

4.4 Assessment against Criteria

The Heritage Branch has developed seven criteria for assessing the ‘significance’ of items and places in NSW. The following assessment is against the Heritage Branch criteria. An item or place is considered to be of State, or local, heritage significance if it fulfils one or more criterion.

The following assesses the significance of the various elements within or immediately adjacent to the study area, which have not previously been assessed. However, as there is no physical evidence of the incoming (down) rail sidings associated with the 1956 JABAS CPP, this has not been included in the following assessment. Those items and elements that are assessed are:

- The Great Northern Railway
- The Minmi-Hexham Railway
- Coal Processing Plant (CPP)
- C&A CPP Sidings
- Concrete Silos and Associated Brick Building
- Concrete Storage Bin and Unidentified Structural Remains

Criterion a) an item is important in the course, or pattern, of NSW’s cultural or natural history (or the cultural or natural history of the local area)

- The Great Northern Railway is the primary railway from Sydney to Newcastle and Maitland and to the northwest. The section between Newcastle and Maitland was constructed between 1854 and 1855, as a stand-alone Government line, joining the Great Northern in 1889.
- The Minmi to Hexham Railway was constructed in 1853 to transport coal from John Eales’ Minmi Colliery. This was one of the first colliery railways to be constructed linking the Hunter coalfields with the port at Hexham. The Minmi to Hexham railway formed the basis of subsequent colliery lines.
- The few remnant elements of the Coal Processing Plant are representative of similar coal preparation plants in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The C&A CPP sidings are representative of similar sidings in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete silos and brick building are representative of similar coal storage elements in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete storage bins and unidentified structural remains are representative of similar coal storage elements in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.

Criterion b) 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 cultural or natural history of the local area)

- The Minmi-Hexham railway is associated with John Eales, James and Alexander Brown and the development of the Hunter coal mining industry. The Browns expanded the line to include their surrounding collieries forming an integral part of the coal mining industry for over 130 years. An element of this expansion was the Richmond Vale Railway.
- Although the few remnant elements of the CPP have an association with James and Alexander Brown, this is not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.

- Although the C&A CPP sidings have an association with James and Alexander Brown through Coal & Allied, this is not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.
- Although the concrete silos and brick building may have an association with James and Alexander Brown, this is not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.
- Although the concrete storage bins and unidentified structural remains may have an association with James and Alexander Brown, this is not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.

Criterion c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

- The Newcastle to Maitland section of the Great Northern Railway and the Minmi to Hexham Railway are important in the development of private and Government railway networks servicing the Hunter Valley coal mining industry.
- The few remnant elements of the CPP are representative of similar coal preparation plants in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The C&A CPP sidings are representative of similar sidings in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete silos and brick building are representative of similar coal storage elements in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete storage bins and unidentified structural remains are representative of similar coal storage elements in the Hunter Valley and NSW, and as such, do not meet the threshold for inclusion for this criterion.

Criterion d) an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons

- Any strong or special associations that the Newcastle to Maitland section of the Great Northern Railway and the Minmi to Hexham Railway may have, have not been investigated as part of this study, and as such cannot be considered as meeting this criterion.
- Any strong or special associations that the CPP may have, have not been investigated as part of this study, and as such cannot be considered as meeting this criterion.
- Any strong or special associations that the C&A CPP sidings may have, have not been investigated as part of this study, and as such cannot be considered as meeting this criterion.
- Any strong or special associations that the concrete silos and brick building may have, have not been investigated as part of this study, and as such cannot be considered as meeting this criterion.
- Any strong or special associations that the concrete storage bins and unidentified structural remains may have, have not been investigated as part of this study, and as such cannot be considered as meeting this criterion.

Criterion e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)

The archaeological resources of any site are finite and have the potential to provide insights into everyday life that may not be available from any other resource. The historic context and physical analysis indicate that there is some potential for historical archaeological resources associated with the industrial development of the study area. The archaeological resources are likely to be associated with

the Minmi to Hexham Railway exchange loop and junction, constructed by James and Alexander Brown in 1859, and its association with the Government funded and operated Great Northern Railway at Hexham.

Construction of the privately funded and operated railway provided an efficient and economical means of transportation from the Hunter coal mining operations to the deep-water wharves on the banks of the Hunter River at Hexham. Construction of the Government funded and operated Great Northern Railway provided a critical link with the Sydney and Newcastle markets and, inland of NSW, providing economic and social benefits to the townships along its route.

The ability of archaeological resources that may be exposed to make a contribution to current knowledge, and hence their potential significance is assessed as follows:

1. *Can the site contribute knowledge that no other resource can?*
and
 2. *Can the site contribute knowledge that no other site can?*
- Physical evidence associated with the construction and development of the Great Northern Railway would make a contribution to an understanding of the development of coal transportation network. However, this information is unlikely to make a substantial contribution to current information.
 - The archaeological resources associated with the Minmi colliery sidings and workshops, control cabins and signal boxes, and junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, are likely to have good integrity. Archaeological resources associated with these structures have the potential to provide an insight into the people who lived and worked in this discrete area during the operation of the railway. Archaeological resources within this discrete area have the potential to provide information concerning mid-nineteenth construction and operation technologies. The contribution that such archaeological resources would make to research questions concerning the industrial development of the local area that no other resource can, would be high.
 - The majority of the CPP has been removed. The few elements of the CPP that remain are unlikely to yield archaeological relics that would contribute to current knowledge or an understanding of the area that is not available from any other source, and as such, do not meet the threshold for inclusion for this criterion.
 - The C&A CPP sidings are unlikely to yield archaeological relics that would contribute to current knowledge or an understanding of the area that is not available from any other source, and as such, do not meet the threshold for inclusion for this criterion.
 - The concrete silos and brick building are unlikely to yield archaeological relics that would contribute to current knowledge or an understanding of the area that is not available from any other source, and as such, do not meet the threshold for inclusion for this criterion.
 - The concrete storage bins and unidentified structural remains are unlikely to yield archaeological relics that would contribute to current knowledge or an understanding of the area that is not available from any other source, and as such, do not meet the threshold for inclusion for this criterion.

3. *Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?*

- The archaeological resources associated with the Minmi colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, have the potential to add information to current information regarding the development of the local area and its association with the Hunter coal fields.

Criterion f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)

- The archaeological resources associated with the Minmi colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, are representative elements of the development of the Hunter coal industry.
- The few remnant elements of the CPP are associated with the post-WWII industrial development of the region, and are representative of the area. These elements are not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.
- The C&A CPP sidings are associated with the post-WWII industrial development of the region, and are representative of the area. These elements are not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete silos and brick building are associated with the post-WWII industrial development of the region, and are representative of the area. These elements are not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.
- The concrete storage bins and unidentified structural remains are associated with the post-WWII industrial development of the region, and are representative of the area. These elements are not rare at a local or regional level, and as such, do not meet the threshold for inclusion for this criterion.

Criterion g) an item is important in demonstrating the principal characteristics of a class of NSW's Cultural or natural places or environments (or in the local area)

- The archaeological resources associated with the Minmi colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, are representative elements of the development of the Hunter coal industry.
- The majority of the CPP has been removed. The few elements of the CPP that remain are associated with the post-WWII industrial development of the region, and are representative of the area. As such, they do not meet the threshold for inclusion for this criterion.
- The C&A CPP sidings are associated with the post-WWII industrial development of the region, and are representative of the area. As such, they do not meet the threshold for inclusion for this criterion.
- The concrete silos and brick building are associated with the post-WWII industrial development of the region, and are representative of the area. As such, they do not meet the threshold for inclusion for this criterion.
- The concrete storage bins and unidentified structural remains are associated with the post-WWII industrial development of the region, and are representative of the area. As such, they do not meet the threshold for inclusion for this criterion.

Summary Statement of Significance

- The CPP does not meet the threshold for historic heritage significance at a local, regional or State level.
- The C&A CPP sidings do not meet the threshold for historic heritage significance at a local, regional or State level.
- The concrete silos and brick building do not meet the threshold for historic heritage significance at a local, regional or State level.
- The concrete storage bins and unidentified structural remains do not meet the threshold for historic heritage significance at a local, regional or State level.

The section of the Great Northern Railway, within the study area, has some historic and technical value as an early railway providing a secure transportation route to the west and north. The Newcastle to Maitland section has significance at the local level. Archaeological relics associated with the Great Northern Railway if exposed, would make a minor contribution to an understanding of the construction of the railway and development of the local area.

The Minmi to Hexham Railway has historic and technical value for its association with the Minmi Colliery, established by John Eales and James and Alexander Brown. There is potential for archaeological resources within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, associated with the colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage, to provide an insight into the people who lived and worked in this area. There is potential that archaeological resources would provide an insight into mid-nineteenth construction and operation technologies within this discrete area that no other resource can.

5 Cumulative Assessment – Queensland Rail National Train Support Facility

5.1 Preamble

Queensland Rail (QR) National is currently preparing plans for a Train Support Facility (TSF) and adjoining industrial development located immediately to the west of the Relief Roads. The layout and key features of both projects are shown in Volume 1 of the EIS for the Hexham Relief Roads project.

QR National is liaising with ARTC to co-ordinate the design and approval processes. As part of this study and report, the QR National 2008 Environmental Assessment Report (EAR) has been reviewed. Where updated (2011) reports are available, these have also been reviewed. The documents relevant to the project and which have been reviewed are:

- EJE Heritage (2008) Statement of Heritage Impact: Hexham Redevelopment Project QR National. Report to QR National.
- EJE Heritage (2011) Statement of Heritage Impact: Hexham Redevelopment Project QR National. Report to QR National.

5.2 Potential Impacts

The EJE Heritage 2008 Statement of Heritage Impact (SoHI) identified the proposed works as:

The proposed works to the site involves a Redevelopment Project, Incorporating a Train Support Facility, Industrial Subdivision and Intermodal Facility for QR National stock. The proposed works require demolition of both the 1949 Bath House and the control box/lunch room currently on site (2008:31).

The report concludes:

After considering the impacts of the development on the heritage significance of the site it is considered that the development will have a minimal impact on the limited heritage significance of the site. Indeed this proposal has a positive impact upon the heritage of the site by resuming a former significant use and therefore increasing the potential to interpret the site.

Accordingly this report concludes that there will be minimal impact arising from the proposed development and sufficient consideration of the heritage significance of this site has been taken into consideration (2008:34).

The 2011 SoHI prepared by EJE Heritage identified the proposed works as:

The proposed works at the site involve the construction of a Train Support Facility for the maintenance of QR National stock, Intermodal Facility and industrial subdivision. The proposed works require demolition of both the 1949 bath house and the control box/lunch room (2011:31).

After considering the impacts of the development on the heritage significance of the site it is considered that the development will have a minimal impact on the limited heritage significance of the site. Indeed this proposal has a positive impact upon the heritage of the site by resuming a former significant use and therefore increasing the potential to interpret the site.

The report concludes:

Accordingly this report concludes that there will be minimal impact arising from the proposed development and sufficient consideration of the heritage significance of this site has been taken into consideration (2011:34).

5.2.1 Mitigation

Both of the EJE Heritage SoHIs provide the following recommendations to mitigate impacts arising from the demolition of the 1949 bath house and the control box/lunch room:

- *It is recommended that some of the bricks from the control box/lunch room be salvaged and appropriately reused within the site. This will facilitate interpretation of the site's previous uses and heritage significance.*
- *Interpretation of the site's history should be incorporated into the proposed development.*
- *Archival photographic recording and measured drawings (to NSW Heritage Branch guidelines) should be undertaken on both the control box/lunch room and bath house before any work commences on the site (2011:34).*

5.2.2 Vibration

Although the Hexham Railway Station and the Oak Factory are identified heritage items, they stand on the eastern side of the existing railway line, and therefore should not be impacted by the project. In addition, the Hexham Relief Roads - Noise and Vibration Assessment prepared by Parsons Brinckerhoff (July 2012), notes that:

No disturbance or structural damage issues are expected at the Hexham Bowling Club, the Church on Old Maitland Road or Hexham Station which are located at least 120 metres from the proposed works (2012:39).

The Oak Factory is at a greater distance, and as such will not be affected by the effects of vibration.

5.3 Cumulative Impacts

Historic elements that are likely to be impacted by the Hexham Relief Roads project:

- The Newcastle to Maitland section of the Great Northern Railway; constructed 1854 – 1855;
- The 1853 Minmi to Hexham Railway;
- the Minmi to Hexham Railway, including part of the old rail line, colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways the JABAS Coal Preparation Plant foundations, footprint, and sidings, constructed in 1956;
- the C&A CPP sidings foundations and footprint, constructed in 1973; and
- miscellaneous structures (the concrete silos and associated brick building, concrete storage bins and unidentified structural remains); (see Figure 5.1).

The Minmi to Hexham Railway has identified local heritage significance, and archaeological research potential. The exchange loop and junction forms the start of the Richmond Vale Railway (an element of SHR listed Richmond Main Colliery). The project will have an impact on significant elements associated with the operation and development of the railway. In particular, there is potential for archaeological relics associated with the Minmi colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways, to be exposed during works. These should be managed appropriately and in accordance with heritage best practice to ensure that information is not lost.

