



Hexham Train Support Facility

Aurizon

Statement of Heritage Impact

1 | FINAL

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Abbreviations and Acronyms

CHL	Commonwealth Heritage List
DECCW	The (former) Department of Environment, Climate Change and Water NSW
DPE	Department of Planning and Environment
EPBC	<i>Environmental Protection & Biodiversity Act 1999</i>
EIS	Environmental Impact Statement
EP&A	<i>Environmental Planning and Assessment Act 1979</i>
Heritage Act	<i>The Heritage Act 1977</i>
Km	kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
M	Metres
NHL	National Heritage List
NPW	National Parks and Wildlife
NSW	New South Wales
OEH	Office of Environment and Heritage
SHR	New South Wales State Heritage Register

Executive Summary

This report presents the results of a non-Aboriginal heritage impact assessment for a turning circle proposed within the Hexham Train Support Facility at Hexham, NSW. Construction of the turning angle requires modification to an existing State Significant Infrastructure (SSI) approval (MP07_0171). The turning circle would increase the functionality of the existing facility and increase its operational capacity.

The assessment has been prepared to ensure Aurizon Holdings Ltd does not impact on any known or potential heritage items when carrying out construction of the turning circle. This report has been prepared to satisfy the requirements of the *Heritage Act 1977* and follows the *Statements of Heritage Impact* guidelines published by the (former) Department of Urban Affairs and Planning (1996, 2002). It aims to fulfil the Secretary's Environmental Assessment Requirements (SEARs) issued by the DPE for the modification and determine if further archaeological or heritage assessment is required to support preparation of an Environmental Impact Statement (EIS).

The results of the desktop assessment and site inspection confirm that there are no historical heritage items present within the study area and the potential for the proposed works to harm archaeological relics is extremely low. Historical records indicate that, whilst the study area has been used for agriculture, dairy farming, and coal processing from the mid- 1800's, coal processing was the dominant industry, with coal processing and washery procedures active from 1955 until 1987. This history is evidenced by remnants of the raised embankment of the former 1973 coal balloon loop and an associated timber pile and miscellaneous metal nails. None of these features are considered to be of local or State heritage significance. Given the absence of any heritage items, no further historical heritage assessment of the study area is considered necessary prior to the commencement of works.

Important Note About This Report

The following assumptions and/or limitations apply to the provision of our services for this project.

- The sole purpose of this report is to satisfy Aurizon's requirements under the *Heritage Act 1977*.
- Data about the location of the proposed works and the boundary of the study area was derived from Aurizon.
- This report must be read in full with no excerpts to be representative of the findings.
- This report has been prepared exclusively for Jacobs' client and no liability is accepted for any use or reliance on the report by third parties.

1. Introduction

1.1 Project Background

Jacobs Group (Australia) Pty Ltd (Jacobs) was commissioned by Aurizon Holdings Ltd (Aurizon) to provide an assessment of the non-Aboriginal heritage values of a property at Hexham, a suburb of Newcastle in NSW. Aurizon is proposing to construct a turning angle on the property as part of the Hexham Train Support Facility (TSF). Construction of the turning angle requires modification to an existing State Significant Infrastructure (SSI) approval (MP07_0171). The turning circle would increase the functionality of the existing facility and its operational capacity.

This report has been prepared to satisfy the requirements of the *Heritage Act 1977* (Heritage Act) and follows the *Statements of Heritage Impact* guideline published by the (former) Department of Urban Affairs and Planning in 1996, revised in 2002. This will ensure that Aurizon avoids any potential impacts on non-Aboriginal heritage items. It also aims to determine if further heritage or archaeological assessment would be required to support preparation of an Environmental Impact Statement (EIS).

Secretary's Environmental Assessment Requirements (SEARs) for the proposed modification were issued by the Department of Planning and Environment (DPE) on 19 December 2018. Heritage was identified as a key issue by the DPE. This report aims to satisfy the following SEAR that relates to the management of non-Aboriginal heritage items.

11.1 The Proponent must identify and assess any direct and/or indirect impact (including cumulative impacts to the heritage significance of:...

(c) environmental heritage, as defined under the Heritage Act 1977...

This Statement of Heritage Impact (SoHI) will form part of the detailed environmental assessment submission and support the modification application to MP07_0171.

1.2 Study Area

The proposed turning angle (the study area) is located at Hexham, approximately 12 kilometres north west of the Newcastle CBD. The property is situated on the western side of Maitland Road and is adjacent to Hexham swamp. The study area boundary, as shown in Figure 1.1, is located next to the railway track and lies within the Hexham TSF.

1.3 Project Description

The current TSF supports operations throughout the Hunter Valley. The facility contains an entry and exit however there is not a turning circle or angle that would aid in the better movement of locomotives and wagons. There is demand for this additional feature in the facility as it allows for more efficient management and to meet changing operational requirements.

The proposed turning angle would be located in the southern portion of the site. The proposed construction and operation of the turning angle would consist of:

- Excavation works for railway track foundation and ballast;
- approximately 1.5km of rail track and associated signal and turnout infrastructure comprising:
 - a single track straight of approximately 400m in length extending from the existing rail yard to the proposed turning angle;
 - a turning angle with two arcs approximately 250m in length and a straight of approximately 275m;
 - two 85m straight single tracks at either end of the turning angle;
 - four tangential turnouts;
- construction of vehicular access tracks and associated lighting;

- installation of culverts within existing drainage channels, under the rail track and access tracks; and
- Associated civil and storm water works.

The proposed extent of works is shown in Figure 1.2.

1.4 Limitations and Assumptions

This report addresses the potential for non-Aboriginal heritage items and their values. It does not include an assessment of Aboriginal heritage objects, sites or places. These are assessed in a separate Aboriginal Archaeological Due Diligence Assessment prepared by Jacobs for the proposed modification.

1.5 Authorship

This report was authored by:

- Fiona Leslie (Principal Archaeologist, Jacobs). Fiona holds a Bachelor of Science and a Bachelor of Arts with Honours from the University of Sydney and has over 18 years' experience as a heritage consultant and archaeologist;
- Deborah Farina (Senior Heritage Consultant, Jacobs). Deborah holds a Bachelor of Arts in Archaeology and Palaeoanthropology and a Bachelor of Laws from the University of New England and has over 10 years of experience as an archaeologist; and
- Alexandra Seifertova (Graduate Archaeologist, Jacobs). Alexandra holds a Bachelor of Arts with Honours from the University of Sydney and has over one year of experience as an archaeologist.

A technical review was undertaken by:

- Fiona Leslie (Principal Archaeologist, Jacobs).

