 27)	External walls, including timber and corrugated iron southern wall all extant as is the roof. No internal pumping features remain. 1950s concrete floor remains.	Low potential for 19th century features below the 1950s concrete floor.
G	Boiler Room Addition	Built 1913 demolished 1984-1993	Timber framed with corrugated iron walls and pitch roof (Figure 28)	None	Low to nil. Some potential of additional evidence such as post holes beneath extant decorative brick paving.
H	Settling Tank	Built 1884-1885	61 metre long, 35 metre wide rectangular tank at northern end of site. Cement rendered sandstock brick walls and floor (Figure 29, Figure 30)	Well preserved with multiple original features intact including outlet, overflow pipe, and height gauge. Some cracks to surfaces and minimal vegetation within tank. Stairs from Settling Tank to Filter Beds to the south remain.	Nil for new features. Moderate for investigation of extant features.
I	Filter Beds 1 - 4	Built 1884 to 1885	Four 32 metre x 32 metre rectangular structures built in a grid along a north-south aligned central pipe. Built from sandstock brick with cement rendered base (Figure 31, Figure 32, Figure 33, Figure 34)	Bed 1 backfilled, likely largely intact. Bed 2 empty with moderate levels of vegetation some pipework and features present. Modified during 1950s. Bed 3 backfilled, likely largely intact. Bed 4 backfilled, Modified during 1950s. Some features visible on surface.	Moderate to high. All beds are likely to retain evidence of original features such as pipework, inlets, floats and other mechanical and technological evidence of functionality. Beds 2 and 4 are likely to have evidence of changing purposes during the 1950s.

ID	Item	Date	Description	Integrity	Archaeological potential
J	Filter Bed 5 & 6	Built 1907-1908	Two 39 metre long, 25 metre wide rectangular structures built as an adjoining pair with precast concrete walls and possibly base (Figure 35)	Both beds still extant. Large volume of vegetation. Some cracking and separation of concrete elements.	Moderate to high. Beds are likely to retain evidence of original features such as pipework, inlets, floats and other mechanical and technological evidence of functionality. Both likely to have evidence of modification during 1950s
K	Filter Bed 7	Built 1912-1913	47 metre long, 31 metre wide rectangular structure north of Filter Bed 5 and 6. Built with precast concrete walls and possibly base (Figure 36)	Backfilled, likely largely intact.	Moderate to high. Likely retains some evidence of original features such as pipework, inlets, floats and other mechanical and technological evidence of functionality.
L	Clear Water Tank	Built 1884-1885	Circular 31 metre wide tank built from dry pressed brick. Lower courses cement rendered (Figure 37)	Original roof, including supports all removed. Otherwise in good condition with a number of original pipe features. Base obscured by vegetation.	Nil for new features. Moderate for investigation of extant features.
M	Reservoir & Outlet Tower	Built 1884-1885	540 meter long embankment, lined with moderately well hewn sandstone blocks. Outlet tower is circular brick structure with iron fencing and features (Figure 38, Figure 39)	Embankment wall in good condition with sandstone largely intact. Upper surface utilised as roadway. Outlet tower appears in moderate condition although not visited.	Low. Embankment is standardised structure with well understood construction method consisting of upcast from reservoir excavation.
N	Pipes, Pits and Tunnels	From 1883 onwards	Expansive pipe network across the site comprised of cast iron and steel pipes and various access points. Includes pipes laid for the Power Station (Figure 40, Figure 41)	Believed to be largely intact comprehensive network. Access points are visible across the site.	High. Numerous examples of pipes are likely present across the site, in addition to tunnels, culverts and access points. Critical to understanding technological aspects of the site.
O	Chief Engineers Cottage & Garden	Built 1882 Demolished 1975	Large cottage with associated outbuilding. Foundations visible on surface. Garden features visible to the south on aerial imagery (Figure 42)	Substantial footings remain with large sandstone blocks and sections of brickwork.	High. Potential for further footings, associated postholes, paths and garden beds in direct association with the cottage. Also potential for wells, cesspits, rubbish pits and other domestic features. Moderate for garden features likely located to the south including potential well.
P	Workmen's Cottages	Built c.1890 Demolished 1975	Block of four cottages each with associated	No visible surface evidence on inspection. Location interpreted from historical	High. Potential for further footings, associated postholes, paths and garden