The project scope of works is confined to the west side of the Newcastle to Maitland section of the Great Northern Railway, and as such are unlikely to have a direct impact on the railway or any relics associated with it. However, any relics that are exposed should be managed in accordance with the

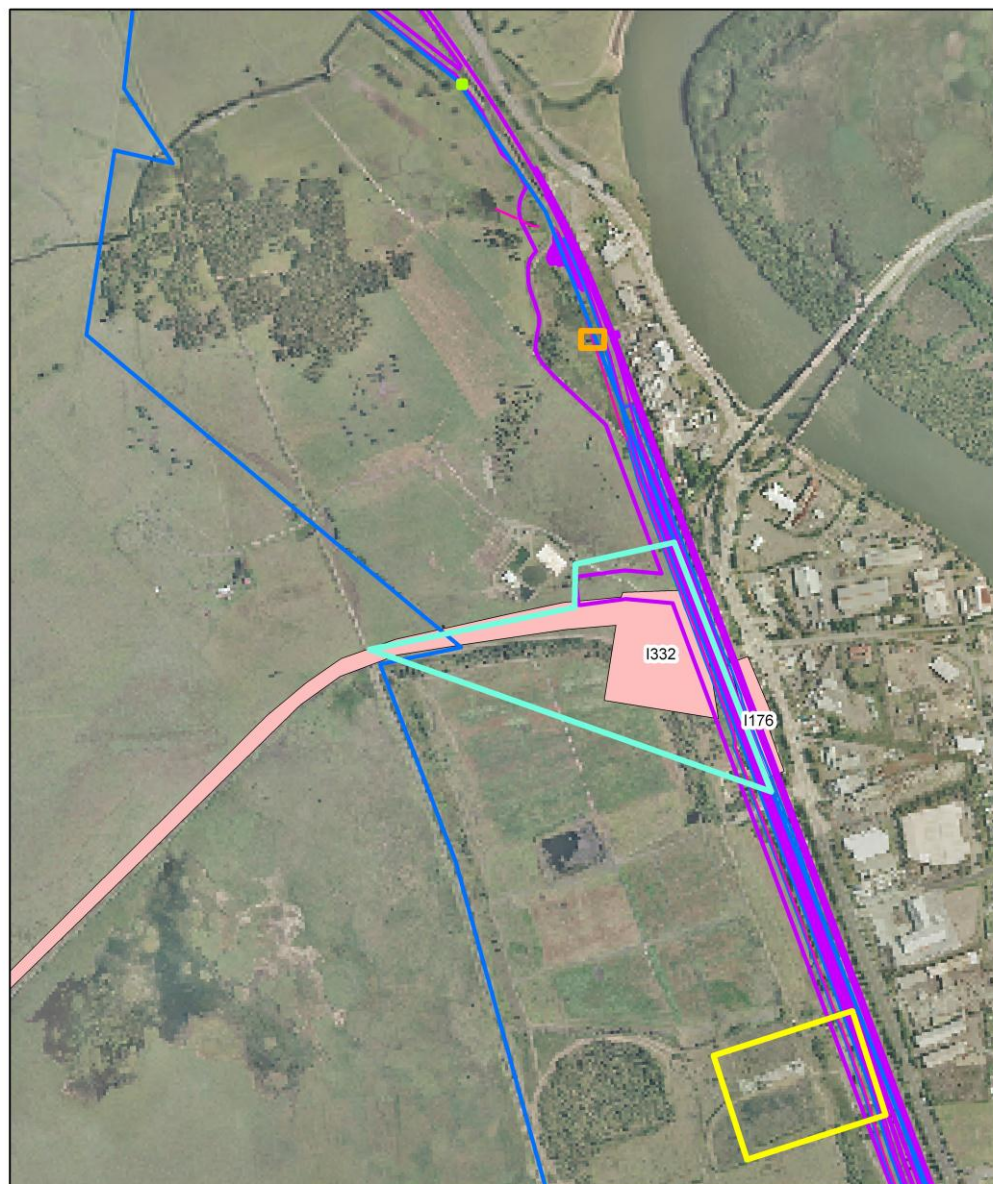
heritage best practice. Other historic elements within or immediately adjacent to the study area have been assessed as not meeting the threshold for historic heritage significance at a local or State level (see Section 0 above). These are the JABAS CPP foundations, footprint, and sidings, constructed in 1956; the C&A CPP sidings foundations and footprint, constructed in 1973; and the concrete silos and associated brick building, concrete storage bins and unidentified structural remains. Therefore, no mitigation of impacts to these elements is considered necessary. The impact on the historic heritage is relatively minor; however, these developments will have a cumulative negative impact on the historic heritage of the Minmi to Hexham Railway and an understanding of the development of the industrial heritage of the Newcastle/Hunter River region.

The scope of works for the Hexham Relief Roads project is to build up the area with fill and to limit excavation or cutting into the underlying soils. This process should minimise the impact on potential underlying archaeological features or relics associated with the early industrial development of the area, particularly the Minmi to Hexham Railway. However, should modifications to the scope of works require excavations, mitigation of the proposed impact of the Hexham Relief Roads project would require archaeological excavation of the section of railway (including associated buildings) to be impacted. Such excavation should enhance the current knowledge and understanding of the early industrial development of the region and provide an appropriate offset to the cumulative impacts on historic heritage arising from the development, ensuring that part of the site will not be destroyed without retaining the information it may hold for archaeological knowledge of the area and future research.

5.4 Summary of Heritage Impacts

The scope of works identified for the project has the potential to affect the significance of historic items and archaeological resources within the vicinity of and within the study area. Impacts arising from construction and operation of the Hexham Relief Roads are summarised below:

Name	Significance	Impact
Minmi to Hexham Railway	Local	Potential impacts include the exposure and disturbance of the original rail line and colliery sidings and workshops, control cabins and signal boxes, and Junction cottages and crossing keeper's cottage within the triangle formed by the junction of the Minmi to Hexham and Great Northern Railways.
Great Northern Railway		Potential for some relics associated with the railway to be exposed.
Richmond Vale Railway	State	No Impact
JABAS Coal Preparation Plant C&A CPP	Not significant	No identified heritage significance. Potential for impacts to non-significant conveyors, CPP facilities, and C&A sidings
JABAS Coal Preparation Plant C&A CPP	Not significant	Potential for impacts to 1970s underground tunnels associated with the conveyor system.
Miscellaneous structures	Not significant	No identified heritage significance. Potential for impacts including removal of non-significant elements.



Legend

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| Heritage Items | Study Area (Project Signalling Area) |
| Concrete storage bin | Proposed Compound Areas |
| Concrete storage silos and brick building | Access Road Options |
| Minmi to Hexham Railway junction with the Great Northern Railway | Relief Roads |
| 1956 JABAS CPP and 1973 C&A CPP | Swale Drain |
| QR National Study Area | |

0 0.1 0.2 0.4 0.6 0.8 Kilometres

Spatial Information Exchange © Department of Lands 2011
Horizontal datum: GDA94/MGA Zone 56



Figure 5.1 Historic elements and items in relation to the Hexham Relief Roads and QR National study areas.

6 Conclusion

6.1 Preamble

The aim of the Hexham Relief Roads Project is to upgrade and expand the capacity of the section of the Great Northern Railway at Hexham to alleviate future congestion on the coal network arising from a forecast increase in exports from the Port of Newcastle. The Project ensures the on-going viability of the line to service future growth of the coal industry and increased port facility requirements, and as such makes a contribution to the historic significance of the industrial heritage of the area.

The background research and physical analysis indicates that there will be unavoidable impacts to physical evidence associated with the industrial history of the local area and wider region. In particular it is likely that archaeological relics associated with the Minmi to Hexham Railway remain below the ground surface within the study area. However, the scope of works for the construction of the five new lines will be primarily on fill to limit excavation or cutting into the underlying soils. This process should minimise the impact on potential underlying archaeological features or relics associated with the early industrial development of the area. However, should modifications to the scope of works require excavations, the following is relevant.

The historic context and physical analysis indicate that there is some potential for historical archaeological resources associated with the nineteenth century construction and operation of the Minmi to Hexham Railway, and the Great Northern Railway, to be present within the study area, in particular the triangular area defined by both railways and the sidings adjacent to the junction of the railways. This area has been developed with the introduction of new sidings and railway lines to the extent that the integrity of the potential archaeological resources is uncertain, as the extent of the disturbance to relics beneath the ground, caused by the introduction of these elements, is unknown. However, any archaeological features, deposits or relics within the area of the junction of the Minmi to Hexham Railway and Great Northern Railway (see Figure 6.1) should be managed in accordance with heritage best practice guidelines, as per the proposed mitigation measures outlined in Section 6.2 below.

The following archaeological management strategy has been developed to provide guidance to the project with regard to the protection of heritage significance.

6.2 Archaeological Management Strategy

The archaeological management strategy has been recommended should the scope of works include excavations or activities with the potential to expose sub-surface archaeological features, deposits or relics. It is however understood, that the scope of works comprises raising the current ground surface level to accommodate the construction of the five relief roads, and as such it is unlikely that archaeological relics will be exposed. The following archaeological management strategy has been developed in accordance with *Historical Archaeology Code of Practice*, endorsed by the Heritage Council in 2006.

The following outlines the appropriate approach for the management of archaeological relics associated with the Minmi to Hexham Railway and Great Northern Railway:

- Where excavation is required within the vicinity of the area of the junction of the Minmi to Hexham Railway and Great Northern Railway (see Figure 6.1), an excavation director whose experience complies with the Heritage Branch criteria (see Heritage Council [2011] *Criteria for the Assessment of Excavation Directors*) would be nominated to advise on archaeological issues.

- Prior to activities associated with the initiation of ground breaking works, the excavation director would develop information for induction to brief contractors on the 'relics' provisions of the *Heritage Act 1977*.
- Construction activities for the project have potential to expose archaeological relics associated with the Minmi to Hexham Railway and Great Northern Railway (see Figure 6.1), and the excavation director would be on call to monitor, supervise and record the process as required.
- It is unlikely that works associated with the project would expose State significant relics associated with the construction or operation of the Minmi to Hexham Railway and Great Northern Railway, such as sections of intact railway, or building foundations associated the period of operation. However, should unexpected relics which are identified as having State significance by the excavation director, be exposed, work would be required to cease and the Heritage Branch would be informed, to determine the appropriate management strategy. The duration of this would depend on the integrity and significance of the relic. The excavation director would be contacted in the first instance to verify significance.
- All archaeological deposits, features and relics that are exposed during the works associated with the proposed Project would be recorded in accordance with heritage best practice standards and Heritage Branch guidelines by, or under the supervision of, the excavation director.
- Following completion of all archaeological investigations the excavation director would prepare a report detailing the results of the fieldwork and post excavation analysis. The report would be prepared in accordance with current heritage best practice guidelines as identified by the Heritage Council of NSW, and would address the relevant research questions.

Recommendation

Construction activities associated with the project would be managed in accordance with heritage best practice, as outlined in the Historical Archaeology Code of Practice, and the Archaeological Management Strategy outlined in this report. In this way the archaeological resources associated with the Minmi to Hexham Railway and Great Northern Railway would be realised.

The scope of works for the proposed Project, as outlined in this report indicates that no further heritage assessment of investigations would be required.

**Legend**

-  Area of archaeological potential: Minmi to Hexham Railway junction with the Great Northern Railway
-  Study Area (Project Signalling Area)
-  Proposed Compound Areas
-  Access Road Options
-  Relief Roads
-  Swale Drain

0 0.05 0.1 0.2 0.3 0.4 Kilometres

Spatial Information Exchange © Department of Lands 2011
Horizontal datum: GDA94/MGA Zone 56



Figure 6.1 Area of archaeological potential at the junction of the Minmi to Hexham Railway and Great Northern Railway.

Appendix A: Thematic History

Historic Context

The European settlement of Newcastle and Hunter Valley began after Lieutenant Shortland identified coal near the harbour at the mouth of the Hunter River in 1797. Some of the more difficult convicts were subsequently sent to Newcastle to mine the coal. Suitable rural land was also identified and exploited beyond Maitland, and free settlement was opened up by Governor Macquarie from 1820. The closure of the penal colony at Newcastle resulted in a decline at that settlement, until coal mining was developed by private companies, using the Port of Newcastle for exporting the coal to the Sydney market and beyond. The establishment of the iron and steel works in 1913 consolidated Newcastle as the major regional industrial centre.

Early European Settlement Patterns

From the early years of the NSW colony, land grants formed a means of encouraging European settlers to become self-sufficient and to produce food for the colony, and an inducement for ex-convicts to remain in the country. To this end, the Colonial secretary gave Governor Phillip explicit instructions regarding the granting of land. Free-settlers and ex-convicts 'of good conduct and disposition to industry' were entitled to a grant of 30 acres (12 ha) of land, plus additional land for a wife and children. From 1789, non-commissioned Marine Officers were entitled to receive 100 acres (40 ha) of land, and Privates were entitled to receive 50 acres (20 ha). They also received seed, tools, and one year's food rations from the Government Stores. By 1792, Commissioned Officers were also eligible to receive land grants, which were becoming a source of increasing wealth and status within the colony (NSW Department of Commerce, State Records 2007:1).

Early Subdivision

The Sparke Family

In 1824, Edward Sparke and his wife Mary (nee Hosking) came to Australia with their family on the *Aguilar*, being granted 2000ac in the Tarro area in 1825, which they named *Woodlands*. The land was cleared and prepared for cultivation by two of their sons, a cousin and six convicts, while Edward and his son William founded a butchery business on King Street, Sydney. Another son, Andrew, built a four roomed slab building, the *Wheat Sheaf Inn*, being granted a licence in 1828. Although Andrew drowned in 1830, William had been granted land south of *Woodlands* in 1829, through which the Newcastle to Maitland Road passed. William and his wife Mary Ann (nee Holt, granddaughter of United Irish general Joseph Holt) called the estate *Webland Park* after the Sparke's old family estate in Devon. Mary Ann also received a Marriage Portion to the north of *Woodlands*, which was called *Woodberry* (later known as Woodbury). Edward and Mary came from Sydney to live at *Woodlands* after the death of Andrew, and built a house, *Barrahinebin*, on the new Maitland road. William built *Webland Park House*, and was the owner and licensee of the *Wheat Sheaf Inn*, making improvements and building a large wharf nearby (now called Port Hunter), which became a major depot for loading wool by the end of the decade. However, the Sparke family's fortunes declined in the next decade and they had to sell many of their holdings. In 1843, the part of the estate with house, outbuildings and stable was offered for sale, and Thomas Prentice purchased the place and converted *Webland Park House* into the *Hexham Hotel*. Shortly afterwards, he sold the hotel to John Smith (*Free Settler or Felon?* website; NHDHS 1997:71; Suters Architects et al. 1997a:2/19).

John Hannell

John Hannell purchased the *Wheat Sheaf Inn* in 1841, later known as the Maitland to Newcastle coach changing post, with Hannell offering the first punt services in the area for horses, carriages and drays (charging 6d. for a man and his horse). The original building burned down in 1856, following which Hannell rebuilt it as a two-storey inn called *The Halfway House*. John Hannell, who died in 1891, was Mayor of Newcastle for a time. He is buried with his wife Mary in the Hannell Family

Vault, near the site of the original Hexham Wharf, to the east of the study area. The hotel later became the family residence, *Riverview* or *Hexham House*, but was demolished in the 1960s to allow the road to be realigned (*Free Settler or Felon?* website; Heritage Branch Inventory File 929; NHDHS 1997:71; Suters Architects et al. 1997a:2/19).