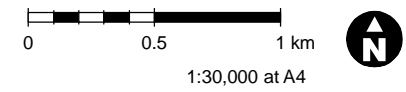
Mapping was provided by:

- Hamid Karimi (Spatial Analyst, Jacobs); and
- Kahli Macnab (Spatial Analyst, Jacobs)



Legend

- Disturbance boundary
- Project boundary
- Major road
- Local road
- Main North Railway
- Waterway
- Waterbody



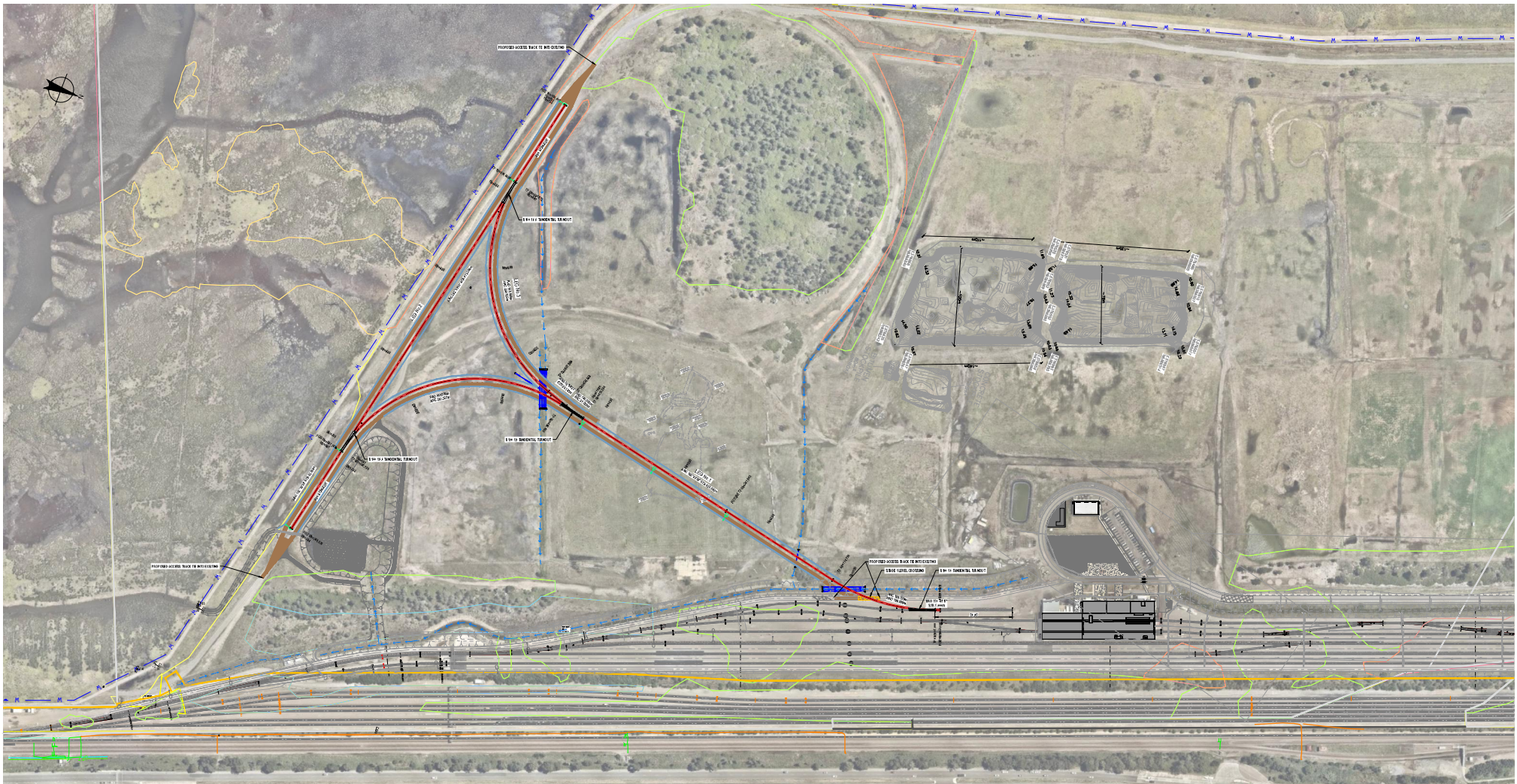
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Data sources

NSW Spatial Services 2019
 © Department Finance, Services and Innovation [Oct 2018]
 © Department of Finance, Services & Innovation 2018
 GDA94 MGA56

Figure 1.1 Study area



REV	DATE	COMMENT
0		
1	18/07/2018	ISSUED FOR REVIEW
2	20/07/2018	REVISED
3	20/07/2018	REVISED
4	20/07/2018	REVISED
5	20/07/2018	REVISED
6	20/07/2018	REVISED
7	20/07/2018	REVISED
8	20/07/2018	REVISED

LEGEND

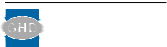
- 3000 - PROPOSED ACCESS TRACK TO BRIDGE
- 3000 - PROPOSED ACCESS TRACK
- 3000 - PROPOSED ACCESS TRACK
- 3000 - PROPOSED ACCESS TRACK
- 3000 - PROPOSED ACCESS TRACK
- EXISTING TRACK CENTRELINE
- PROPOSED TRACK CENTRELINE

SCALE: 1:1000

PRELIMINARY

REV	DATE	DESCRIPTION	BY	CHKD
B		DETAIL ADDED		
A		INITIAL ISSUE		

AURIZON PROPOSED TURNING ANGLE CONCEPT B GENERAL ARRANGEMENT



2D 1000 Plan Level 1
 2D 1000 Plan Level 2
 2D 1000 Plan Level 3
 2D 1000 Plan Level 4
 2D 1000 Plan Level 5
 2D 1000 Plan Level 6
 2D 1000 Plan Level 7
 2D 1000 Plan Level 8
 2D 1000 Plan Level 9
 2D 1000 Plan Level 10
 2D 1000 Plan Level 11
 2D 1000 Plan Level 12
 2D 1000 Plan Level 13
 2D 1000 Plan Level 14
 2D 1000 Plan Level 15
 2D 1000 Plan Level 16
 2D 1000 Plan Level 17
 2D 1000 Plan Level 18
 2D 1000 Plan Level 19
 2D 1000 Plan Level 20

Figure 1.2: Extent of the proposed works (Courtesy of Aurizon, 2019).

approved (PD) SK008

2. Legislative context

2.1 Environmental Planning & Assessment Act 1979 (EP&A Act)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides the framework for environmental planning and assessment in NSW. It includes a requirement for impacts, or likely impacts, upon non-Aboriginal cultural heritage to be assessed as part of a project's environmental approval, and for Local Government Areas (LGAs) to prepare Local Environment Plans (LEPs) and Development Control Plans (DCPs) to provide guidance on the level of environmental assessment required. Division 5.1 of the EP&A Act applies to projects designated as SSI. This influences the way in which other legislation, including the Heritage Act is applied.

Construction of the turning angle requires modification to an existing SSI approval (MP07_0171). SEARs for the project modification were approved on 19 December 2018 by the Secretary of the DPE.