ID	Item	Date	Description	Integrity	Archaeological potential
			outbuildings (Figure 43)	aerials. One macadamia tree in the vicinity likely evidence of land management.	beds in direct association with the cottage. Also potential for wells, cesspits, rubbish pits and other domestic features. Vehicle turning circle to the rear.
Q	Second Engineers Cottage	Built pre-1900 Demolished 1975	Small rectangular brick cottage on landscape prominence southwest of reservoir (Figure 44)	Substantial footings remain showing basic outline of building.	High. Potential for further footings, associated postholes, paths and garden beds in direct association with the cottage. Also potential for wells, cesspits, rubbish pits and other domestic features.
R	Pumphouse No 6	Built c.1913	Rectangular structure north of chimney (Figure 28)	Likely completely destroyed.	Nil to low. Location nor of the chimney was heavily modified during 1990s landscaping works. Some evidence may survive in existing embankment. Pipe network likely remains.
S	Rapid Filters	Built 1913 Unknown demolition	Four Circular/Octagonal features west of Clear Water Tanks (Figure 45)	At least one base still remains, repurposed as a rose garden. Others may be present subsurface.	High – potential for further bases, associated artefacts including fixtures, fittings and tools. Also potential for pipework and other evidence to understand the use and functionality of these filters.
T	Pumphouse No 9	Built pre-1920s Demolition post-1965	Rectangular corrugated iron structure with gabled roof (Figure 46)	Unknown. No visible evidence of structure.	High – potential for structural remains and associated pipework. Feature present during Power Station phase and no evidence of substantial post Power Station modification.
U	Sand washing Plants	Built pre-1920s	Various rectangular structures located to the east of Filter Bed 4 and west of Filter Bed 7 (Figure 47, Figure 48)	Those near Filter Bed 4 are likely completely destroyed during 1950s road network construction and 1990s landscaping works. Some evidence of plant west of Filter Bed 7 possible present in raised area.	Nil for those near Filter Bed 4 High for that west of Filter Bed 7. Clear linear depression enclosing raised area likely housing evidence of Plant. High research potential as form, functionality and clear dating unknown.
V	Change Sheds	Built pre-1920s Demolition pre 1965	Small hipped-roof structure west of Pumphouse .	Likely very little remains. Location within the 1950s road network.	Nil.
W	Power Station & Features	Built 1951 Demolition from 1978	Asbestos two-storey high structure built on southern lawn. Secondary rectangular structure to immediate west. Other features from the period include towers on Filter Beds 2, 4, 5	Footings for main buildings visible as parch marks on lawn, GPR survey confirmed locations of substantial footings (Appendix A). Rail corridor features numerous bridges and sections of track beneath roadway Paths, roads, and kerbing retained around site.	High for Power Station including building, utilities, and associated artefacts.

ID	Item	Date	Description	Integrity	Archaeological potential
			and 6, extensive road and rail extensions, use of various areas for coal storage and loading areas. (Figure 49, Figure 50)		
X	Byewash	Built 1884 - 1885	Northwest to southeast flowing brick channel with d rendered base leading to cobbled section to southeast. Northwest section features well-constructed rounded inlet. All brick walls buttressed and capped with sandstone (Figure 51, Figure 52)	Very high. Recently cleared and in very good condition. Some cracking evident.	Low. Recent clearance has likely removed most archaeological evidence.
Y	Northern cleared area	Unknown	28 metre long, 16 metre wide cleared and flattened areas to the west of the Settling tank (Figure 53)	Unknown.	High. Area deliberately cleared and levelled for an unknown purpose.
Z	Railway cutting & tracks	1951	1.1 kilometre long railway cutting, featuring multiple areas of cut ground, small concrete bridges embankments (Figure 54, Figure 55)	Varies along route. Tracks are clearly visible south of the Main Pumphouse within existing road and continuing in GPR survey (Appendix a). Multiple concrete bridges in good condition along route but tracks appear to have been repurposed to contain road.	Low to moderate. Potential for railway infrastructure along entire route including bridges, tracks, signals etc.
AA	Unknown buildings	Pre-1938	Two rectangular buildings shown on the 1938 aerial, one in the northeastern corner of the Pumphouse lawn, and the other east of Filter bed 2 (Figure 56)	Unknown. No surface evidence of either structure. GPR survey of Pumphouse lawn shows possible foundations (Appendix A).	High. The areas where both buildings were located appears to be undisturbed.