Other Hexham Land Grants

William Dougal Christie is identified as the owner of the majority of land across the study area in 1853. By 1856, William Sparke has acquired 7920ac to the north of the town of Hexham, with James Nimmo to the south, on the western side of the railway (see below Figure A.4). To the north of Sparke's grant, an undated Parish map of Alnwick shows Edward Sparke's 2000ac of land, in the vicinity of modern-day Tarro. The land to the north west of the town of Hexham was *Reserved from occupation under Miner's Right or Business License Subject to existing rights (if any)* on 22 August 1893. By 1917, the Parish map of Hexham (Northumberland County) shows that John Sparke had two 100ac and one 50ac lot in the vicinity of the railway station (Figure A.1).



Figure A.1 1917 Hexham Parish map, showing land grants to James Nimmo, William Sparke and John Sparke. Also note the reference to The Christie Estate (Source: © NSW Land Information Centre, Ref: 10888801).

Early Economies

During the nineteenth century, the land around Hexham Swamp was mainly used for agriculture, dairy farming, cattle grazing and horse raising (NPWS 1998:7). In 1927, the Raymond Terrace Cooperative Dairy Co. Constructed a milk factory at Hexham to support the dairy farms in the area (The Dairy Co-op later became the Hunter Valley Dairy Cooperative, which amalgamated with the Dairy Farmers Cooperative and Shoalhaven Cooperative Dairy Co Ltd to form Australian Cooperative Foods Ltd [ACF] in 1989; NHDHS 1997:70).

Townships

The village of Hexham originally developed in the vicinity of Ironbark Creek, with a Church of England established around 1849 in this area. However, with the increasing use of the area adjacent

to the Hunter River at the end of the Minmi to Hexham Railway for shipping coal, the village moved further to the north. In 1891, James & Alexander Brown moved their engineering works to Hexham from Minmi undertaking repairs to shipping, railway and mining equipment, which was an impetus to the growth of the town (NHDHS 1997:69; Suters Architects et al. 1997a:2/18).

The Tarro/Beresfield area to the north of the study area was rural until the 1920s, when it was subdivided for residential use as *Beresford*. When the train station was developed, it was named *Beresfield* to avoid confusion with another station called Beresford. The town did not expand until after World War II, when Newcastle workers began buying land in the area because it was cheap (Suters Architects et al. 1997a:2/19).

Transport – Development of Roads

A good road system was not needed in the Hunter Valley until it was opened up to free settlement in 1821. The swamps at Hexham made transportation by drays and wagons from Newcastle heading inland to the Hunter Valley difficult, and hence the river was the primary transportation route. A track (now Maitland Road) was formed across the swamps to the original township of Hexham and on to Tarro and East Maitland in 1826, which controlled the road-bound traffic in the north-west of the wider Newcastle area; however, there were still difficulties resulting from the wet landscape. It was not until 1933 that the road from Hexham to Maitland became the New England Highway (McKillop and Sheedy 2008:10; Suters Architects et al. 1997a:2/22; Thorp 1994:19-20).

The Hunter Valley road system remained fairly primitive until after World War I, when private use of motor vehicles began to increase. Punts and ferries were often used to cross rivers, which caused traffic delays (for example, it took almost an hour to cross by ferry at Hexham), but many of the major rivers were bridged when funds were available. At Hexham, an increase of weekday ferry use by 97% from 1933-1939, was the impetus for a bridge planned in 1940 by Bridge Engineer, S. Dennis. However, construction of a 1,256 feet long steel truss and lift-span bridge did not begin until after WWII, being completed by the Department of Main Roads in 1952. A caretaker lived in a cottage near the base of the bridge, and opened the bridge to allow ships to pass. A second bridge was built in 1987, in response to increased traffic resulting from industrial developments, and the old bridge was then used for southbound traffic only (Heritage Branch Inventory for Hexham Bridge http://www.heritage.nsw.gov.au/07_subnav_04_2.cfm?itemid=4301049).

Transport – Development of the Railways

During the 1850s, the first steam railway lines in NSW were established in Sydney and Newcastle. Sydney's railways, beginning with the line from Redfern to Parramatta, provided the catalyst for the development of Sydney's western suburbs and new transport routes to the Blue Mountains and Central Tablelands, while Newcastle became the regional centre for rail services to the Hunter Valley and Northern Tablelands. Three decades later, these two systems would be connected, facilitating passenger and freight services between the two cities, and opening up new areas for settlement and other land uses, including agriculture, dairying and recreation. The development of the Main Northern Railway during the 1880s formed the basis of urban and industrial developments along its alignment, and acted as the definitive link in the national railway network, connecting the railways of South Australia, Victoria, New South Wales and Queensland. Within the study area is a section of the Great Northern Railway, and the Minmi to Hexham Railway which was built in 1853 by John Eales to service the Minmi Colliery (see below).

Construction of the Great Northern Railway

The Hunter River Railway, which later became known as the Great Northern Railway, was originally to be constructed by the Hunter River Railway Company. The Company was formed, and a Provisional Committee appointed, at a public meeting held at the Royal Hotel in Newcastle on 21

April 1853. On 10 October 1853, the Company was authorised to build a railway *in or near Newcastle terminating in or near East Maitland or West Maitland and beyond*, and a month later John Higham Esq., Surveyor and Civil Engineer, was contracted by the Company to survey the Hunter River Railway. Although a tender was accepted to construct a railway line between Merewether Street, Newcastle and Hexham, there were difficulties in the Company raising the capital required and labour was in short supply because of the gold rush, and so *An Act to make provision for the construction by the Government of Railways in the Colony of New South Wales* came into force on 2 December 1854. At the time, it was estimated that it would take six months and £88,078 pounds to complete the railway between Newcastle and Hexham, and another £95,191 pounds to build the line between Hexham and Maitland. Government Debentures were paid to the Hunter River Railway Company, and a deed transferring all property was executed and provided to the Commissioners of Sydney, on 30 July 1855 (Andrews 2007:18; McKillop and Sheedy 2008:14-15; State Records Archives Investigator; Suter Architects 1997b:2/4).

William Wright of Newcastle was awarded the contract to construct the Newcastle to Hexham section of the railway on 31 October 1854, at a cost of £82,620 pounds. Labour for constructing the railway was obtained from Britain, with the main construction camp established near Hanbury (now Waratah), and probably comprising tent accommodation. On 18 June 1855, Wright was also awarded the contract for construction of the remainder of the line to Maitland, at a cost of 76,340 pounds, to be completed by 1 October 1856. Equipment required for the operation of the railway was ordered from England, specifically three locomotives, 27 carriages and brake vans, 50 goods wagons and various track components. One of the locomotives, a 0-4-2 made by William Fairbairn & Sons, arrived in late 1855 and was unloaded at Hexham, where the water was deep enough for the ship to be unloaded onto the river bank. It was assembled by George Wrightson, had a trial steaming at Hexham, and was then hauled to Sandgate by a bullock team on a temporary line. It was initially used as a construction train to haul spoil from the Waratah cutting (McKillop and Sheedy 2008:14-16).

A *Maitland Mercury* reporter travelled over a completed section of the line on a construction train in December 1856. McKillop and Sheedy describe the report of the Hexham area of the line as follows:

..Ironbark Creek was crossed by a timber bridge about 130 feet long. After passing through Hexham Village, the line crossed a bridge at Eight Mile Creek and two culverts before it met John Eales' private railway linking Minmi with his wharves on the Hunter River bank. The rails then curved into the only intermediate station on the line, Hexham, after which there was a straight section for five miles. After the Raymond Terrace Road level crossing (near the present site of Beresfield), a climb of 1 in 66 took the line into a cutting 11 feet deep and down a similar grade. A feature of the railway was the use of brick in the buildings, including the houses constructed for the signal-men and gatekeepers along the route (2008:17).

The railway between Newcastle and East Maitland was opened by Governor Sir William Denison on 30 March 1857. By 1878 the line had been duplicated to Hexham, with the remainder of the line duplicated by 1886. Within 25 years of its original construction, the Great Northern Railway had reached Tamworth, such that Newcastle became the port of an increasingly large region (Andrews 2007:18; McKillop and Sheedy 2008:14-15, 41; State Records Archives Investigator; Suter Architects 1997b:2/4).



Figure A.2 Railway fettlers repairing the railway line near the Hexham signal box on 11 August 1952 (Source: Newcastle Region Library, in McKillop and Sheedy 2008:136).

At Hexham, the Newcastle and East Maitland section of the Great Northern Railway met the Minmi to Hexham Railway, originally constructed in 1853 by John Eales, to transport coal from his Minmi colliery to Hexham, from whence it was shipped to the markets beyond the Hunter.

Industrial Development and Coal Mining

Coal has played a significant part in the industrial development of Australia. Its initial discovery in 1791, at the mouth of the Hunter River at Nobby's Head by convict escapees, was followed in 1801 by the opening of the first official mine by the government. Discoveries in Sydney and along the Illawarra Escarpment followed within the next decade. Although early industries the Newcastle area included timber-getting, ship-building, salt-making, limeburning, stone quarrying, clay mining/brickworks/potteries and metal smelting, the viability of Newcastle was particularly dependent upon the coal industry, because the Hunter River estuary with its swamps and sand dunes was not of great use in agriculture (although there were farms in the Hexham/Tarro/Beresfield area; Suturs Architects et al. 1997a:2/26; 1997b:12-16, 19).

In 1831, the Australian Agricultural Company (AACo), which had been incorporated in London in 1824 to exploit the agricultural and pastoral wealth of New South Wales, was granted a virtual coal monopoly within the Newcastle area for 30 years (Bairstow 2003:65). The coal was, however, reserved for the Crown to protect the government's investment in Newcastle coal mining (Branagan 1972:35). The scarcity of wood meant that the burgeoning Sydney population was dependent on coal as fuel, and Newcastle coal, being cheaper than English coal imports, underwent a rapid growth.

By the mid-nineteenth century the Hunter Valley had become a major source of coal, with mines opening across the landscape as new coal reserves were located. Coal played an important role in the industrial development of the colony, being the primary fuel source for the iron and steel industry and for the power houses generating electricity for tramways and electrification of industries and residences. In 1847, James and Alexander Brown played an important part in breaking the coal monopoly of the AACo and were important in developing the local coal industry. The Browns were involved in a number of the coal mines, and railway connections, within the vicinity of the

Hexham/Minmi area, including Stockrington, Richmond Main, Abermain, Seaham, Burwood and New Lambton.

Establishment of Mining at Minmi and Railway to Hexham

From the 1830s, a local coal outcrop in the Minmi area had been worked on a small scale by a Mr William Coombes, who had supplied Maitland blacksmiths until the later 1840s. Three former AACo employees, Jackson, Tulip and Nixon recognised the quality of the local coal seam and sank a shaft adjacent to Coombes' workings; however, having also sunk all their money into this venture, they had to sell their claim. The underground mine at a shallow seam on the valley floor of Minmi Creek was known as Minmi Colliery and was offered to John Eales and John Christian. Eales and Christian had made a fortune raising cattle and operating mines at Four Mile Creek near Maitland during the mid- 1840s (Andrews 2007:16).

On 1 June 1853, John Eales purchased a parcel of Crown land that included the Minmi mine leased by Jackson, Tulip and Nixon. Transportation of coal entailed a lengthy haul around the Hexham Swamp to a coal-loading wharf at Hexham, where Eales had constructed an embankment and two staithes (wharves where coal was transferred to ship) and shoots for loading coal onto boats, with a loop to store wagons (of which Eales had ten) after unloading (Figure A.3). Eales determined that rail transportation of the coal to the wharf would be easier and more economical. Construction of the railway began in late 1853 at Hexham, with 'right of way' agreements to cross the intervening lands to Minmi. However, one land owner, John Malcolm, refused to allow the railway to cross his land, necessitating implementation of the Minmi and Hexham Railway Bill (1854), which also allowed Eales, or his assigns, to amend this route (Figure A.4; Andrews 2007:17-18, 134-5).

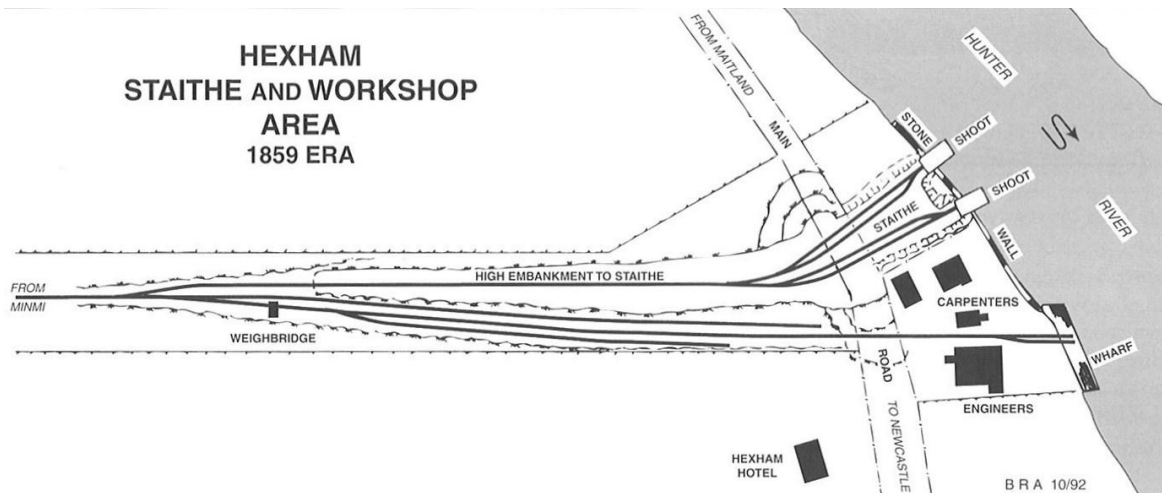


Figure A.3 Layout of coal-loading facilities at Hexham in 1859 (Source: Andrews 2007:27).