2.2 State Environmental Planning Policy (Infrastructure) 2007

The *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. There are several divisions and clauses in the ISEPP that refer to heritage matters. Clause 14 states that where a development may be carried out without consent (determined by Clause 94), and that development is likely to have an impact that is not minor or inconsequential on a local heritage item (other than a local heritage item that is also a State heritage item) or a heritage conservation area then:

- (2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this clause applies unless the authority or the person has:
- (a) had an assessment of the impact prepared, and
 - (b) given written notice of the intention to carry out the development, with a copy of the assessment, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and
 - (c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.'

This heritage impact assessment aims to satisfy the requirements of Clause 14 subclause (2)(a).

2.3 Heritage Act of New South Wales (NSW) 1977

The Heritage Act provides several mechanisms by which items and places of heritage significance may be protected. The Heritage Act is designed to protect both listed heritage items, such as standing structures, and potential archaeological remains or relics. Different parts of the Heritage Act deal with these different situations.

Approvals under Part 4 or an excavation permit under s139 of the Heritage Act are not required for an approved project under Division 5.2 of the EP&A Act, however, this assessment follows the intent of the Heritage Act and the conditions of the approval which are based upon the Heritage Act requirements.

2.3.1 State Heritage Register

The Heritage Council of NSW maintains the State Heritage Register (SHR). Only those items which are of state-level heritage significance in NSW are listed on the SHR. Listing on the SHR controls activities such as alteration, damage, demolition and development.

Approved projects to which Division 5.2 applies do not require approval under Part 4 of the Heritage Act (e.g. a Section 60 approval) for items on the SHR. However, Division 5.2 projects must outline proposed heritage management and mitigation measures.

2.3.2 Archaeological relics

Part 6 Division 9 of the Heritage Act protects archaeological 'relics' from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has

‘reasonable cause to suspect’ that archaeological remains may be affected by the disturbance or excavation of the land. It applies to all land in NSW that is not included in the SHR. A ‘relic’ is defined by the Heritage Act as:

“Any deposit, object of material evidence which relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and has local or state significance.”

Section 139 of the Heritage Act requires any person who knows or has reasonable cause to suspect that their proposed works will expose or disturb a ‘relic’ to first obtain an Excavation Permit from the Heritage Council of NSW (pursuant to Section 140), unless there is an applicable exception (pursuant to Section 139(4)). In cases where a Section 139 permit is not required for projects assessed under Part 5.1 of the EP&A Act, works would need to be conducted in accordance with the intent of the Heritage Act.

Section 146 of the Heritage Act requires any person who is aware or believes that they have discovered or located a relic must notify the Heritage Council of NSW providing details of the location and other information required.

2.3.3 Works

The Heritage Act identifies ‘works’ as a category separate to relics. Although there is no formal definition, ‘works’ generally refer to past evidence of infrastructure which may even be buried, and so therefore ‘archaeological’ in nature and with the potential to provide information that contributes to our knowledge. Unlike a ‘relic’, exposure of a ‘work’ does not trigger reporting obligations under the Act. However, good environmental practice recognises the archaeological potential of such discoveries and the need to balance these against the requirements of development. Good heritage management practice includes a comprehensive Unexpected Finds Protocol to be implemented during construction.

2.4 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) includes ‘national heritage’ as a matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

The following is a description of each of the heritage lists and the protection afforded places listed on them.

2.4.1 Commonwealth Heritage List

The CHL is established under the EPBC Act. The CHL is a list of properties owned by the Commonwealth that have been assessed as having significant heritage value. Any proposed actions on CHL places must be assessed for their impact on the heritage values of the place in accordance with *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies (Significant Impact Guidelines 1.2)*. The guidelines require the proponent to carry out a self-assessment process to decide whether or not the action is likely to have a significant impact on the environment, including the heritage value of places. If an action is likely to have a significant impact an EPBC Act referral must be prepared and submitted to the Minister for approval.

2.4.2 National Heritage List

The NHL is a list of places with outstanding heritage value to Australia, including places overseas. Any proposed actions on NHL places must be assessed for their impact on the heritage values of the place in accordance with Management of National Environmental Significance (Significant Impact Guidelines 1.1). The guidelines require the proponent to carry out a self-assessment process to decide whether or not the action is likely to have a significant impact on a matter of National Environmental Significance, including the national heritage value of places. If an action is likely to have a significant impact an EPBC Act referral must be prepared and submitted to the Minister for approval.

2.4.3 Register of the National Estate

The Register of the National Estate (RNE) was formerly compiled as a record of Australia’s cultural and Aboriginal heritage places worth keeping for the future. The RNE was frozen on 19 February 2007, which

means that no new places have been added or removed since that time. From February 2012 all references to the RNE were removed from the EPBC Act. The RNE is maintained on a non-statutory basis as a publicly available archive.

3. Environmental Context

3.1 Landform

The subject area is located approximately 2km west of the Hunter River and is within Hexham Swamp. Hexham Swamp covers over 900 hectares and is the largest freshwater swamp on the north coast of NSW (NSW National Parks and Wildlife Service 2008). The Hexham TSF study area is located south west of the Aurizon buildings and is accessed via unsealed roads.

The Williamtown – Salt Ash Floodplain Risk Management Study and Plan (BMT Eastern Australia Pty Ltd 2018) represents the most current and detailed modelling of Hunter River flood conditions in the estuary. Flood mapping from this study has been used to present representative flood conditions local to the turning angle site for the 5% AEP, 2% AEP and 1% AEP.

At the 5% AEP the turning angle site (which is situated atop the historic coal tailings fill) is effectively flood free. Convective flood waters are limited to the Hunter River channel, with surrounding areas of floodplain being non-convective flood storage.

At the 2% AEP the Hexham Swamp flood storage volume is substantially larger, although the flood waters are still largely non-convective. The southern extent of the proposed turning angle becomes flooded by backwater inundation.

At the 1% AEP the significant conveyance of flood waters through Hexham Swamp is evident, where the overtopping of the Pacific Highway and rail infrastructure acts as the principal local hydraulic control, as evidenced by the higher velocities. A minor flood flow path is also initiated over the coal tailings, within the footprint of the proposed turning angle works.

3.2 Geology and Geomorphology

Hexham is located in the Sydney Basin, bounded to the north by the New England Fold Belt, and the Lachlan Fold Belt to the south. The underlying geology of the study area, as can be viewed in Figure 3.1, is comprised of Triassic, Permian and Quaternary deposits. The Narrabeen group is made up by Triassic deposits, with the Newcastle Coal Measures dominating as the Permian deposits. These areas are characterised by alternating siltstone and sandstone layers, with coal, shale, tuff and conglomerates also present (Matthei 1995).

Within the greater Hunter Valley, soils are typically duplex with discernible soil horizons that relate to weathering of the parent rock. In the Hunter Valley, these soils typically comprise fine grained sand, silt, and clay fluvial deposits. This alluvium is derived from erosion of Bringelly Shale. Although the study area has been disturbed it can be assumed that these soil horizons were previously present across the study area.