Figure 58 Archaeological Potential

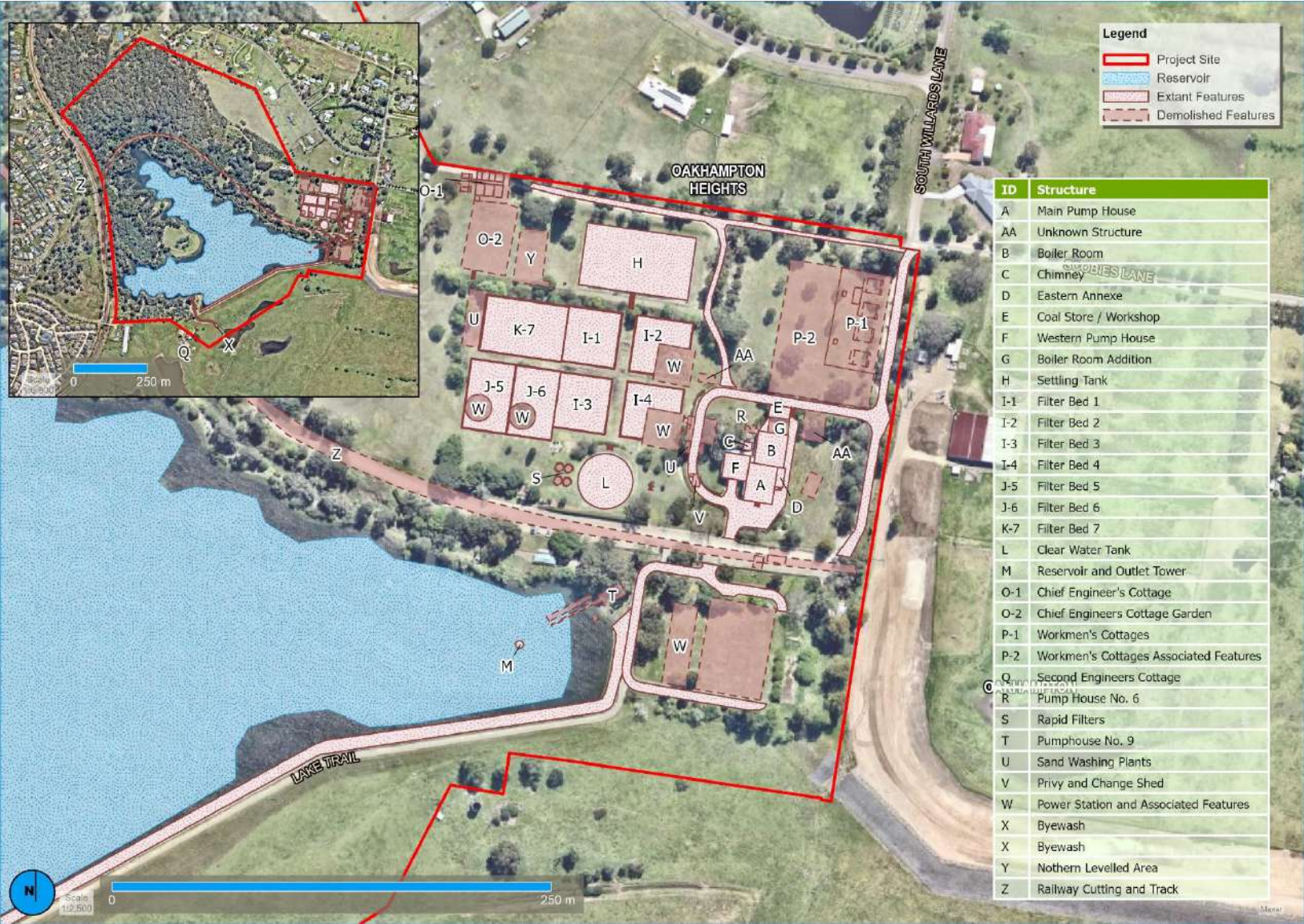


Figure 59: Current status of historical features

6.2. Recognised Heritage Significance

The Walka Water Works is listed on the State Heritage Register, the Register of the National Estate, and the Engineering Heritage Register