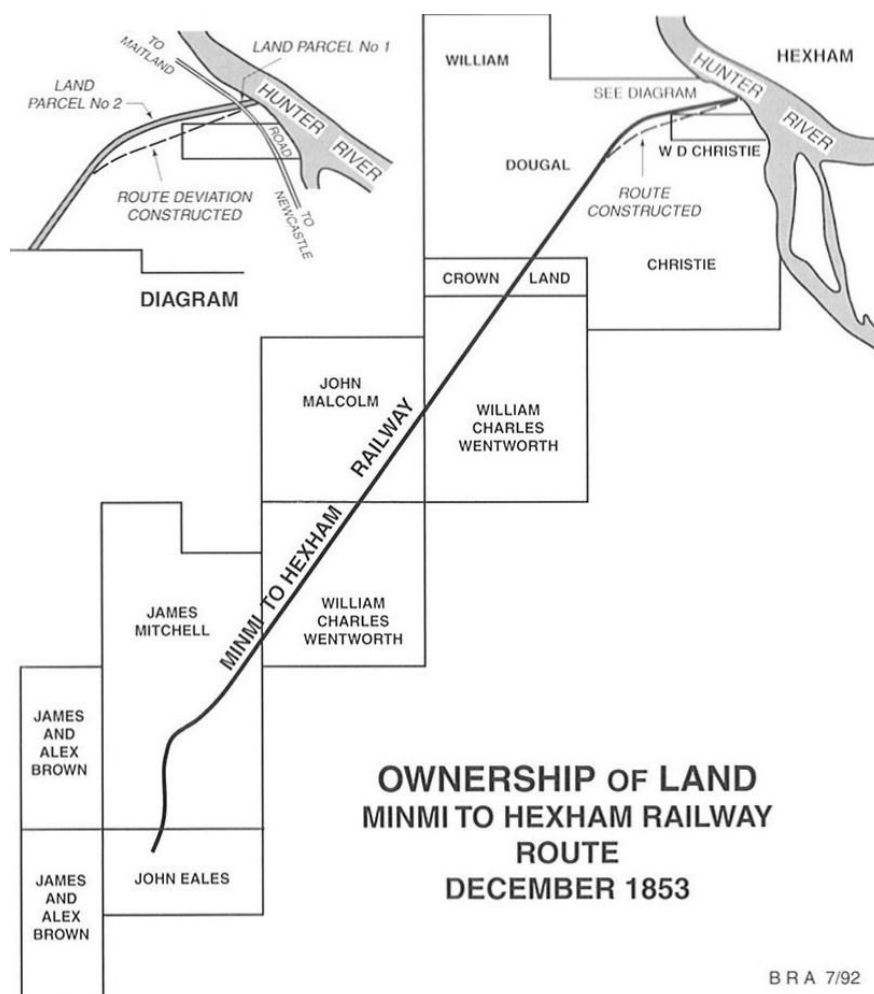


Figure A.4 Land owners along the Minmi to Hexham railway (Source: Andrews 2007:17).

The railway was laid out by John Higham Esq., Surveyor and Civil Engineer. Construction began at Hexham, using iron rails which were double headed in chairs, and steel-faced on inclined sections of line, and sleepers were 2ft 6in apart. The foundations laid over Hexham Swamp comprised bushels and logs covered with suitable material to form the railway, the route of which was altered at Hexham on William Dougal Christie's land (Figure A.4; Andrews 2007:18, 20). Eales began moving coal along the railway in 1855, after the line had been built across John Malcolm's land. From there, it was loaded into fixed hopper (Chaldron) coal wagons pulled by bullocks. The coal wagons were assembled in the Hexham workshops, which comprised a carpenters shop, an engineer's shop, and blacksmith facilities, located adjacent to the coal staithes (Figure A.3). Once the railway line to Hexham was completed, two steam locomotives built by R W Hawthorn were used to transport the coal (Andrews 2007:20-1). The Hunter River Railway (now the Great Northern Railway) crossed the Minmi to Hexham Railway at Hexham (Figure A.5; Andrews 2007:18).

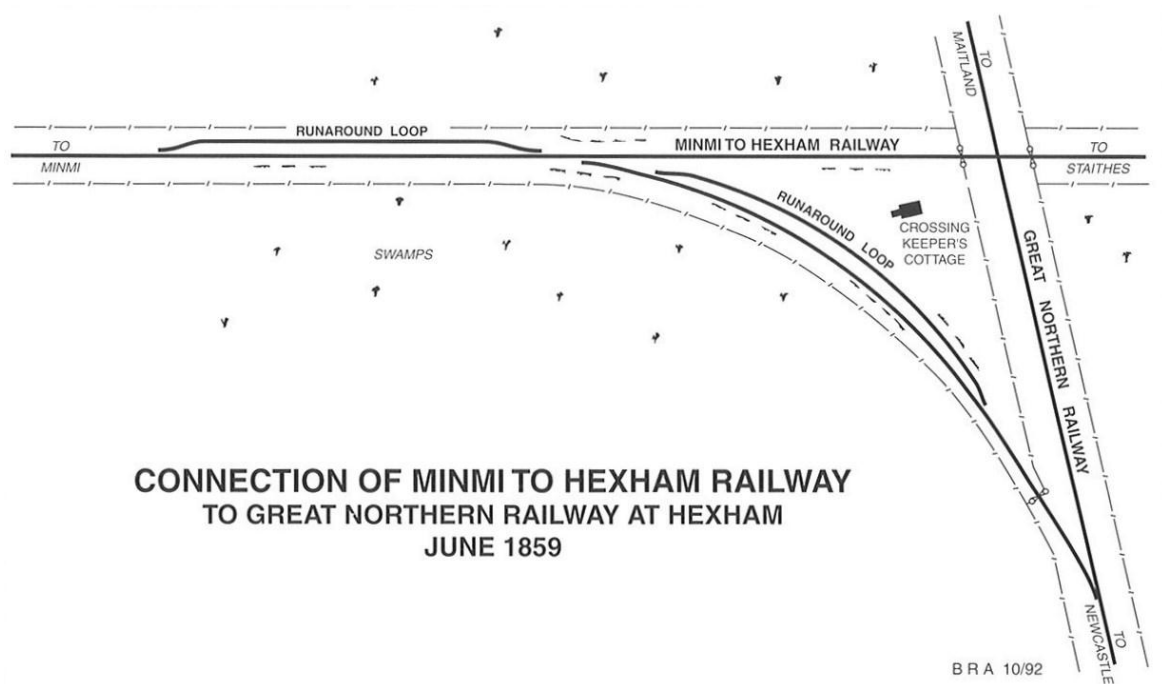


Figure A.5 Location of the Minmi to Hexham railway crossing of, and connection to, the Great Northern Railway. Note the Crossing Keeper's Cottage in the railway triangle (Source: Andrews 2007:25).

Following completion of Eales' railway and shoots at the Hexham wharves, he won a large coal contract. Eales had estimated the cost at 3 shillings per ton of coal; however, his miners demanded a pay increase of 6 pence per ton above this price. Before the strike had advanced too far, Eales gave in to their demands. Trouble re-surfaced once the contract had been fulfilled and Eales notified the miners that they would be paid the 3 shillings per ton that he had previously estimated. In 1854, Eales' mining operations and the establishment of the Minmi-Hexham Railway also saw the establishment of the company town of Minmi. Having constructed 25 houses for the miners, Eales gave the striking miners notice to leave; some did and others refused. The mine remained closed for over a year, Christian sold his share to Eales, and the Brown brothers bought the mine (Andrews 2007:21).

The actual extent of Eales' mine workings at the time of sale is unknown, though it is known that to capitalise on the greater value of coke, used in smelting, foundry work, steel making and fuel, seven 'beehive' coke ovens were constructed adjacent to a short railway siding connected to the Minmi-Hexham line. This has been attributed as the first Coke Works to be erected in Australia (Rogers 1988:12; Pearson & McGowan 2000:149). To the north of the Coke Works and west of the Minmi-Hexham line, a shed was constructed to house the two steam locomotives, also serviced by the short railway siding (Figure A.6; Andrews 2007:21).



Figure A.6 The Minmi coal works in 1857, prior to acquisition by the Browns (Source: Andrews 2007:21).

James and Alexander Brown

In 1842, the local industrialist Dr James Mitchell established a tweed mill at Stockton, employing skilled workers recruited from Britain (Shoebridge n.d. Part 1:5). Among these was James Brown who migrated from Scotland with his family, including his father Alexander and brothers William, John and Alexander. James and his brother Alexander soon recognised the necessity of coal to supply fuel for steam boats. In 1843, James Brown leased 80 acres (32 ha) of land at Four Mile Creek, Maitland, and with Alexander and John started illegally mining outcropping coal for the steamers at Morpeth (Figure A.7). In 1849, the brothers leased part of Mitchell's Burwood Estate, which was bought in 1853 by the Newcastle Coal and Copper Company (Figure A.8; Branagan 1972:66-6).

The AACo had tolerated small-scale mining ventures supplying the local coal market. However, the Browns had agreed to supply coal to the Hunter River Steam Navigation Co. for less than half the cost demanded by the AACo. In 1845, the AACo requested that the government prosecute the Browns for obtaining Crown coal without authority. The Browns were found guilty and ordered not to participate in the coal industry for three years; however, given the appeals of the Browns, the AACo voluntarily gave up its monopoly in 1847, allowing the government to grant mining rights to long-standing land holders. Although there had been earlier attempts at challenging the AACo monopoly, the successful challenge by James and Alexander ensured the increase of private coal operations in the Newcastle region (Hargraves 1993:8).

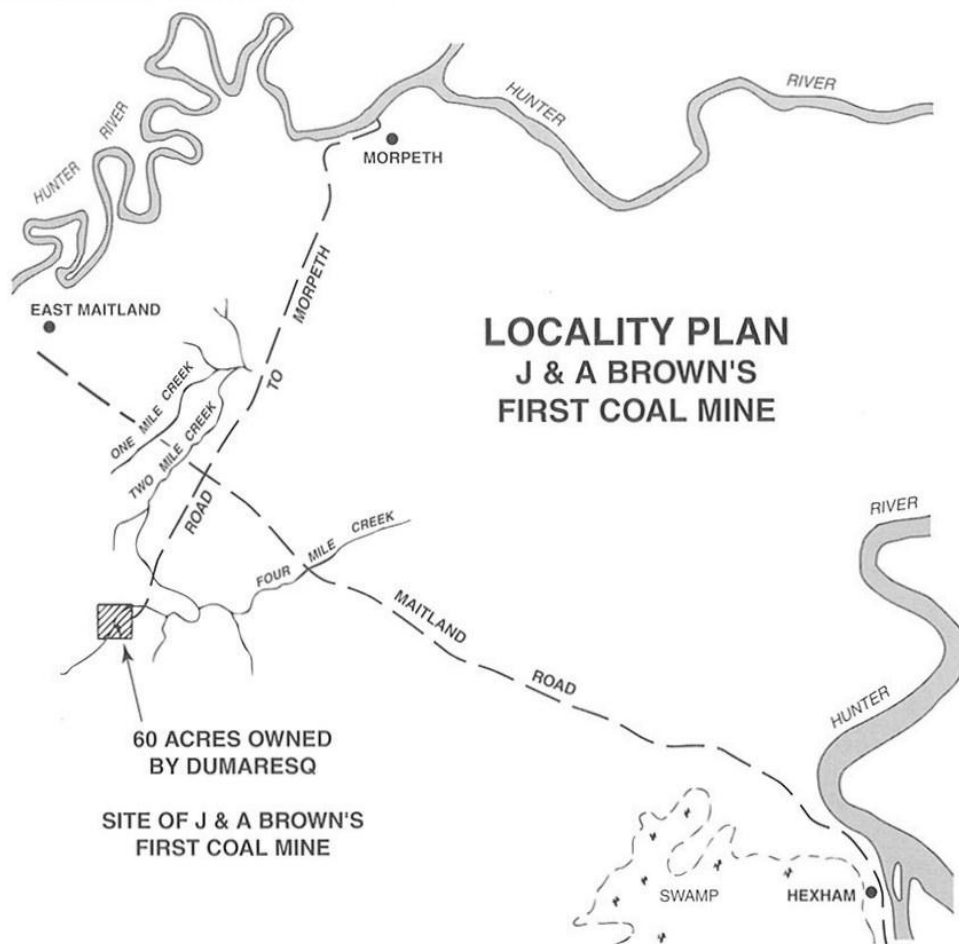


Figure A.7 Location of the Browns' first mine (Source: Andrews 2007:14).



Figure A.8 Dr James Mitchell's Burwood Estate (Source: Andrews 2007:15).

Minmi Mining Operations and Loading at Hexham

The Browns began mining in 1853, adjacent to and northwest of Eales' Minmi mine, on two parcels of Crown land. They considered Eales' coal transportation rate to be too high and left their Minmi lands undeveloped, staying at their mine lease on James Mitchell's Burwood Estate. In 1857, the Browns sold their Burwood interests, at which time their valuable properties included a ships' chandlery, an import-export business and at least one ocean-going ship (Andrews 2007:15).

Having sold the Burwood mine, James Brown determined to exploit their Minmi property, which had at the time comprised a single shaft which had been sunk to test the quality of the coal. By 1859, shafts had been sunk on the side of a ridge above Minmi Creek. The Browns approached Eales with regard to the transportation of their coal; however as his mine was closed, Eales was not interested, so the Browns made an offer to purchase his mine and associated facilities. The agreement was finalised in December 1859 with the Browns acquiring the properties, rolling stock and staithes from John Eales of Duckenfield Park for £41,000.

The Browns had constructed an exchange loop and junction to the Hexham railway by May 1859, which was the starting point of the Richmond Vale Railway (NHDHS 1991:11).

Hexham Coal-Loading and Workshops Area

Increased coal production meant that improvements in the coal handling facilities at the port of Newcastle, which had a limited capacity, were required. The Browns were able to supply half the demands of the colony with the best coke and coal; however, the government favoured the Newcastle Wallsend Coal Company, and prevented competition from other operators. Therefore in 1859, the Browns deemed it more expedient to construct extra loading facilities at Hexham, and constructed an exchange loop and junction to the Hexham railway by June of that year (Figure A.5). They also installed a crane on the jetty to load boxes of coal onto barges, which would then travel to a dropship located in deep water off Bullock Island; the dropship was able to load a ship in short time (Figure A.9). The workshop facilities were expanded after this time, to enable the repair of ships, since by 1862 the Browns were operating the barge Minmi, with a capacity of 500 tonnes, and another two smaller barges. The Browns also owned collier ships to transport coal, mainly to Sydney; these included the Hexham, Duckenfield (wrecked at Long Reef near Manly in 1889 and replaced with Duckenfield II), Minmi (wrecked in 1937 at Cape Banks near Botany Bay), Pelaw Main and Stockrington. All their craft were apparently named after their various collieries (Andrews 2007:28-30; NHDHS 1991:72-3).