Important to note is the presence of Acid sulphate soils (ASS) which are naturally occurring sediments and soils containing iron sulphides (principally iron sulphide or iron disulphide or their precursors). A review of the ASS risk maps from the Australian Soil Resource Information System (ASRIS) database demonstrates that the study area sits within a zone of 'High Probability'.

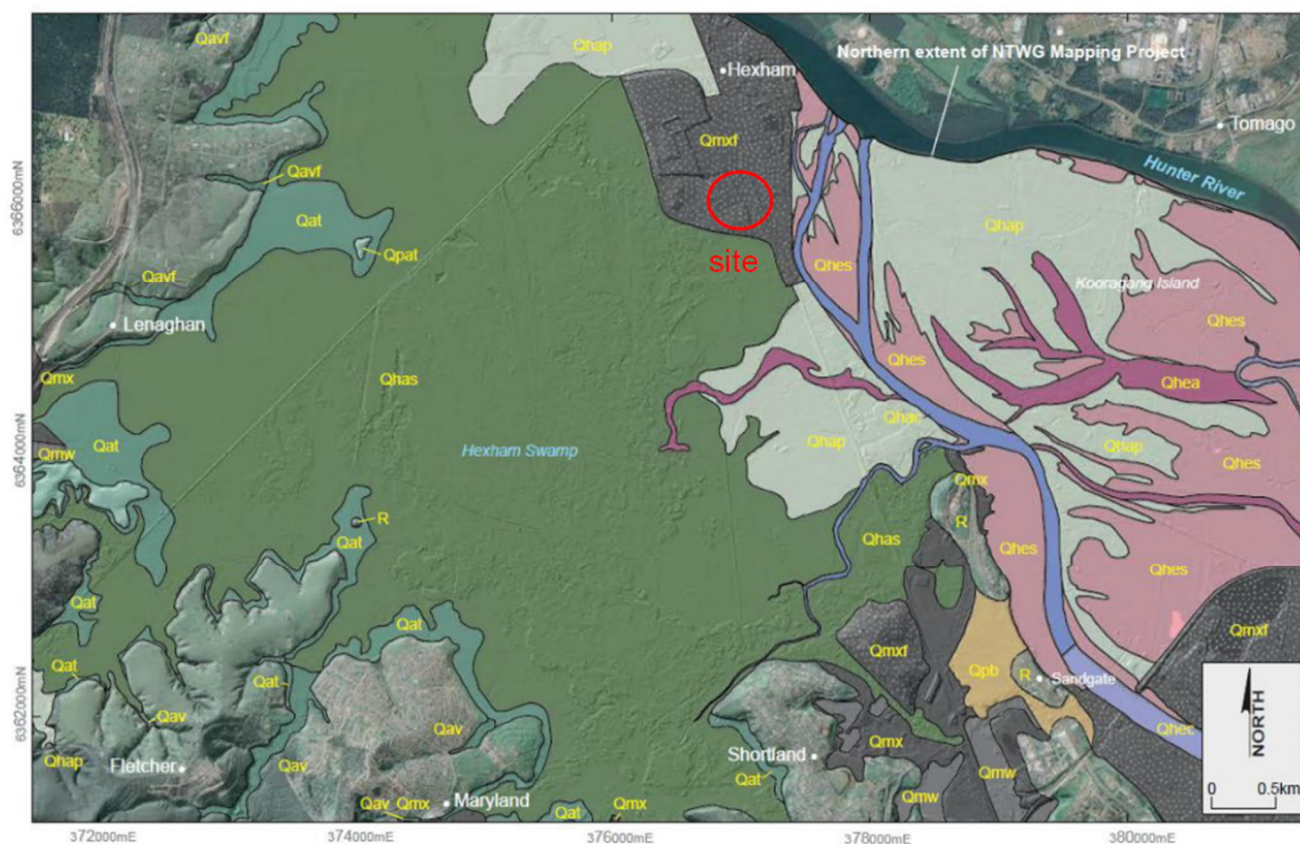


Figure 3.1: Underlying geology in the study area (Department of Industry, 2015 report as cited by Aurizon 2018)

3.3 Climate and Vegetation

The climate of the study area typically ranges from a minimum average temperature of 1 degree Celsius, to a maximum average of 43 degrees Celsius (Aurizon Operations Ltd 2018). It is typically warm, or warm to hot with humid summers and cool to mild winters. Annual rainfall is an average of 1155mm.

Hexham Swamp is the largest freshwater swamp on the north coast of NSW (NSW National Parks and Wildlife Service 2008). In the 1970 the swamp contained 11 of the 14 types of coastal wetland types found in NSW (NSW National Parks and Wildlife Service 2008, p. 9). Vegetation patterns of the area are relatively unknown prior to European settlement, however in 1978 the swamp was described as four main zones:

- The south-east zone - predominantly saltmarsh and mangroves. Dominated by grey mangrove, red samphire (*Sarcocornia quinqueflora*), saltwater couch, and paspalum.
- The central portion - predominantly a reed community dominated by *Fimbristylis ferruginea* with minor areas of the common reed (*Phragmites australis*).
- The upper reaches – described as freshwater meadows and seasonal freshwater swamps. Most diverse area and is dominated by cumbungi (*Typha australis*) and many other freshwater species, for example, water hyacinth (*Eichhornia crassipes*).
- To the north-west - freshwater grassy swamps consisting of submerged aquatic plants, reeds, paspalum, *Eleocharis spp.* and other agricultural fodder plants.

Hexham Swamp currently appears to be dominated by one single community, the reed *Phragmites*.

4. Historical Context

Europeans arrived in the Hunter Valley in 1804 when an outpost was positioned on the mouth of the Hunter River. The original purpose of the outpost was to serve as punishment for prisoners who had reoffended after coming to Sydney. Following its removal in 1823, the area became open to free settlers.

4.1 General Historic Background

Hexham was built as a result of the laying of a road between Newcastle and Maitland. It provided a rest stop for travellers going up and down the Hunter River. The area was described as '*inferior country [with] improvable lands on the margins of the Swamps*' (Hartley 1995, p. 11) It was an area which provided relief for travelling passengers. In the 1850's an account by James Askew describes the presence of a thriving village:

'The road passed through the principal part of Hexham. In the middle of this village there is a neat wooden chapel, and a short distance from it a small school, and about half-a-dozen houses scattered over the distance of nearly a mile among the fields. There were grazing paddocks covered with rich herbage, fields covered with stubble, nearly a yard high, the remains of the last crop. In others, rich crops of Indian corn enlivened the scene' (Askew 1857, p. 298- 230).

The region was heavily used for agriculture and dairy farming from the 1830's, with Hexham often described as being '*in the centre of an agricultural and grazing country*' (Department of Lands 1942). In 1900 there were over 16 farms in operation.