6.2.1. State Heritage Register

The 'Walka Water Works' was placed under a Permanent Conservation Order in October 1986 and was listed on the NSW State Heritage Register on 02 April 1999 (SHR #00466). The listing contains the following statement of significance:

Walka Waterworks is one of the largest and most intact 19th century industrial complexes in the Hunter Valley. The surviving water treatment features at the site constitute the most comprehensive set in NSW and clearly illustrate water filtration and reticulation processes and the major developments which occurred during the late 19th and early 20th century. The pump house, chimney and boiler house are elegant finely executed polychrome brick structures in a traditional configuration which are located within an attractive landscape. The entire complex, including reservoir and tanks, is an important cultural landmark.

In addition Criterion (e), which relates to research potential, states:

The complex is the only complete set of 19th century water filtration equipment extant in NSW and illustrates water treatment filtration processes. The configuration and substantial remains of all major components of the complex, including evident remains of machinery locations and ancillary structures, such as pipes, enable the processes carried out to be clearly understood. The largely intact set of Victorian structures typify the building associations of a 19th century technology.

The evolution of the complex over time provides evidence of the development of steam technology from beam engines to reciprocating engines.

6.2.2. Register of the National Estate (non-Statutory)

The Register of the National Estate was originally established under the *Australian Heritage Commission Act 1975* (repealed). In 1997 the Council of Australian Governments agreed that heritage listing, and protection should be the responsibility of the level of government best placed to deliver agreed outcomes. It was agreed that the Commonwealth's involvement in environmental matters should focus on matters of national environmental significance, including World Heritage properties and places of national significance. Each state, territory and local government has a similar responsibility for its own heritage. Although it no longer has a legal basis, the Register of the National Estate (RNE) now exists as an archive of information about more than 13,000 places throughout Australia.

The 'Walka Waterworks and Pumping Station' was listed on the Register of the National Estate (Non-statutory) on 21 March 1978 (RNE #1250). The listing contained the following Statement of significance:

One of the biggest public industrial undertakings in the Hunter Valley, supplying the region with water 1887-1929. The waterworks is an outstanding and representative example of this type of works including the basic storage lagoon, sand filtration beds, settling tank and engine and pump house. Pipes are still in place. The buildings are of significant industrial architectural nature, from the Victorian period.

6.2.3. Engineering Heritage Register (non-statutory)

The Engineering Heritage Register is maintained by Engineers Australia through the Engineering Heritage Recognition Program. The site was originally registered as 'Walak Water Supply Scheme' in December 2015 and updated the following year to 'Newcastle's First Water System - the Walka Scheme, 1886' (EHR 196). It is marked with an Engineering Heritage National Marker meaning it is considered to be of national significance.

The nomination included the following Statement of significance:

The Hunter River District Water Supply Scheme is an excellent example of the progress made in the late 19th century to provide safe and sustainable water supplies to metropolitan populations. The scheme as a whole was thoroughly researched to ensure that quality and quantity of supply would be available for the communities of the lower Hunter Valley. It used the best technology available at the time, transferred from Britain, and was the first in Australia to use comprehensive treatment at the source. It was:

- *the centerpiece of the most important advance in public health in the history of the Hunter Valley, improving health and cleanliness of the population and their urban environment;*
- *the most comprehensive set of water treatment features surviving in NSW, documenting the growth of the demand for water;*
- *a finely executed polychrome brick structure, demonstrating the importance of the aesthetic treatment from late 19th century infrastructure*

It is a testament to the work of English Civil Engineer, William Clark M.Inst.C.E

6.3. Significance of the archaeological resource

The assessed significance of the potential historical archaeological resource at each location is discussed in Table 9. Where an item is not discussed, there is unlikely to be an archaeological resource that meets the threshold of significance at a local level. Some items, such as the Main Pumphouse, Boiler Room, Chimney etc. Have been group together as they are best understood and interpreted as a whole.

In general the site has clearly established State significance under Criterion (a) Historic Significance, (c) Aesthetic Significance, (d) Social significance, (e) Research significance, (g) representativeness. In addition certain elements discussed below may have significance in other criteria.