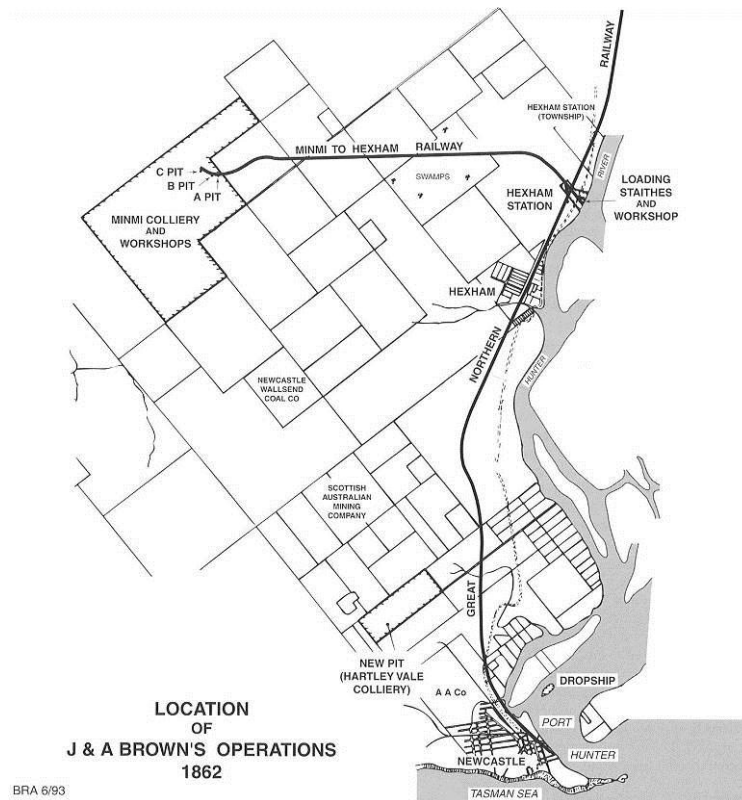


Figure A.9 Map showing relative locations of Minmi, Hexham and Newcastle, with the dropship near Port Hunter (Source: Andrews 2007:29).

An additional staithe and shoot (Duck Shoot) was constructed at Hexham in 1861, to the north of the existing staithe, the embankment made using small coal from Minmi, with sidings between the staithes and workshop facilities, and timber gantries built to house ship-loading equipment (Figure A.10). A third staithe and fourth shoot had been built by 1874 (Alice Shoot), at a higher level to accommodate the larger vessels being used (Figure A.11). These shoots were able to ship 1,500 tonnes of coal per day, and all four shoots remained in operation during the early 1880s. By 1895, the original staithe with its two shoots and railway sidings had been removed, and the workshops at Hexham comprised an engineer's shop, carpenter's shop and timber storage shed on the land between the river and the Main Northern Road (Figure A.12). The remaining staithes comprised two railroads to store full wagons on the high, northern, workshop side of the embankment, and one road to store empty wagons on the lower part of the embankment; with an extra storage siding for full wagons constructed on the workshop side of the staithe by 1932 (Figure A.13). An electric crane had been installed on the wharf in 1923, but the rail system proposed to make most efficient use of the crane was not approved by the government, and therefore was not built (Figure A.13; Andrews 2007:135-6).

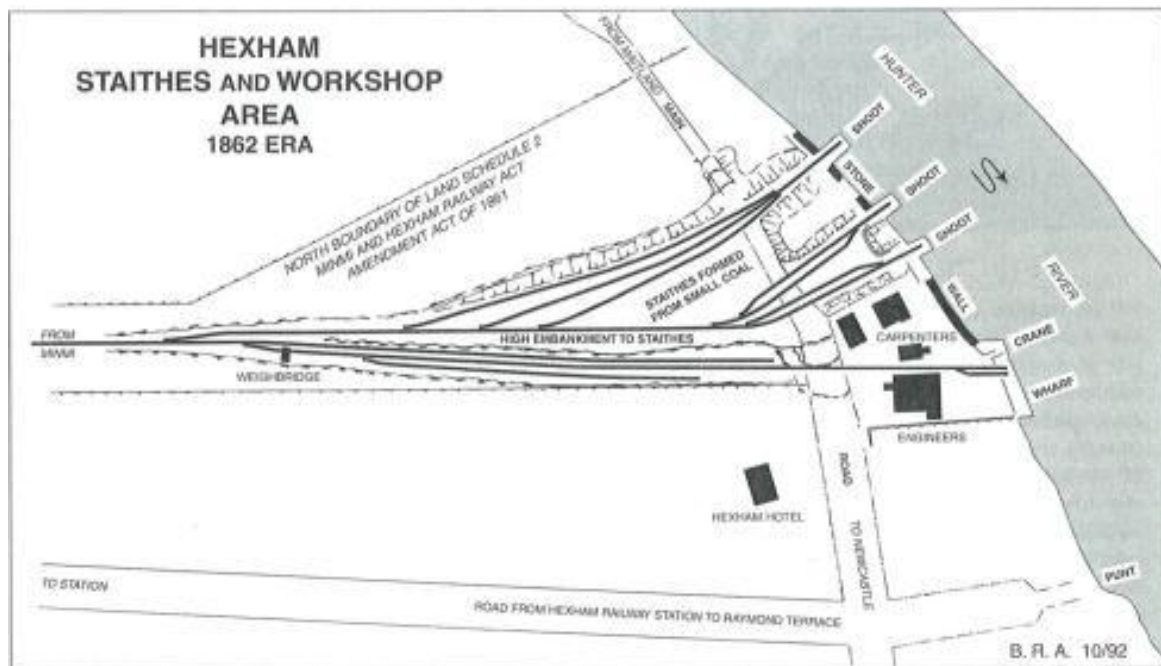


Figure A.10 Location of staithe added in 1861 at Hexham (Source: Andrews 2007:28).

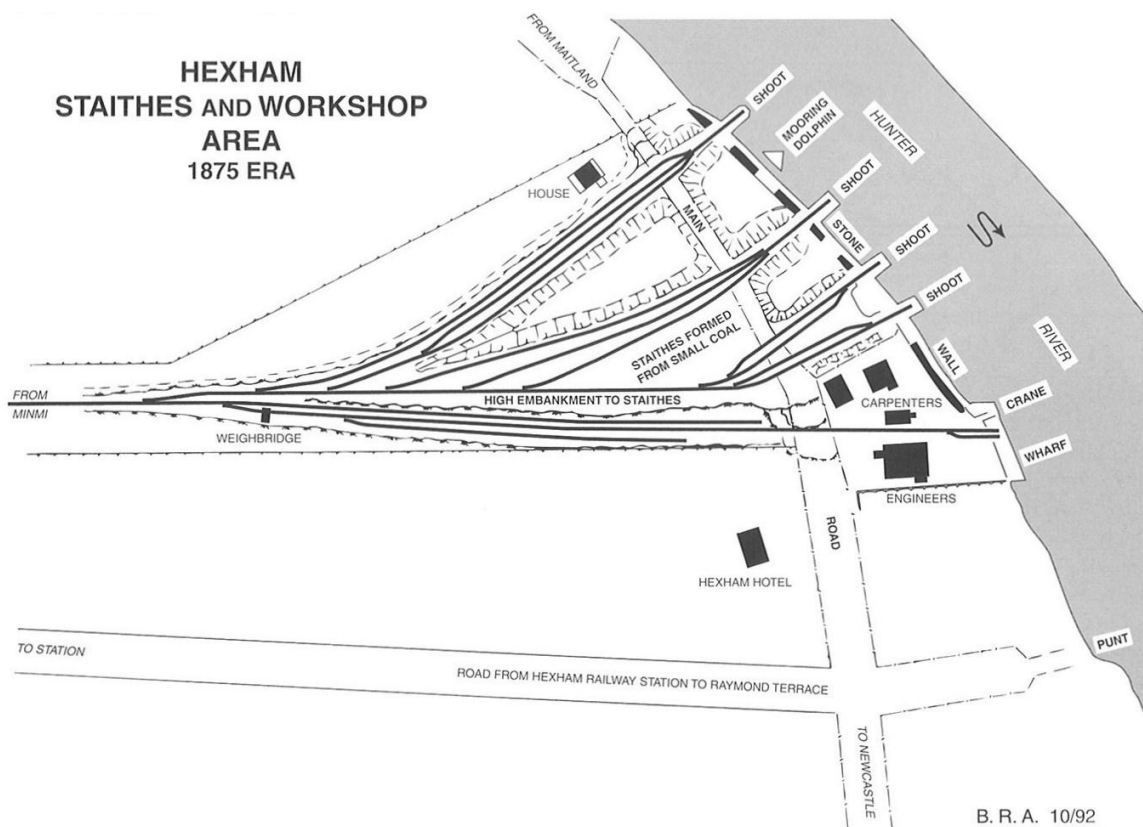


Figure A.11 Hexham coal-loading area in 1875 (Source: Andrews 2007:111).

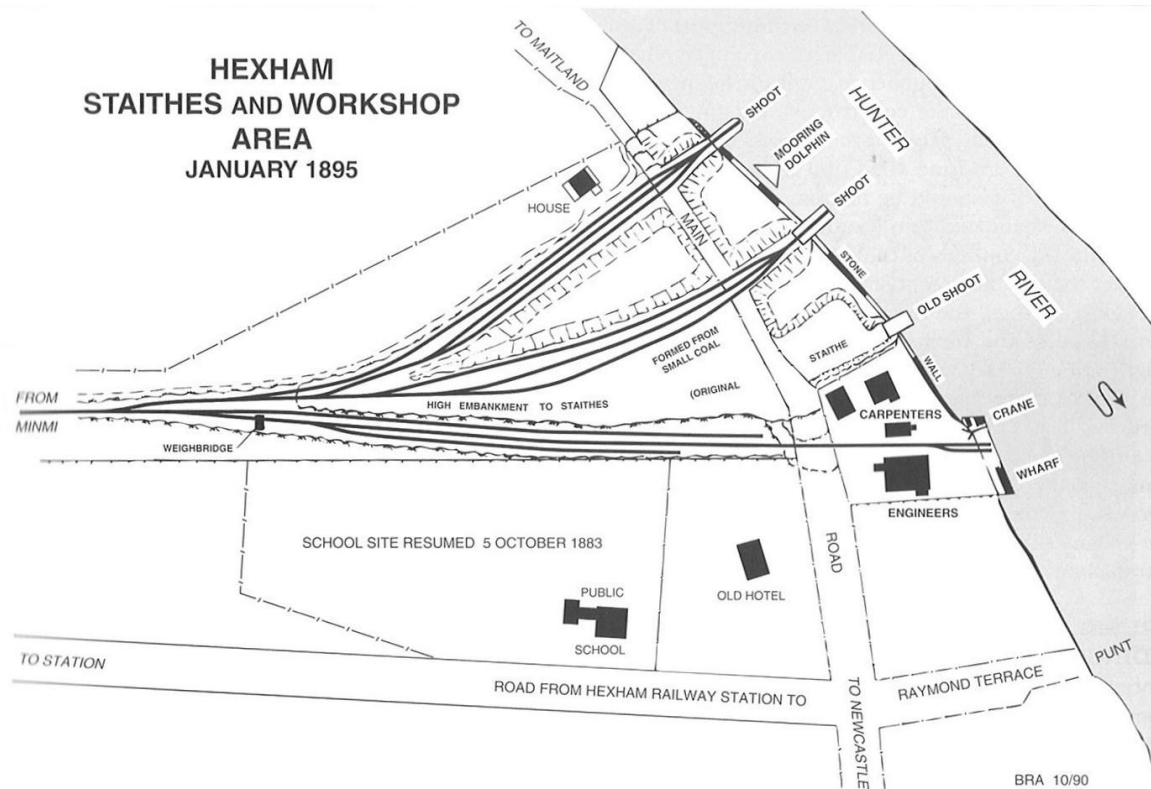


Figure A.12 Hexham coal-loading area in 1895 (Source: Andrews 2007:113).

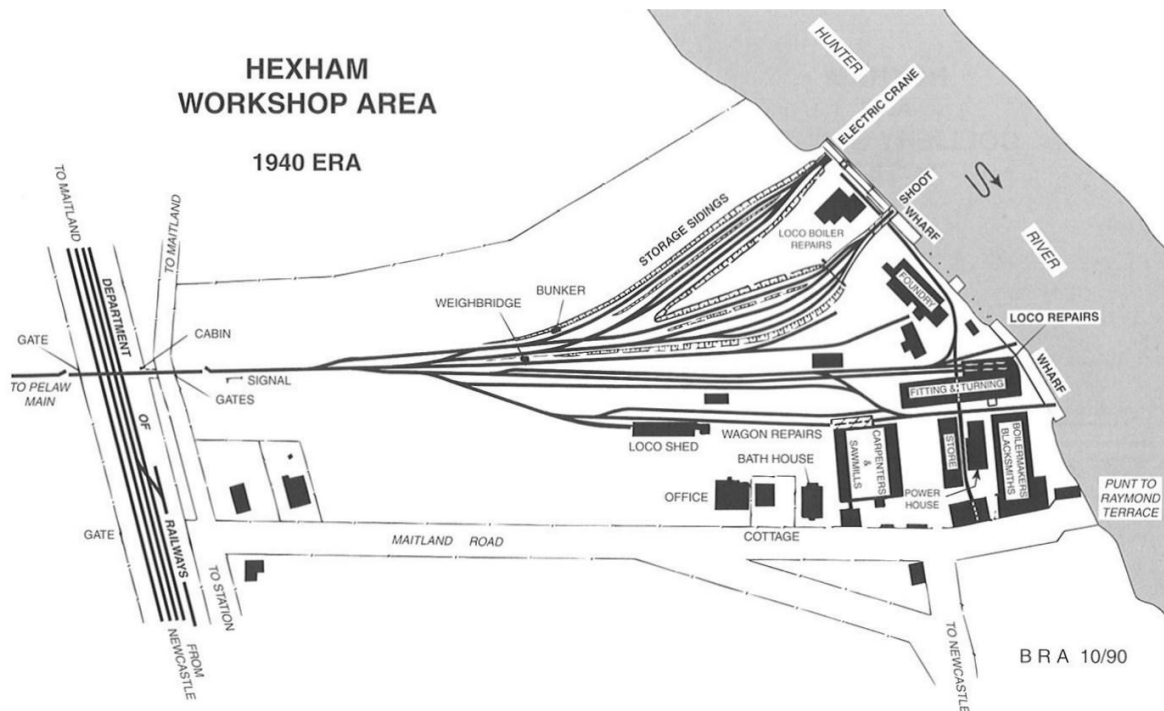


Figure A.13 Hexham Workshops area, showing location of locomotive (“loco”) shed (Source: Andrews 2007:118).