The coal industry began emerging in 1857 with the construction of John Eales' railway (now referred to as the Minmi to Hexham Railway). The railway allowed coal from the Minmi mines to be transported to the Hunter River at Hexham. Its construction and route has been described by Ron Preston as:

The main line headed out across the great Hexham Swamp, a wetland famous for its birdlife and aquatic flora, but also noted for its black snakes and mosquitoes...the earthworks were simple – just an earth embankment, wide enough to carry the tracks and high enough to keep the rails above the peak water level. Culverts at intervals allowed water to flow from one side to the other. (Preston 1990, p. 13).

The railway's original route left the mine at Minmi and travelled northwards for half a mile before turning northeast for four miles, it crossed the swamplands to Hexham before turning east about half a mile before the Hunter River (refer to Figure 4.1). The railway was built predominantly on swampy ground and most of the tracks had to be built up with sand to elevate it. The railway was expanded in the early 20th century and was subsequently renamed as the Richmond Vale Railway. Figure 4.2 depicts an aerial photo from 1944 showing the northern section of the railway. The Minmi to Hexham Railway is located north of the study area and is listed on the *Newcastle Local Environmental Plan 2012*. It is viewed as having local heritage significance.

In 1955 a coal washery was constructed in the study area. A coal washery procedure takes

'crushed coal... [this is] elevated into distributing troughs, which divided it amongst three pulsating washing machines or bashes, the shale and 'brass' falling through gratings in these machines and being carried away by sluice, while the cleaned coal was thrown forward by the water onto screens for separation into blacksmith's nuts and fine coal for coking after further crushing' (Edwards 1981).

The washery resulted in new network lines to be constructed to aid in the service of the new operations. The procedure is described by Brian Andrews:

'Three sidings for storing unwashed coal were constructed on the northern end of the Coal Preparation Plant. After the wagons had dumped their loads, they were reloaded with washed coal as they passed through the Coal Preparation Plant. The washed coal sidings consisted of

two full sidings and one for the storage of empty wagons. These sidings were constructed at the southern end of the plant while a dead-end shunt and a service road connected these sidings through the plant to the Hexham Exchange Sidings (Brown's Siding). After the full wagons had been lowered from the Coal Preparation Plant, they were made into trains with the use of capstans which pulled the wagons together... a train ... was worked ... almost daily over the Richmond Vale Railway until the closure of the line beyond Stockrington in July 1967.' (Andrews 2017, p. 119)

The washery reject was disposed on site in emplacements adjacent to the preparation plant. These emplacements were constructed horizontally, and the tailing were dewatered in tailings ponds. When the tailings ponds were filled and drained they were covered with coarse reject and the new platform was used as a temporary coal stockpile until an area was required for the next lift in the emplacement (Longworth & McKenzie Limited and Johnstone Environmental Technology Pty. Ltd 1987, p. 45). Figure 4.3 displays an aerial map of the area where large coal piles and the balloon loop can be seen. The balloon loop was constructed in 1973 to aid transferring coal from the Richmond Vale Railway to PTC trains (Engenicom Pty Ltd 2014, p. 11) (refer to Figures 4.4 and 4.5).

The coal that was processed at the study area was owned by the company J. & A. Brown which later merged with Abermain Seaham Collieries Ltd in 1930, becoming J. & A. Brown and Abermain Seaham Collieries Ltd (JABAS) (Jay 1994, p. 127). The company became the largest producer of coal in Australia with an output of over 1.5 million tons of coal a year (EJE Heritage 2012, p. 29). In 1987 the Richmond Main Colliery ceased mining and the Richmond Vale Railway closed. Demolition of the Coal Preparation Plant began in March 1989 and sidings and coal wagons were gradually removed. Part of the site was sold to Newcastle Rail Terminals in 1997, and then sold again to QR National in 2006 (EJE Heritage 2012, p. 35).



Figure 4.1: Minmi to Hexham Railway. Route can be seen as the diagonal line running in the centre of the map (Department of Lands 1917)



Figure 4.2: Aerial photo of part of the study area in 1944. The Minmi to Hexham Railway can be seen running in between the Chichester Pipeline and Maitland Road (NCC Plan Room as cited in EJE Heritage 2012, p. 26)



Figure 4.3: Aerial photo of the study area in 1975 which depicts the extent of coal production and shows the extent of the Balloon loop (Andrews 1975)

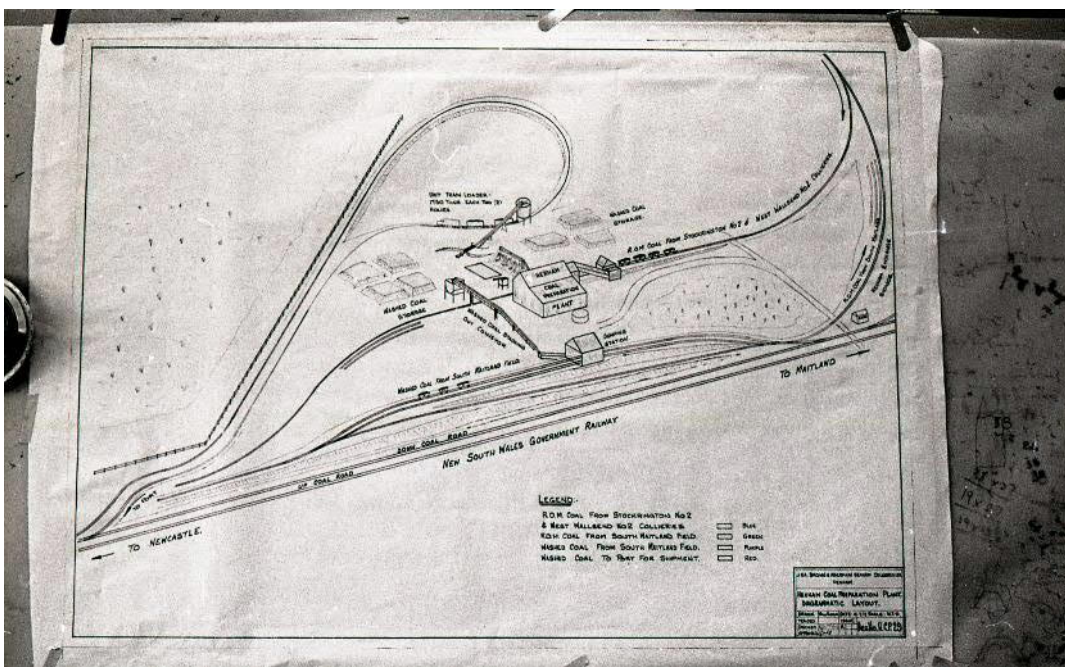


Figure 4.4: Diagram of Hexham coal preparation plant and proposed coal handling facilities. Pictured above is the balloon loop (Andrews 1972)



Figure 4.5: Train on Hexham balloon loop (Andrews 1988)

4.2 Heritage Database Searches

Heritage items and places are recorded on statutory and non-statutory registers held at the federal, State and local level, depending on their level of significance. Federally managed heritage includes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL), both administered by the EPBC Act. The NHL comprises natural, Aboriginal and non-Aboriginal items of National heritage significance, while the CHL contains natural, Aboriginal and non-Aboriginal items of National, State and local heritage significance either located on Commonwealth land or owned by the Commonwealth. Items on the NHL and CHL, as well as World Heritage items in Australia, are recorded on the Australian Heritage Database, currently administered by the Federal Department of Environment and Energy.