Of key importance to the state significance of the site is its intactness. This intactness makes Walka one of the best remaining examples of a late 19th century industrial complex in NSW. Critical to this completeness is recognition that all components of the entire system have a shared significance. This means that features like pipework, house foundations, and garden beds that elsewhere may be only of local significance, are of state significance here. Each aspect of the complex, be it the major components, or the ancillary structures are critical in ensuring the processes that were carried out on the site can be understood. This is true from a technical understanding of how the site actually cleaned and distributed water, and also from a social perspective of the lives of the people who made the machinery function.

Table 9: Significance of the potential archaeological resource

ID	Item	Level of potential	Criteria	Discussion	Level
A, B, C, D, E, F, G	Main Pumphouse, Boiler Room, Chimney, Eastern Annexe, Coal Store / Workshop, Western Pumphouse, Boiler Room Addition	Low to nil	a, c, d, e, g	The resource has the potential to provide detailed information and previously unknown knowledge about the inner workings and functionality of the key buildings on the site. These core buildings are the most obvious indicators of the scheme which was one of the most important public infrastructure projects of the late 19th century. Evidence of modifications during the 1950s can inform understanding of the changes undertaken by the Electricity Commission.	State
H, I, J, K, L	Settling Tank, Filter Beds 1 – 4, Filter Beds 5 & 6, Filter Bed 7, Clear Water Tank	High	a, c, d, e, g	The resource has the potential to provide direct and clear evidence of the technology used in the operation of the waterworks and enhance our understanding of the way the technology evolved through time as different beds were constructed. Critical to this new understanding is the totality of the system where each part is examined in its individual context and as part of the greater system.	State
M	Reservoir & Outlet Tower	Low	a, c, d,	The embankment is built in a well understood way and its construction was documented through photographs at the time. The sandstone lining is clearly visible and understandable in its present form. The outlet tower is visible on the surface and is not considered an archaeological item. The reservoir is a key component of the overall system but does not have a significant archaeological resource in its own right.	None
N, X	Pipes, Pits and Tunnels, Byewash	High	a, d, e, g	Similar to the beds and tanks, detailed examination of the extensive system provides the opportunity to gain a greater of the technology used in the operation of the waterworks and enhance our understanding of the way the technology evolved through time as different beds were constructed. Critical to this new understanding is the totality of the system where each part is examined in its individual context and as part of the greater system. The Byewash, whilst separate to the rest of the pipe and tunnel network is another examples of the ways water was managed across the site. The pipes are specifically mentioned as having research significance in the SHR listing for the site.	State
O, P, Q	Chief Engineers Cottage & Garden, Workmen's Cottages & gardens, Second Engineers Cottage	High	a, b, c, d, e, g	The numerous cottages across the site, and their associated gardens, out buildings and other features all form part of the greater narrative of the people who lived and worked at the site. On industrial sites of this scale and renown where the community significance is well understood, it can be difficult to comprehend the individual lives of the people who ensured the works ran and were able to provide the people of the Lower Hunter with the fresh clean drinking water that so improved their lives. The best way to re-humanise the story is through the examination of the everyday lives of the works through their dwellings and the potential deposits left behind by them. As archaeological sites, the cottages have the potential for interpretation and have an unintended, but widely accepted, aesthetic quality. The Chief Engineers Cottage was built for Henry Deane Walsh, a significant figure in the history and development of public engineering in NSW.	State
R, V	Pumphouse No 6, Change Sheds	Nil	g	Both smaller, later features have largely been destroyed and there is unlikely to be any substantial resource. Anything that does remain is likely to be heavily truncated. Although useful parts of the	None