Although expansion of the workshop area along the river was hindered by the Main Northern Road by 1908, a boiler, blacksmith’s shop and foundry had been constructed between the river and the Road, and a sawmill, carpenter’s shop, timber storage yard and wagon repair and store were constructed on the other side of the Road (Figure A.14; the foundry was relocated adjacent to Duck Shoot by 1918). The rail sidings were modified to allow access to the carpenter’s shop, blacksmith and foundry,

making for a total of nine rail tracks crossing the Road within approximately 200 yards. A power house was built next to the boiler shop in 1910, to supply DC power to the workshops; and by 1918 a locomotive repair shop and turntable was constructed next to the engineer's shop, the old foundry was transformed into a store, other small workshops were built, and rails to the carpenter's and boilermaker's shops were altered to take out some of the road crossings. The Main Northern Road was closed through the workshop area in 1921, being redirected along Punt Road to the west before joining the main road adjacent to the railway. By this time, the Hexham Public School site was adjacent to the carpenter's shop, so the Browns built a new school on the other (southern) side of Punt Road and used the old school as an office (Figure A.13 above; Andrews 2007:136, 139).

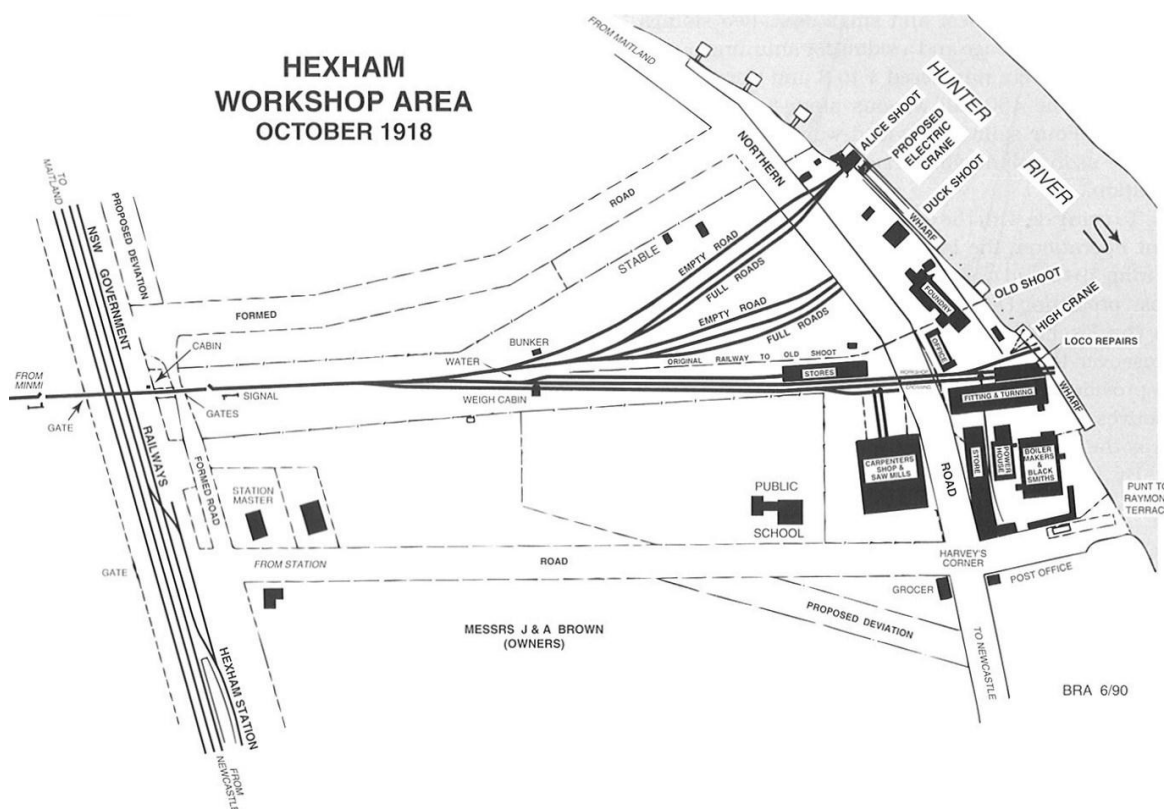


Figure A.14 Hexham coal-loading area in 1918 (Source: Andrews 2007:114).

Connection of Minmi to Hexham and Great Northern Railways

Two exchange sidings (the main line and a run-around-loop) were constructed at the connection between the Minmi to Hexham and Great Northern Railways in 1859, to enable the exchange of traffic between the two railways (Figure A.5), and by 1890 there were seven sidings and one loop (Figure A.15). The quadruplication of the Great Northern Railway began in 1910, providing two extra tracks for the coal traffic from Cessnock. The two new lines were required adjacent to the existing Up platform at Hexham, which became an island platform (Figure A.15). The old Down line became the Up line for coal, and a new line was constructed as a Down line for coal, which eliminated the old Down platform (which had also served as the platform for the Minmi to Hexham Railway connection). The old Up line became the Down line, with the former Up platform now serving as the Hexham platform for main line. The overbridge between the old Up and Down platforms was extended over all four lines, to service the exchange sidings platform for traffic to Minmi. These exchange sidings were lengthened by c.300ft and a new connection was made to the Great Northern Railway coal lines. The Hexham signal box was also relocated from the western side of the railway to the eastern side, adjacent to the connection track (compare Figure A.15 and Figure A.16). Lever 'X' was introduced into the sidings near the signal box, to work the signal near the intersection of the No. 1 Siding with the Minmi to Hexham line (Figure A.16), but by 1930 this lever had been moved to the

Control Cabin in the sidings. Three additional loop sidings were also constructed on the northern side of the Minmi to Hexham Railway, for traffic on its way to the staithes (Figure A.16) (Andrews 2007:111-2). From 1935, Hetton Bellbird Collieries also had coal loading facilities at Hexham, taking coal to the wharf using a conveyor belt over the Great Northern Railway and New England Highway (NHDHS 1997:70).

There were eight sidings by 1947; five for coal storage to accommodate up to 480 full wagons, two for empty wagon storage to accommodate up to 130 empty wagons, and one for shunting. A sizing plant established in this location had four sidings for wagon accommodation. The No. 9 siding was constructed in 1949, for the Minmi Open Cut operations and subsequently as access for the Hexham Coal Preparation Plant; and the signal post was moved to the No. 4 road crossover adjacent to the Crushing Plant (Figure A.17; Figure A.18). The Hexham Coal Preparation Plant was in operation in 1955, with sidings known as J & A Brown's Coal Plant Sidings, Hexham, in order to distinguish them from the old nine sidings which were called Brown's Sidings (formerly J & A Brown & Abermain Seaham Collieries Ltd – Colliery Exchange Sidings) (Figure A.19). The same year, a siding and loading ramp was built at Brown's Siding. The end of the No. 9 Siding was diverted as the Running Road to the Coal Preparation Plant, and the section of the Siding entering the Exchange Sidings was lifted, so that the Exchange Sidings once again numbered eight. Three storage sidings, known as the 9, 10 and 11 Roads, were constructed for storage of trains from the Richmond Vale Railway line with unwashed coal for the Coal Preparation Plant during the early 1960s (Figure A.20; Andrews 2007:112-3, 123).

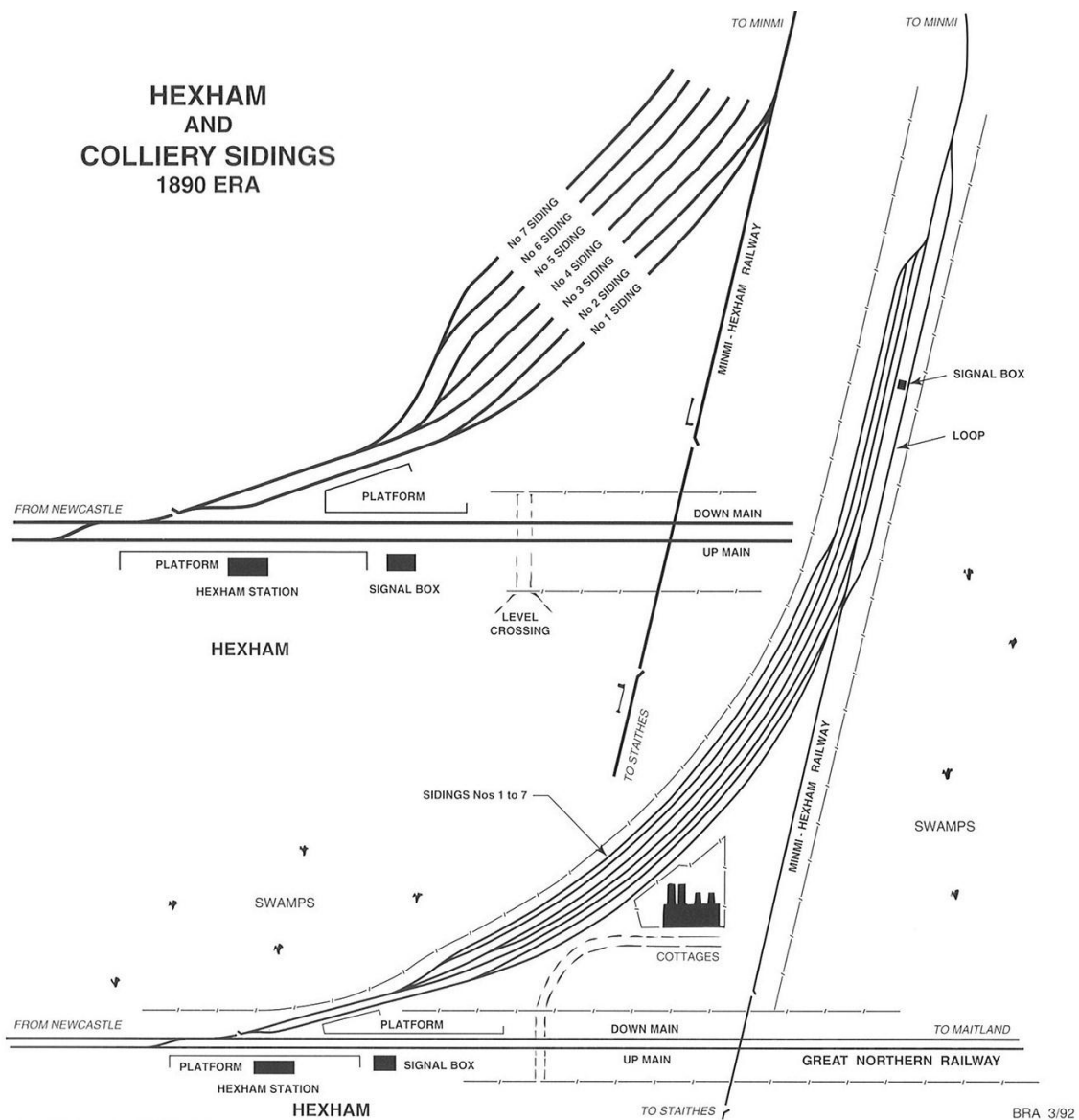


Figure A.15 Sidings and loop at the connection between the Minmi to Hexham and Great Northern Railways in 1890. Note the cottages in the junction between the two railways (Source: Andrews 2007:112).

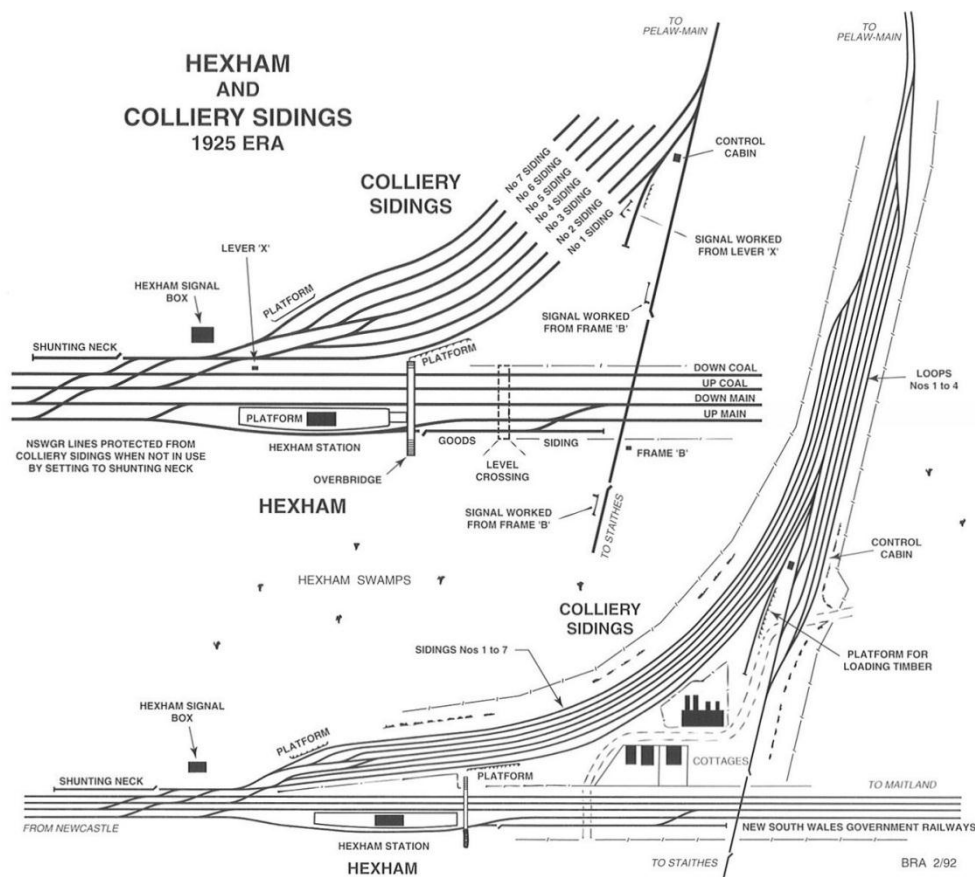


Figure A.16 Railway lines at Hexham in 1925 (Source: Andrews 2007:117).