State heritage places and items are registered on the State Heritage Register, created by the Heritage Act. The SHR is a searchable online database that records all State heritage items and places and their curtilages. Associated with the SHR is the State Heritage Inventory (SHI), an online database that records some local heritage items and items owned by State statutory authorities. Section 170 of the Heritage Act requires all statutory authorities to advise OEHL of their heritage assets for recording on the SHI.

Items of local heritage significance are recorded in LEP for the relevant LGA.

4.2.1 World, National and Commonwealth Heritage

A search of the Australian Heritage Database was undertaken on 31 January 2019. No items of World, National or Commonwealth heritage were identified in, or within the immediate vicinity, of the study area.

4.2.2 State Heritage

A search of the SHR was undertaken on 31 January 2019. No items of State Heritage were identified within the study area.

4.2.3 Section 170 Registers

A search of the State Heritage Inventory for items registered under s170 of the Heritage Act was undertaken on 31 January 2019. No heritage item(s) were identified within the study area.

4.2.4 Local Heritage

A search of Schedule 5 of the Newcastle LEP 2012 was undertaken on 31 January 2019. No heritage items are present within the study area.








A number of items of local heritage significance listed on the Newcastle LEP are located in the vicinity of the study area. These are listed in Table 4.1 and shown in Figure 4.6 overleaf.

Table 4.1: Items of Local heritage significance in the vicinity of the study area

Suburb	Item Name	Address	ID
Hexham	Oak Factory	189 Maitland Road	I178
Hexham	Hannel Family Vault	398B Maitland Road	I179
Hexham	Hexham Shipbuilding Yards	404 Maitland Road	I180
Hexham	Former Uniting Church and Hall	63 Old Maitland Road	I182
Hexham	J & A Brown's Hexham Workshops	100 Old Maitland Road	I183
Hexham	Former Glen Lovett Hall	187 Old Maitland Road	I184
Hexham	Former Hexham Public School	227 Old Maitland Road	I185
Hexham	Goninans Administration Building	230 Old Maitland Road	I186
Hexham	Hexham Bridge	Pacific Highway	I187
Minmi	Minmi to Hexham Railway	Minmi to Hexham	I332



Legend

- | | | |
|--|--|--|
|  Project boundary |  Main North Railway | Listed heritage items |
|  Major road |  Waterway |  Item - General |
|  Local road |  Waterbody | |



1:20,000 at A4



Data sources

NSW Spatial Services 2019
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Figure 4.6 Location of heritage items listed on the Newcastle LEP in the vicinity of the study area

4.3 Previous Heritage Assessments

A review of previous heritage assessments was completed to inform the site inspection in January 2019. Three previous assessment of the study area were found to be directly relevant to the current study. These are summarised in the following subsections.

4.3.1 EJE Heritage (2012)

The 2012 report was commissioned by QR National to examine the area for historical heritage items, including potential archaeological sites. The report provides an in-depth overview of the history of the land, focusing heavily on the coal facility that was in place from 1859 until 1987. Following a literature review a site survey was completed which identified several historical buildings in the area – all of which are located to the north of the study area. The Control Cabin, Bath House, Coal Preparation Plant Conveyor Belt (Support Footings and Coal Stockpile), Dairy Farm Milking Shed and associated machine Hit and Silos, and Hetton Bellbird Weighbridge Hut were all documented as present. All these buildings were vandalised and neglected, with many areas destroyed.

The 2012 report did not assess any of the identified heritage items as being State significant for their heritage values. The report, however, acknowledges the whole area has local significance due to its association with the Minmi to Hexham Railway.

Of relevance to the current study, the following areas of archaeological potential were identified within the study area (see Figure 4.7):

- The site of the Coal Preparation Plant; and
- The conveyor supports.

However, further assessment of these areas concluded that they had limited heritage value and their loss would have minimal impact on the heritage values of the broader site (i.e. “their loss will not be detrimental” EJE Heritage, 2012: p58).

Based on the results of this report, the Major Project application for the Train Support Facility was approved by the DPE on 10 October 2013 with various conditions of consent.

4.3.2 Aurizon (2014)

To fulfil the Ministers Conditions of Approval (MCoA) for the Hexham TSF, Aurizon prepared a Construction Non-Indigenous Heritage Management Plan (CNIHMP) for the site. The CNIHMP included a description of known heritage items, mitigation measures and procedures for the management of unexpected archaeological relics. The report also included a Heritage Interpretation Plan and an Archaeological Assessment prepared by Austral Archaeology Pty Ltd. A summary of this archaeological assessment is provided in the following subsection.

The Coal Preparation Plant Footings and the Conveyor Belt Support Footings identified by EJE Heritage (2012) were identified in the CNIHMP as having no heritage significance and no mitigation measures were provided.