ID	Item	Level of potential	Criteria	Discussion	Level
				site, both are small later additions and do not speak to the significant late 19th century period. Neither is likely to present any important or new evidence that is of importance.	
S, T, U, AA	Rapid Filters, Pumphouse No 9, Sand washing Plants, Unknown buildings	High	a, c, d, e, f	These later features are all poorly understood at present but provide tangible evidence of the development of new technology and the changing nature of the site. In each instance there are areas where the potential archaeological resource can provide novel information about the kinds of innovations that occurred at the site, how the general functionality of the site evolved through time, and how the water works were able to respond to the changing expectations of the people of the Lower Hunter into the 20th century.	State
W	Power Station & Features, Railway cutting & tracks	High	a, c, d, e, f	The Power Station, associated features, and railway are all physical manifestations of the changing needs of the residents of NSW after WW2. Just as the water works were built in response to a need for water, the Power Station was built to fulfil a need for electricity. It is evidence of a fundamental shift in Australian identity following WW2 being an American import rather than British. This shows a shift whereby the country ceased looking to the imperial motherland for support and technological leadership and began to adapt to the new world order wherein the USA ascended to supremacy. Physical evidence of this shift is rare and whilst intangible in some respects, the heritage interpretation of the archaeological resource has powerful potential to provide a tangible link to this geopolitical paradigm shift.	State
Y	Northern cleared area	High	Unknown	The role and use of the northern cleared area is currently unknown. To provide an accurate assessment, excavation of the resource is required. It is likely to be related to the water works phase, based on alignment with the settling tank and proximity to the Chief Engineer's Cottage. Few Power Station features are present in this area. As such it is possible that the archaeological resource is of state significance but requires investigation to confirm.	Unknown

6.4. Archaeological Statement of Significance

The archaeological resource across the Walka Water Works site, including the structural remains, pipes, tunnels, and associated access points is a critical part of the only complete set of 19th century water filtration equipment extant in NSW. The completeness of the system means that it can be interpreted and understood. Examination of the archaeological resource has the potential to enhance understanding of the system and the lives of the people who lived and worked at the site. Evidence of the Power Station and associated infrastructure and modifications to older structures provides evidence of the changing expectations and needs of the wider NSW community in the post-WW2 period. Further it is a clear physical representation of the changes in Australia's relationship in the wider global community during a defining shift away from Great Britain and into a more independent relationship following WW2.

7. Results & Recommendations

7.1. Results

This HAA has found that large parts of the SHR listed Walka Water Works site have the potential for an intact historical archaeological resource that meets the threshold of significance at a local and state level. This archaeological resource is related to the technological system employed at the site to extract, clean and redistribute water, to the domestic lives of the people who worked at the site, and the Power Station that occupied the site during the mid-20th century. This archaeological resource is of state significance based on its association with the historical Walka Water Works scheme, and shifts in geopolitics post-WW2, its technological importance, its aesthetic qualities, its representativeness of a large-scale water filtration system, and most importantly, its ability to provide novel and otherwise unknowable information about the site, its functionality, its evolution, and its inhabitants.

7.2. Recommendations

The following recommendations should guide any future works at the site where there is the possibility of a subsurface impact:

- In any future plans all reasonable care and attention should be taken to avoid subsurface impact in any of the areas identified in this report as being of high potential. This includes minimising the use of these areas for temporary storage, vehicular access, and episodic high intensity footfall. Attempts to avoid impact should be documented.
- The in situ preservation of archaeological relics of state significance should always be considered wherever viable alternatives to deliver works are available.
- If subsurface impact is found to be unavoidable then approval under section 60 of the Heritage Act must be sought unless a Standard Exemption applies. S60 applications should be accompanied by either a Statement of Heritage Impact (SOHI) or Archaeological Research Design (ARD) prepared by a suitably qualified and experienced archaeologist. Excavation works under a s60 approval require the nomination of a director who meets the Heritage Council of NSW Excavation Directors Criteria for works on State significant sites.
- Any works undertaken at the site that utilise Standard Exemptions should be conscious of the possibility of encountering historical archaeological relics of state significance. All workers engaged should be briefed on the potential for relics and informed of the need to report any potential finds immediately. Should any finds been made, then a notification under s.146 of the Heritage Act should be prepared by a suitably qualified and experienced archaeologist.
- A Conservation Management Plan has been prepared for the site. The policies and procedures contained therein should be adhered to.
- A part of a wider Heritage Interpretation Plan, consideration should be given to exposing and presenting the physical remains of the various cottages and Power Station in order to provide a greater public understanding of the importance of the site, and the story of the people who lived and worked there. This presentation should be proceeded by a research program that examines the archaeological resource fully prior to any interpretation.