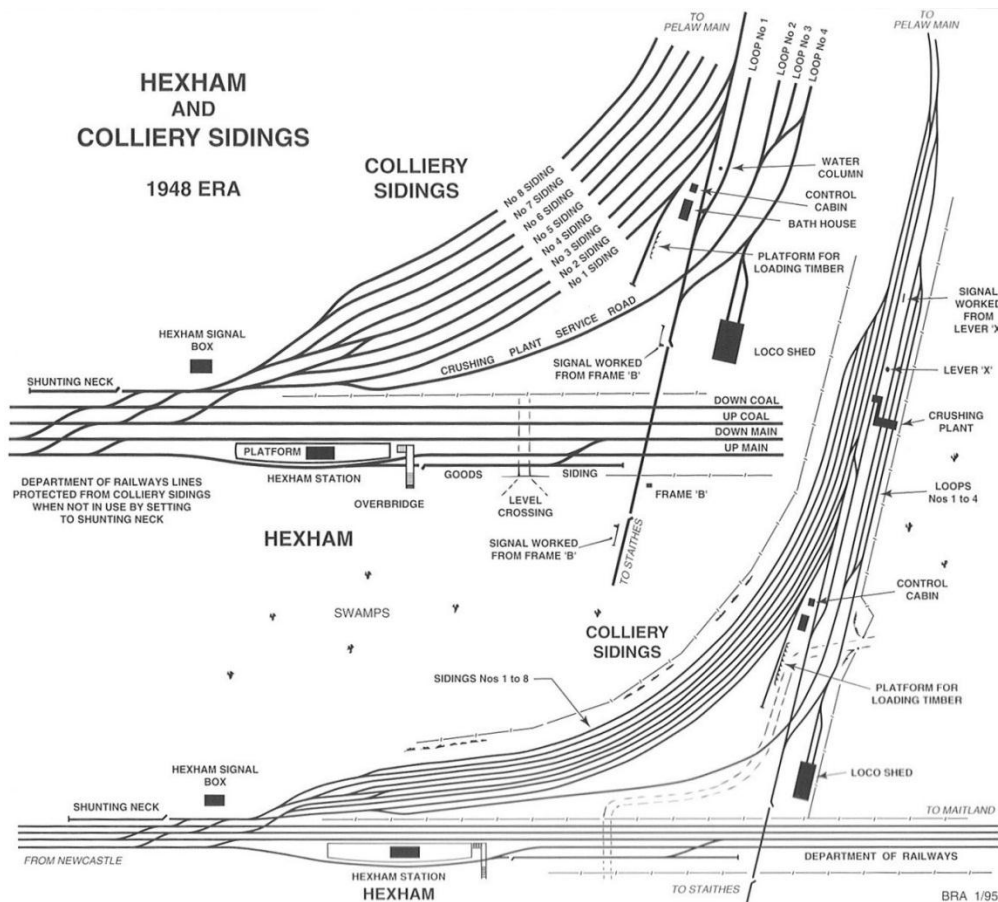


Figure A.17 Railway lines at Hexham in 1948 (Source: Andrews 2007:121).

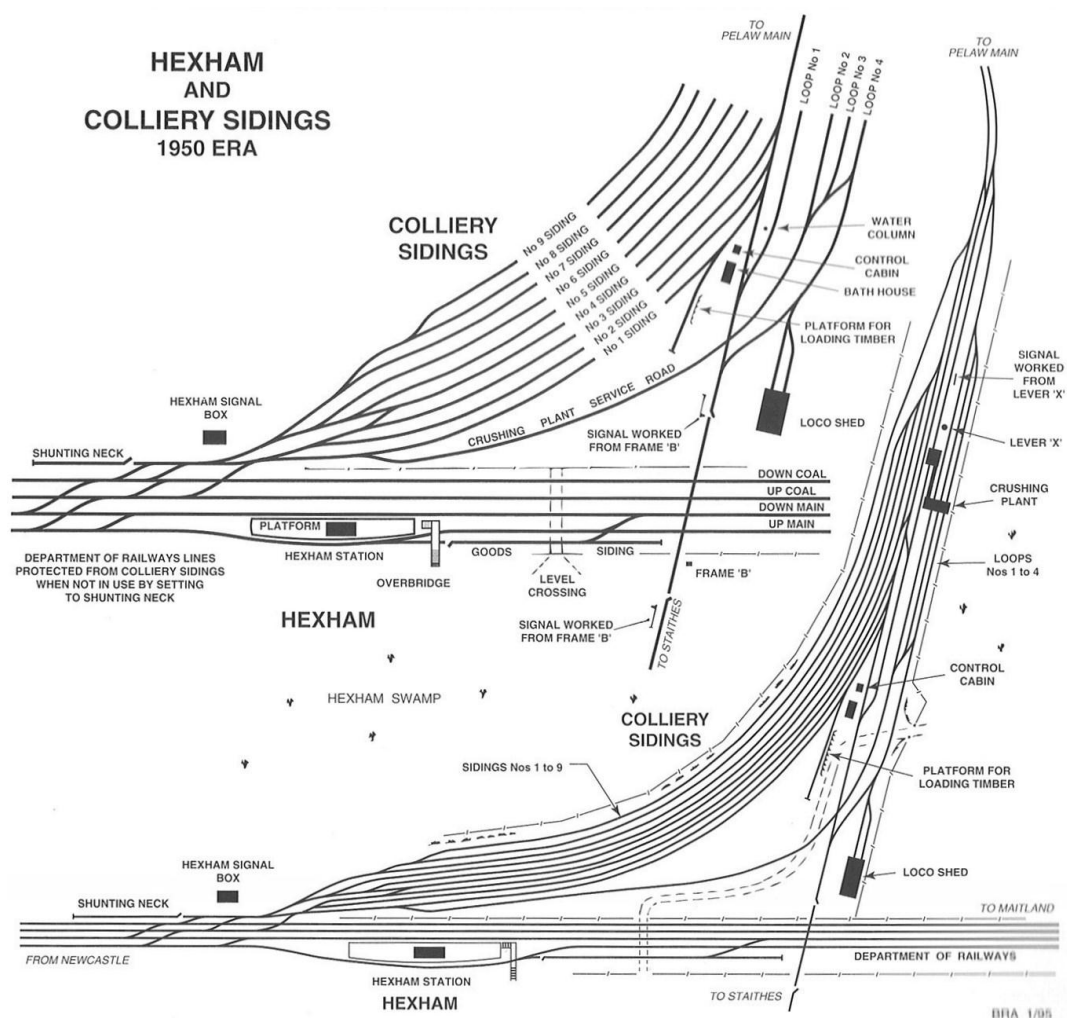


Figure A.18 Railway lines at Hexham in 1950 (Source: Andrews 2007:127).

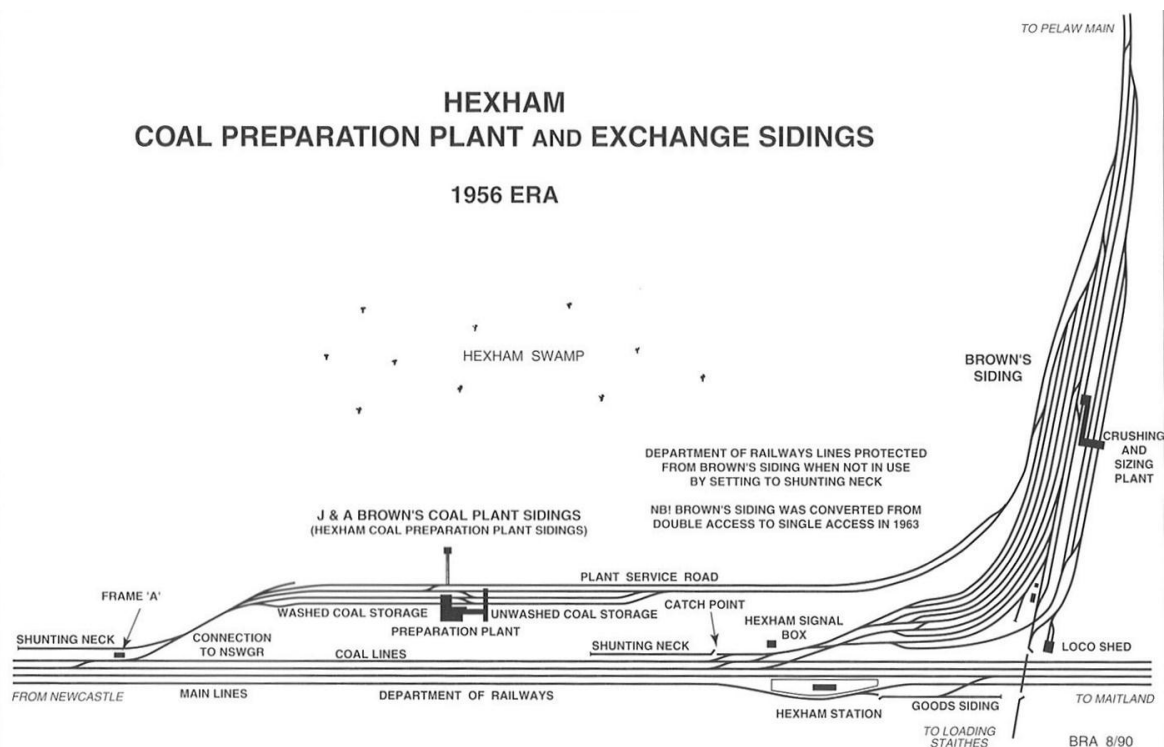


Figure A.19 Railway lines and Coal Preparation Plant at Hexham in 1956 (Source: Andrews 2007:124).

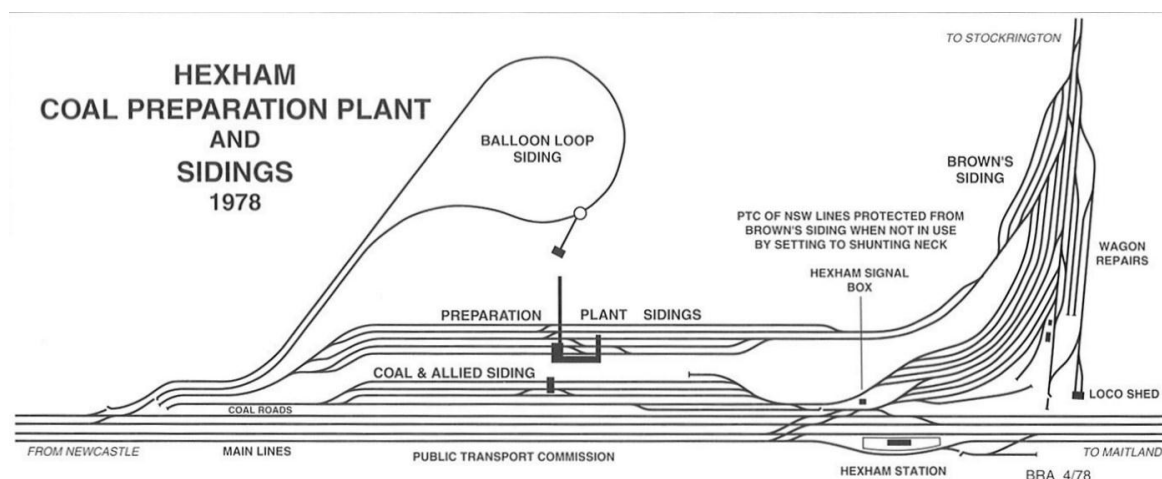


Figure A.20 Coal & Allied siding and Balloon Loop with railway, sidings and Coal Preparation Plant at Hexham in 1978 (Source: Andrews 2007:130).

Later Twentieth-Century Developments, and Closure of Facilities

After Minmi mine closed in 1934, the locomotives were stabled in a shed in the Hexham Workshops (later Hexham Engineering Pty Ltd) area, near the entrance to the sidings leading to the staithes (Figure A.13). However, since the crews of the locomotives were coal mine employees and therefore had better working conditions than those employed in the workshops, a new locomotive shed and associated infrastructure (road, ash pits and rails) were built between 1942 and 1944 adjacent to the Minmi to Hexham Railway, near its crossing of the Great Northern Railway (Figure A.17). The temporary shed in the Workshop area was subsequently used for storing equipment including locomotive fireboxes and parts. A bathhouse was built next to the Control Cabin in 1949, and extended in 1974 after the Hexham Wagon Repair shops closed (Figure A.17; compare wagon repair and bathhouse in Figure A.13) (Andrews 2007:113-4).

A crushing and sizing plant was constructed between the Control Cabin and the western end of the Hexham Sidings in 1935-6, to crush part of the Duckenfield Collieries coal for use at the Richmond Main Power Plant (Figure A.17). The four existing loop sidings were used to store coal ready to be loaded on the staithes, and the three outer loops were joined to enable full wagons to be removed from the sidings (Figure A.17). Once the Hexham Coal Preparation Plant came into operation in 1955, the crushing and sizing plant ceased operations, and was dismantled from the late 1960s (Andrews 2007:114, 117).

The workshops focussed on engineering projects for the J & A Brown & Abermain Seaham Collieries Ltd after the company formed in 1931; built machinery during the war years; and were used for repair of locomotives, repair and construction of wagons, and construction of underground mining and machinery. The Hexham Workshops became Hexham Engineering Pty Ltd in 1951. In the early 1950s, there were nine operating collieries owned by J & A Brown & Abermain Seaham Collieries Ltd in the area, and it was decided that a suitable washing plant site would be located at Hexham. The Hexham Coal Preparation Plant was therefore constructed 1953-1955 (Figure A.19). The associated sidings were laid on stone and shale ballast on the swamplands, but following the 1955 flood they had to be rebuilt. They were connected to the Exchange Sidings (Brown's Sidings) by a service road, and were also connected by Coal Roads to the Great Northern Railway (Figure A.19). The points and signals for accessing the Coal Roads were controlled from Frame 'A' on a small wooden platform near the Coal Preparation Plant Sidings and the Coal Roads (Figure A.19; (Andrews 2007:118, 121, 123, 139, 143).