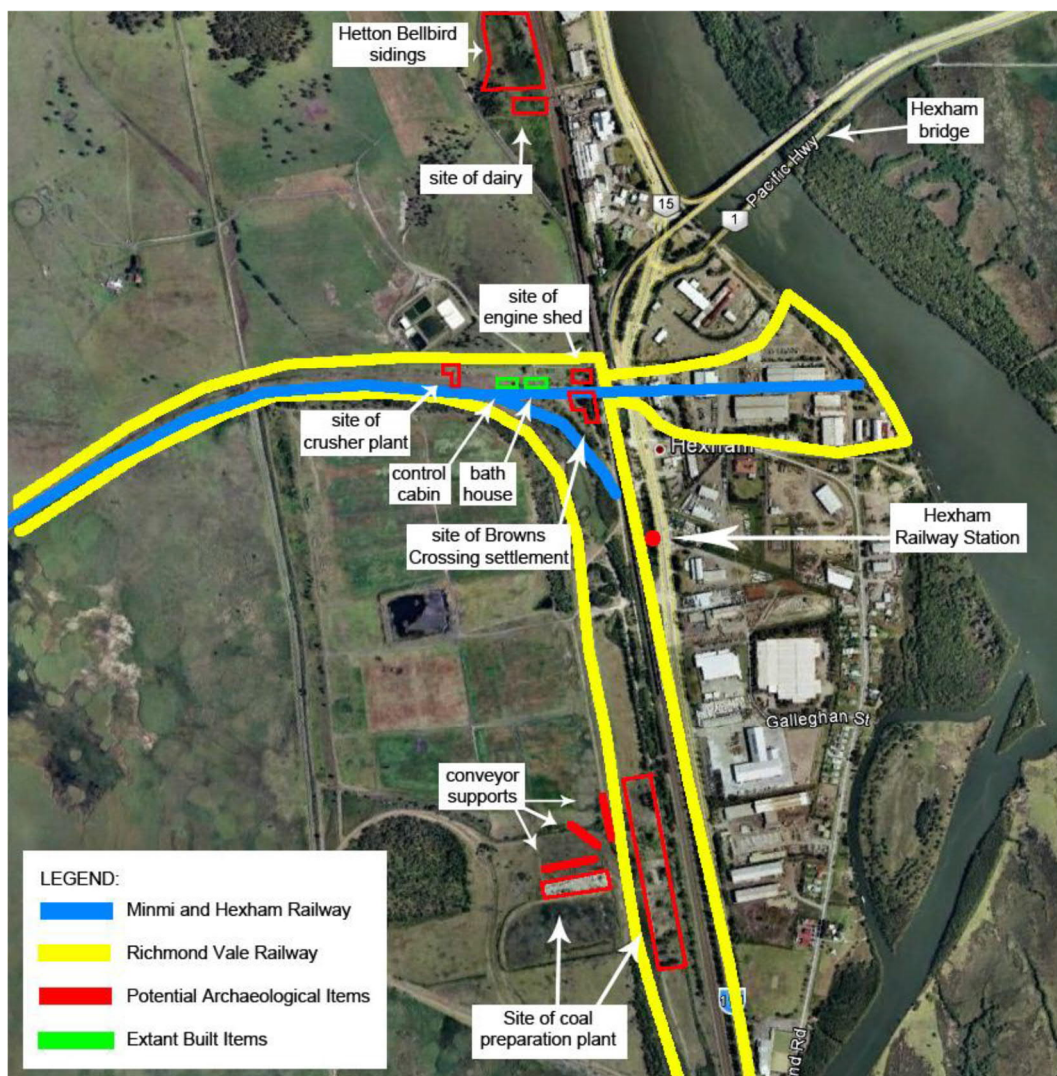


Figure 4.7: Heritage items identified within the Hexham TSF by EJE Heritage (Image reproduced from EJE Heritage 2012, p5).

4.3.3 Austral Archaeology Pty Ltd (2014)

In 2014 Austral Archaeology Pty Ltd (Austral) was engaged by Aurizon to prepare an historical archaeological assessment and research design to fulfil MCoA for the Hexham TSF. The report provides a detailed history of the larger Hexham TSF project area, largely based on the information sourced by EJE Heritage (2012), an analysis of the potential for historical archaeological relics and the results of a comprehensive archaeological survey. Figure 4.8 below shows historical features and potential features identified by the Austral study. Within the current study area, the following features were identified:

- Balloon Loop Siding;
- Coal Preparation Plant footings; and the
- Conveyor supports.

Despite the presence of these historical features, Austral concluded that the southern portion of the Hexham had undergone varying degrees of landscaping and, as a result, contained no archaeological (subsurface) sites. The only area of archaeological sensitivity was found to the north of the current study area where various structures were built at Brown's Crossing. An Archaeological Research Design (ARD) for further archaeological investigation of this area was subsequently prepared and included as part of the assessment.

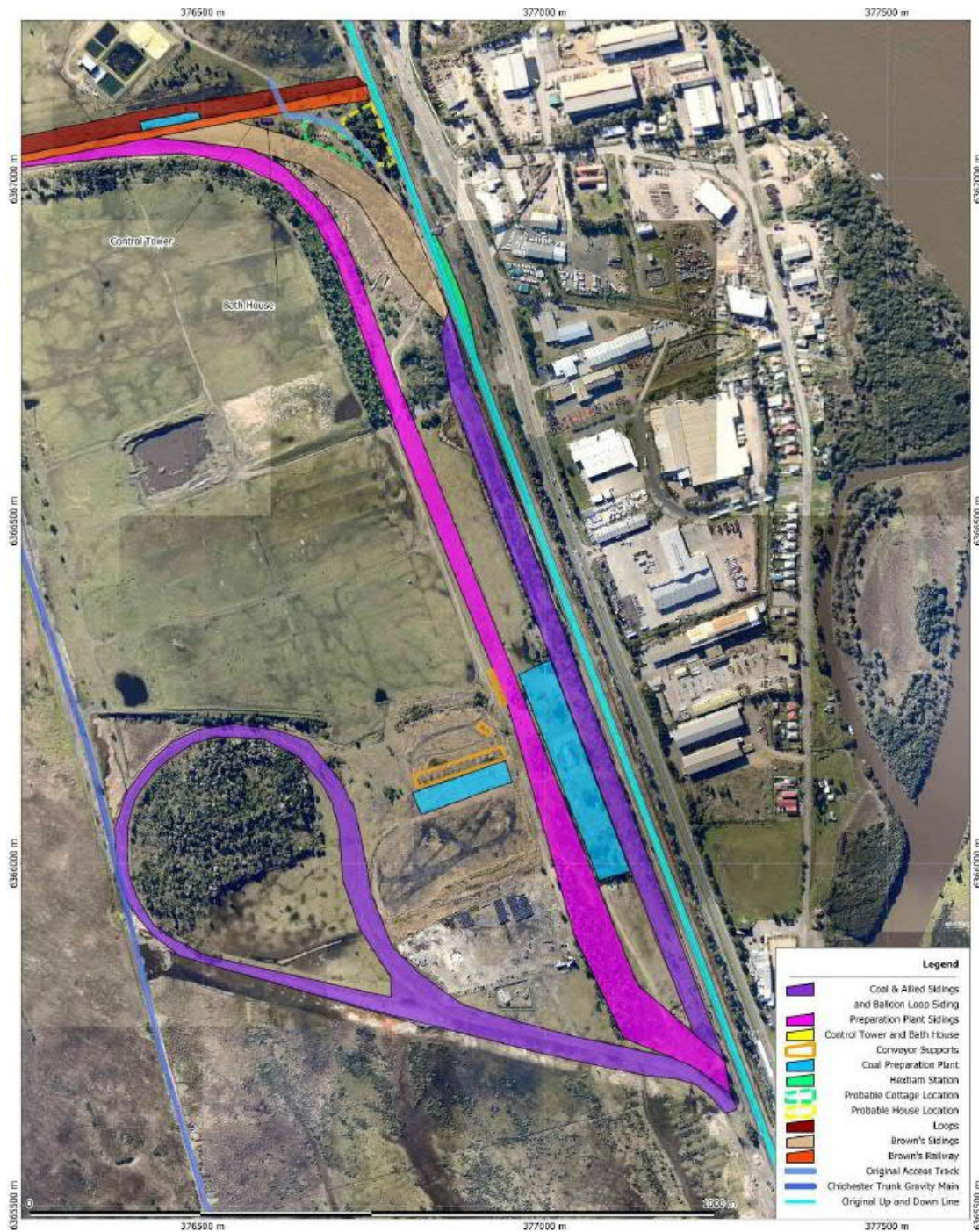


Figure 4.8: Location of historical features or potential features identified by Austral (Image reproduced from Austral Archaeology, 2014 p35).