8. Bibliography

- AMAC, 2012. *Final Archaeological Report, Maitland Hospital, Maitland NSW*. Report prepared for RMS
- Armstrong, J. W. 1967 *Pipelines and People* The Hunter District Water Board, Halstead press, Sydney
- Casey & Lowe, 2021. *Walka Water Works Oakhampton Heights Historical Archaeological Assessment*. Prepared for MCC
- Chester, L., and Elliot, A. 2019 *Energy problem representation: The historical and contemporary framing of Australian electricity policy*. Energy Policy 128 pp102-113.
- Berthold, W. 1978 *History of Oakhampton Part 1*. Maitland and District Historical Society Inc. Bulletin Vol 2, No 5.
- Department of Climate Change, Energy, the Environment and Water, 2024, *Heritage asset management guidelines*. Environment and Heritage Group, DCCEEW
- Department of Planning and Environment, 2023, *Assessing heritage significance*. Environment and Heritage Group, DPE
- Department of Planning and Environment, 2023, *Guidelines for preparing a statement of heritage impact*. Environment and Heritage Group, DPE
- Docherty, J.C., 1983, *Newcastle The making of an Australian City*, Hale & Iremonger
- Eureka, 2024. *Statement of Heritage Impact & Archaeological Assessment, Scobies Lane Realignment, Oakhampton*. Report prepared for MCC
- Godden & Associates, 1987. *Industrial Archaeology in Treseve Pty Ltd, Specialist Reports for Walka Waterworks Conservation Plan*. Report prepared for Walka Water Works Trust
- Grant, J. 1803. *The Narrative of a voyage of discovery performed in his majesty's vessel the Lady Nelson*. C. Roworth, Bell Yard, Fleet Street, London
- Grey, N., 1966. *Henry Dangar (1796-1861)* Australian Dictionary of Biography, Volume 1, 1966
- Higginbotham & Associates Pty Ltd. 1999 *Report on Archaeological Remains located at the site of Bolwarra Public School (Master's Residence) 25 Paterson Road, Bolwarra, N.S.W.* Report prepared for MCC
- Hubert Architects, 2006. *Bathurst Waterworks Conservation Management Plan*. Report prepared for Bathurst Regional Council
- Jones, G., 1967. *The movement for Newcastle's first water supply, 1875-1885*. Newcastle Public Library, Council of the City of Newcastle
- Jordon, B. 2015, *Newcastle's First Water Supply – The "Walka" Scheme, Nomination for Engineering Heritage Recognition*. Prepared for Engineering Heritage Newcastle
- Keys, C. 2023, *The development of Maitland: how different decisions in the early years could have created a less flood-labile town*. Maitland and District Historical Society Inc Bulletin Vol.30 No 2
- Lloyd, C.J. & Troy, P.N., 1990. *Henry Deane Walsh (1853-1921)* Australian Dictionary of Biography Volume 12, Melbourne University press
- Macquarie, L. 1819. *Journal to and from Newcastle. 27 July 1818 - 9 August 1818*. Original held in the Mitchell Library, Sydney. [ML Ref A781]

Maitland, City of., 1965, *Historical Buildings of Maitland and District*, June 1965. Mercury print, Maitland.

Malnic, N.O., 1984. *The Conservation and Development of the Former Walka Waterworks, West Maitland*. Master of Architecture Thesis, University of Newcastle

Mitchell, H. *Letter to Thomas Michell 09 April 1831*. SLNSW Papers of Sir T.L. Mitchell vol 3: 1830-1839 CYA 292

NSW Heritage Office, 1996, *Archaeological Assessment Guidelines*. Heritage Office, Department of Urban Affairs and Planning

NSW Heritage Branch, 2009 *Assessing Significance for Historical Archaeological Sites and 'Relics'*. Heritage Branch, Department of Planning

Rigden, G., 2003, *Proposal to Nominate Goulburn Waterworks as a Historic Engineering Marker*. Engineering Heritage Committee, Sydney Division IEA.

Tresev Pty Ltd, 1986, *Conservation Plan Walka Water Works*. Report prepared for Walka Water Works Trust

Turner, J.W. 1977. *Coalmining and Manufacturing in Newcastle, 1797-1900*. University of Newcastle.

Suters Busted Corner Clode, 1987, *The Walka Water Works Draft Concept & Management Plan*. Report prepared for Walka Water Works Trust

Walsh, G.P. 1967, *Sir John Jamison (1776-1844)* Australian Dictionary of Biography, Volume 2

Appendix A: GPR Survey Data