A stacking out and reclaim system was built at the Coal Preparation Plant from 1957-8, operating from 1962; involving the laying of a new road (4 Road) to access a bin over the rail track in which the reclaimed coal was delivered. In 1967, the Coal Loader at the Port of Newcastle came into operation, and block-loads from 4 Road loading facilities were introduced at the Coal Preparation Plant. Coal was then taken to Brown's Siding to connect with the Main Northern Line (Figure A.21). The connection between the Coal Roads and the Coal Preparation Plant was eventually removed in 1972, when the Coal & Allied and Balloon Loop Sidings were constructed (Figure A.20; Andrews 2007:121, 123, 127, 130).



Figure A.21 View of Hexham Railway Station in February 1971, showing coal trains on the way to Newcastle, and the Coal Preparation Plant in the background (Source: John Beckhaus, in McKillop and Sheedy 2008:167).

The Balloon Loop Siding was constructed as part of a Unit-Train Loading System required by the government. Reject material from the Coal Preparation Plant was used as fill, and the rails were reclaimed from a section of Richmond Vale Railway between Stockrington and Richmond Main collieries, which had been abandoned. The System could load unit trains with 2,000 tons of coal every two hours, and modifications in 1974 enabled an even higher loading rate. The Coal & Allied Siding was constructed to store washed coal from the Company's Cessnock mines, rather than using Brown's Sidings, which were subsequently used to handle unwashed coal. The Coal & Allied Sidings were built on fill consisting of washery reject material. Two arrival roads and three dumping roads were constructed, along with a shunting neck and cripples siding. The entrance to the Brown's and Coal & Allied Sidings were rearranged during the construction, using crossovers near Hexham Station (Andrews 2007:131-4).

A bin system for supplying coal to a Masonite was used on the workshop site from 1949, being removed once a heavy road crossing over the Great Northern Railway was established in 1963 (Figure A.22-Figure A.23). A level crossing of the Great Northern Road was installed on the Up side of the Hexham Signal Box, with power-operated boom gates controlled by the signaller in the Signal Box (Figure A.18). The increasing use of road-hauling of coal to and from the Coal Preparation Plant led to a dual-lane crossing being installed in this location in 1978, using hardwood timber members placed between the rails. However, the crossing was removed in 1990, after the closure of the Coal Preparation Plant in 1988 (Andrews 2007:123, 143).



Figure A.22 Hexham coal-loading area in 1949 (Source: Andrews 2007:115).

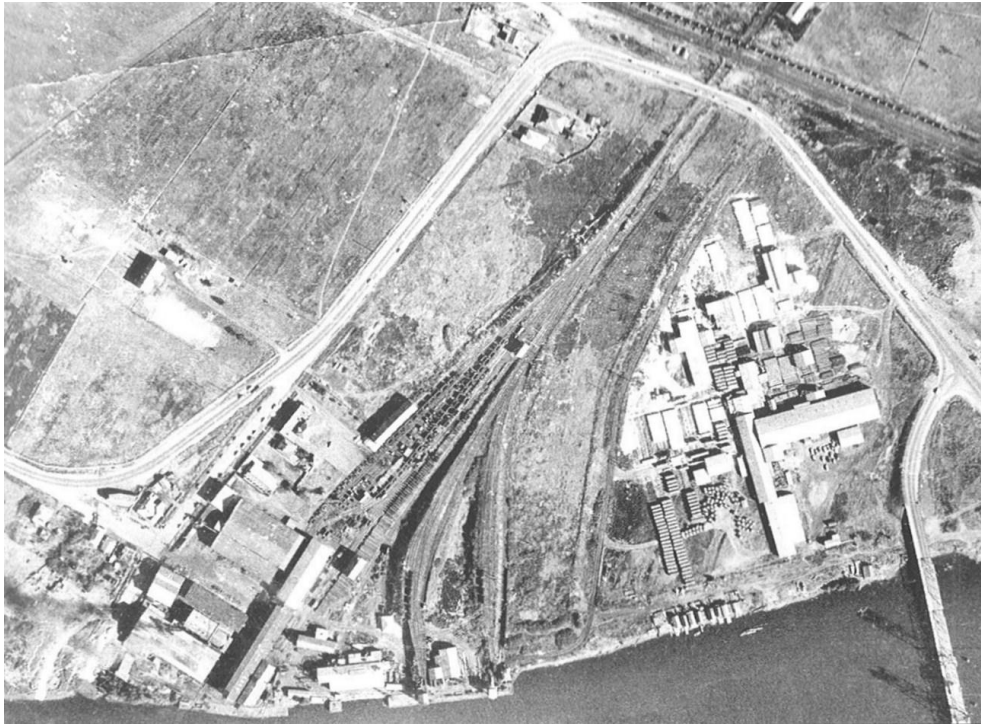


Figure A.23 Hexham coal-loading area in the mid-1950s (Source: Andrews 2007:115).

At the workshops, the Masonite bin system was replaced in 1973 by the Coal & Allied unloading system at the Coal Preparation Plant. With the expansion of the coal industry in the mid-1970s, the workshops were expanded and a new workshop complex was built in the early 1980s. However, underground coal mining dwindled in the mid-1980s, which led to the closure of the workshops in 1989, and auctioning of most of the workshop equipment in 1990 (Andrews 2007:143). Hexham Engineering was sold to Goninan as part of the closure in 1989, now trading as Reliance Engineering (NHDHS 1997:70).

The JABAS Coal Processing Plant

The J&A Brown-Abermain-Seaham (JABAS) coal preparation plant (CPP) was constructed in the early 1950s to provide a higher quality, low-ash, exported coal product.

Leading up to the 1950s, collieries faced various economic constraints and environmental concerns. New processes began to be implemented by collieries aimed at removing impurities, thus increase the yield of exported coal and decreasing pollution when the coal was burned. Prior to the 1950s the preparation of coal for the consumer consisted firstly of passing coal over a screen that separated small chunks of coal from the large, and then along a conveyor belt where workmen could hand-pick out impurities, such as stone and shale. The large coal (the best) was therefore very clean and was used where low-ash coal was required, such as in locomotives and urban areas. The small coal, however, contained a large amount of stone which could not be hand-picked because of its small physical size. The screening operation was primarily performed at the colliery itself (Andrews 2007:117).

By the early 1950s, as the use of small coal increased, it became essential that the stone and shale be removed. To achieve this, collieries began construction of washing plants to wash and remove the impurities from the small coal, while large coal was still being hand-picked on the conveyor. The washing process consisted of passing the coal over a liquid bath of a density heavier than coal but lighter than shale or stone; the lighter coal floating to the top, the heavier stone and shale impurities sinking to the bottom and collected as reject. The middle product, known as 'middlings', floats midway through the bath and consists of stone and shale with coal attached. This product is considered a reasonably high ash coal, but can be burnt effectively in power stations (Andrews 2007:117, 118).

Construction of the CPP and the necessary unloading and loading sidings commenced during 1953 and took two years to complete, with the adjacent swampland filled in with stone and shale waste from the collieries (Andrews 2007:117; Eardley 1972:143). The facility was located c800m south of the Hexham-Minmi railway junction at Hexham, with the connecting sidings at the Hexham-Minmi junction end placed on a wide embankment raised above the level of the Hexham Swamp (Eardley 1972:143). This embankment is still evident today but is outside the study area. Construction of the plant was heavily affected by the 1955 Newcastle Flood, and the rail sidings had to be extensively rebuilt.

The sidings for the CPP comprised three north-south oriented lines and a fourth service line that ran parallel along the western boundary (Figure A.24). Unwashed coal approached from the north, was deposited at the CPP in the centre of the sidings, and then washed coal departed from the south. The northern half of the sidings, consisting of unwashed coal, utilised all three lines for the storage of unwashed coal wagons; the southern washed coal half utilised two lines for washed coal wagons, and one line for empty wagons (Andrews 2007:118). The sidings then linked into the Department of Railways up/down Mineral Line. This orientation continued until the C&A Sidings were constructed in 1973, after which washed coal departed from that facility. The CPP ceased operations in May 1988 (Andrews 2007:123).

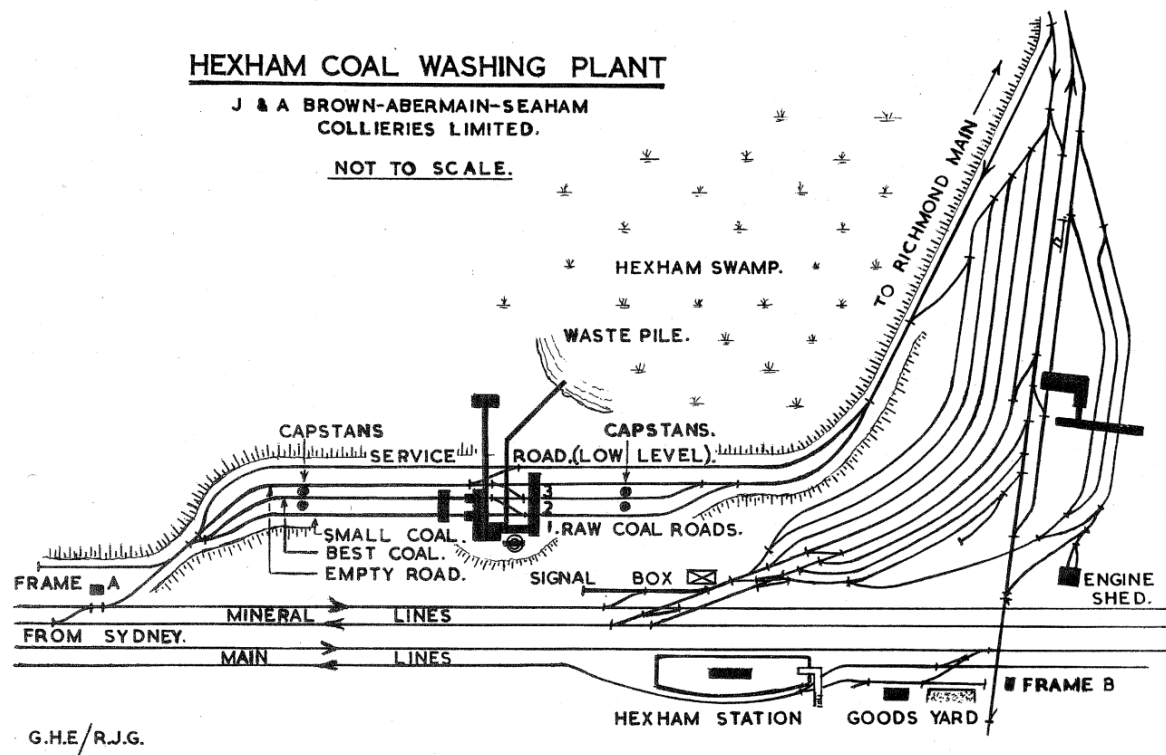


Figure A.24 Plan of J&A Brown Hexham Coal Washing Plant (Source: Eardley 1972:142).



Figure A.25 J&A Brown Hexham Coal Washing Plant 1970, view looking south (Source: Eardley 1972:143).

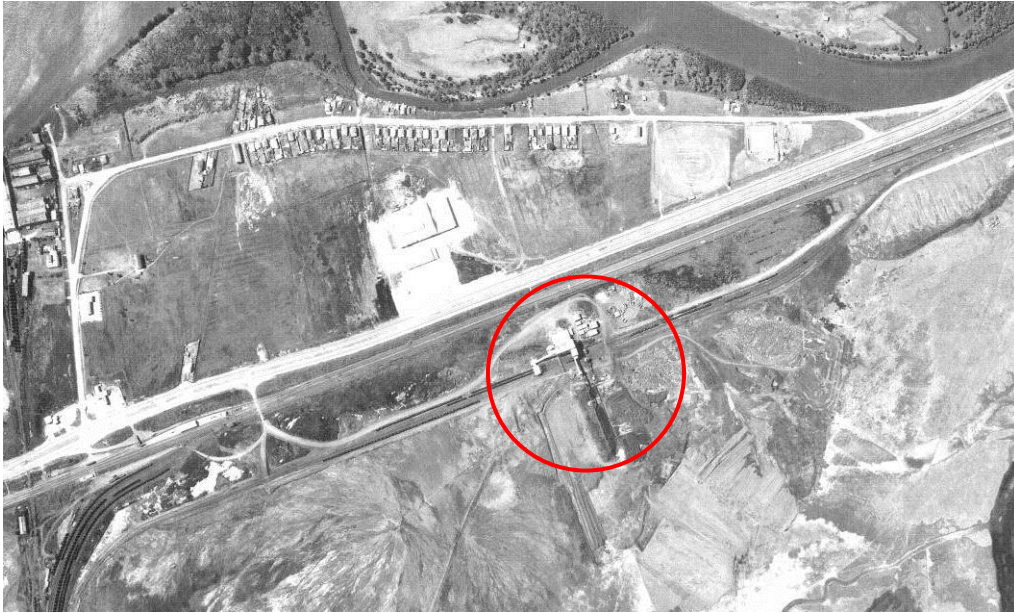


Figure A.26 1965 Aerial photograph showing J&A Brown Hexham Coal Washing Plant (north is to the left).



Figure A.27 Detail of the 1965 aerial photograph showing J&A Brown Hexham Coal Washing Plant.

CPP Conveyors

Unwashed coal was transported from the collieries on the down line in non-air-hopped wagons. Once it arrived at the CPP the coal was expelled into one of two 'dump hoppers' (Lockett 2004:365). It was washed inside the facility, and then transported by the 'stacking out' conveyor system to the raw coal stockpile located in and around the Balloon Loop. From there, it could be transported by the 'reclaim' conveyor system to the air-hopped wagons and delivered to the Government wharves at Port Waratah as required (Andrews 2007:127).

The stacking out and reclaim system was constructed in 1962 to enable the stacking out and drying of washed coal at the CPP by conveyor system for later recovery when required for export. The stacking out conveyor was an elevated system fitted with a moving tipper that stacked out the coal in and around the Balloon Loop area (Figure A.28). The reclaim system consisted of a conveyor belt fitted in an underground tunnel below the stockpile, with coal being delivered into a bin constructed above the rail tracks (Andrews 2007:127).



Figure A.28 The stacking out and reclaim coal conveyors. The lower, 'thin' conveyor is the stacking out coal conveyor, while the larger, upper conveyor is the incoming reclaimed coal conveyor. Note the concrete foundations for the conveyor stanchions (Source: Lockett 2004:371).