4.4 Conclusion

The study area has been used for agriculture, dairy farming, and coal processing from the mid- 1800's. Coal processing is understood to have been the dominant industry that impacted the study area, with coal processing and washery procedures active from 1955 until 1987. The large presence and processing of coal within the study area has resulted in the destruction of the original landform. Within the study area itself, infrastructure associated with coal processing once included: part of the 1955 Coal Preparation Plant, associated conveyors and the balloon loop constructed in 1973. However, subsequent modification to the study area has since removed all above-ground evidence of these structures, except for the outline of the c1973 balloon loop siding.

5. Site Inspection

5.1 Timing and Personnel

An inspection of the site was undertaken by Jacobs archaeologists Clare Leever and Alexandra Seifertova on 24 January 2019 with Aurizon representative, Harry Egan.

5.2 Observations

The weather on the day of the site survey was dry with cloud cover. The general landscape was dry yet lush. The general landscape is used as pastoral land which is reflected in the grazed vegetation. In addition to the study area itself, two areas outside the study area were visited to provide some context.

Firstly, the Minmi to Hexham Railway was visited. Lying outside the boundaries of the study area the railway is registered on the Newcastle LEP. The railway tracks lie approximately 1 km to the north of the study area and represent the early railway that was used to transport coal. The physical context of the railway (as can be viewed in Figure 5.1) has sparsely vegetated ground cover. Patches of erosion are present and most likely a result of the landscape being used as pastoral land. The erosion allows coal refuse to be visible on the surface. This coal is a result of the coal production and washery that was present on the site from the 1930's until 1967.

Following inspection of the railway, the study area was accessed via an unformed road which bounds the study area on its western side. The study area is currently used as pastoral land for dairy cow and is heavily eroded in some locations (refer to Figure 5.2).

The erosion seen around the railway is present throughout the entire study area. The extent of coal added to the landform is evidenced by the two large coal tailing piles located on the boundary of the study area. These piles, as can be viewed in Figure 5.3 are evidence of the emplacements on site where reject coal was once placed.

In addition to the presence of coal across the study area, the raised embankment established for the former Balloon Loop Siding was present in places (see Figure 5.4). The rail line associated with this siding, however, has been removed and no other in-situ remains of the balloon loop have survived.

Within the study area some miscellaneous historical objects were located however they were not in-situ and do not provide any additional information about the history of the site. On the southern end of the study area a medium sized pile of timber and metal pieces was located (refer to Figure 5.5). These appear to be from the balloon loop located on the outside boundary of the study area. If from the balloon loop, these pieces date to post- 1973 and are not of local or State heritage significance. Furthermore, metal nails of varying size were also observed to be present. These nails were found within the timber pile and could be associated with the construction of railway tracks. Like the timber, however, these nails most likely date to post-1973 and as such do not hold historical significance.



Figure 5.1: Minmi to Hexham Railway (located outside of the study area) (Source: Jacobs, 2019)



Figure 5.2: Study area with eroded section (Source: Jacobs, 2019)



Figure 5.3: Coal tailings fill located near the study area boundary (Source: Jacobs, 2019)



Figure 5.4: Evidence of the raised embankment of the former Balloon loop siding (Source: Jacobs, 2019)



Figure 5.5: Presence of timber and metal pieces within the study area (Source: Jacobs, 2019)

5.3 Results

No historical heritage items, or potential archaeological relics, were identified within the study area during the site inspection. Remnants of the raised embankment of the former 1973 balloon loop and an associated timber pile and miscellaneous metal nails are not considered to be of local or State heritage significance and would not be classified as heritage items. Furthermore, examination of the study area confirmed that there is no heritage listed items or archaeological sites in its vicinity. The Minmi to Hexham Railway is a locally significant heritage item listed on the Newcastle LEP, however it lies to the north of the study area and would not be impacted on by the proposed works.

6. Impact Assessment

6.1 Potential Impacts

Construction of the proposed turning circle would involve excavation to establish railway track foundation and ballast. These works would involve:

- approximately 1.5km of rail track and associated signal and turnout infrastructure comprising:
 - a single track straight of approximately 400m in length extending from the existing rail yard to the proposed turning angle;
 - a turning angle with two arcs approximately 250m in length and a straight of approximately 275m;
 - two 85m straight single tracks at either end of the turning angle;
 - four tangential turnouts;
- construction of vehicular access tracks and associated lighting;
- installation of culverts within existing drainage channels, under the rail track and access tracks; and
- Associated civil and storm water works.

Given the absence of any historical heritage items, including potential archaeological relics, within the study area the impact of the proposed works on non-Aboriginal heritage is considered to be extremely low.

7. Conclusions and Recommendations

No non-Aboriginal heritage items, including potential archaeological relics, were identified within the study area. The raised embankment associated with the 1973 Balloon Loop Siding and the associated timber pile and miscellaneous metal nails that were identified are not considered to be of local or State heritage significance and, as such, would not be classified as heritage items.

Given the absence of historical heritage items and the extremely low potential for any historical archaeological relics, no further heritage assessment of the study area is considered necessary prior to the commencement of works.

The following recommendations are made to assist the management of unexpected historical archaeological relics or human skeletal remains during construction:

- In the event that historical relics not assessed or anticipated by this assessment are found during excavation, the procedure outlined in the CNIHMP for the Hexham TSF must be followed. The steps outlined by this procedure are as follows:
 - All works in the immediate vicinity of the find are to cease immediately.
 - A qualified archaeologist must be contacted to assess the situation and consult with the Heritage Division, OEH, regarding the most appropriate course of action. Construction activities on site are bound by the requirements of s.146 of the Heritage Act, including the obligation to notify the Heritage Division of the discovery of a relic.
- If human remains, or suspected human remains, are found during excavation, all work in the vicinity should cease immediately, the site should be secured and the NSW Police and the Heritage Division, OEH should be notified.

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Appendix A. Additional Photos of Hexham Rail and Study Area

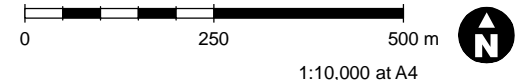
Legend for Figure 9.1	Description	Photo
A	Hexham rail line which is outside the study area. Access to the rail line is front an access road which is enclosed by wiring as well as an incomplete fence (as pictured).	
B	Hexham rail line which is outside the study area. Original wooden beams still in place. Large amount of erosion displaying layer of coal refuse.	

Legend for Figure 9.1	Description	Photo
C	<p>Detail of Hexham rail line (outside of the study area), with scale. This lies to the north of the study area.</p>	
D	<p>Presence of timber and metal pieces within the study area. Appears to be part of the balloon loop located on the outside boundary.</p>	

Legend for Figure 9.1	Description	Photo
E	Presence of miscellaneous nails throughout study area.	



- Legend**
- Photo location, direction and ID
 - Project boundary
 - Main North Railway



Data sources
 Jacobs 2019
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Figure 9.1 Map showing location of photos in Appendix A